

CHAPTER II

LITERATURE REVIEW

2.1 Speech production in EFL

Speaking is widely regarded as one of the most demanding language skills to acquire, as it requires learners to process language in real time while simultaneously managing pronunciation, grammar, vocabulary, and delivery. Thornbury (2005) explains that spoken language differs fundamentally from written language in that it is produced spontaneously, is shaped by the immediate communicative context, and relies heavily on prosodic features to convey meaning that words alone cannot express. According to Thornbury (2005), speech production is commonly evaluated through several interrelated components, including fluency, accuracy, pronunciation, and the appropriateness of delivery to context.

A complementary, more cognitively oriented account of speech production comes from Levelt's (1989) influential model, which describes spoken language as the output of four sequential but interacting processing stages: conceptualization, in which the speaker determines the intended message; formulation, in which that message is encoded grammatically and phonologically; articulation, in which the phonetic plan is executed by the vocal apparatus; and self-monitoring, in which the speaker continuously checks their own output against their intended message. Levelt's (1989) model is particularly relevant to this study because it situates prosody, including intonation, within the formulation stage, where a speaker's phonological encoding of a message determines not only which words and sounds are produced but also how they are prosodically shaped. This suggests that a speaker's emotional state may influence speech production at a genuinely cognitive-linguistic level, rather than being merely an external layer added on top of otherwise-neutral speech; if intonation is generated as part of

formulating the utterance itself, then emotional intonation is, in this sense, an integral part of speech production rather than a decorative add-on.

Among these components, pronunciation is often treated narrowly as the correct articulation of individual sounds (segmental features), while the melodic and rhythmic qualities of speech (suprasegmental features) receive comparatively less attention in classroom instruction. Yet it is precisely these suprasegmental qualities—stress, rhythm, and intonation—that allow a speaker to sound natural, expressive, and emotionally engaged. A learner may produce grammatically accurate sentences with correct segmental pronunciation and still be perceived as flat, monotonous, or difficult to engage with if the suprasegmental dimension of their speech is underdeveloped. This distinction is central to the present study, which focuses specifically on one suprasegmental feature—emotional intonation—as a component of EFL speech production that is frequently overlooked in both teaching and assessment.

This connection between emotional and cognitive factors and speech production is not only theoretical but has also been demonstrated empirically. Wang, Rezaei, and Izadpanah (2024), in a recent study of EFL learners, found that emotional intelligence was significantly associated with both speaking accuracy and fluency, alongside factors such as creative thinking and academic enthusiasm. This finding reinforces the view that speech production cannot be fully explained by linguistic knowledge alone, and that affective dimensions—including the ability to express emotion appropriately through speech—play a measurable role in EFL speaking outcomes.

It is also worth noting how speech production is typically assessed in EFL contexts, since this has direct bearing on why emotional intonation is easy to overlook. Thornbury (2005) observes that classroom and examination rubrics for speaking most commonly operationalize performance through categories such as grammatical range and accuracy, lexical resource, fluency

and coherence, and pronunciation—categories that map closely onto rating scales used in large-scale speaking assessments. Pronunciation, within these rubrics, is typically scored against criteria such as intelligibility, word stress, and individual sound production, with intonation mentioned only briefly, if at all, and almost never disaggregated into its distinct grammatical, discourse, and attitudinal functions. As a result, a student’s ability to modulate pitch to convey emotion—joy, sadness, calmness, or anxiety, for instance—has no clear “home” in most standard rubrics: it is too expressive to be captured by grammar or vocabulary criteria, yet too specific to be captured by a generic “pronunciation” or “intelligibility” descriptor. This assessment gap provides an additional, practical rationale for treating emotional intonation as its own object of study, rather than assuming it will be captured incidentally within existing speaking-assessment frameworks.

2.2 Intonation: Concept and Theoretical Framework

Intonation refers to the systematic use of pitch variation across an utterance to convey linguistic and paralinguistic meaning. Crystal (1969), in his foundational account of prosodic systems in English, identifies pitch, together with loudness and duration, as one of the three primary prosodic features through which intonation is realized. Crystal further distinguishes between the linguistic functions of intonation—such as marking grammatical boundaries, signaling questions versus statements, and indicating information focus—and its paralinguistic or attitudinal functions, which communicate the speaker’s emotional state, attitude, and involvement.

Building on this foundation, Cruttenden (1997) proposes that intonation can be analyzed according to three broad functions: (1) the *grammatical function*, in which pitch patterns help distinguish sentence types and syntactic boundaries; (2) the *discourse function*, in which intonation signals given versus new information and organizes conversational turn-taking; and (3) the *attitudinal/emotional function*, in which variation in pitch

height, pitch range, and contour shape reflects the speaker's feelings and attitudes toward what is being said. It is this third function that provides the theoretical anchor for the present study. Cruttenden (1997) notes that emotionally marked speech typically departs from the "neutral" intonation contour of unmarked declarative utterances through wider pitch excursions, altered pitch register, and more dynamic contour movement—patterns that can be captured and measured acoustically.

This theoretical distinction is important because it clarifies what the present study is—and is not—investigating. Rather than examining the grammatical or discourse functions of intonation, this study is concerned specifically with the attitudinal/emotional function: how variation in pitch-related acoustic parameters reflects the emotional content that EFL speakers attempt to convey.

Wells (2006) offers a complementary way of framing these same functions, organizing intonation's roles into three broad categories: the *attitudinal function*, through which intonation expresses the speaker's feelings and attitudes; the *grammatical function*, through which intonation helps structure utterances syntactically; and the *focusing function*, through which intonation directs a listener's attention toward the most important or newest information in an utterance. Wells (2006) further observes that native and proficient speakers rely on the attitudinal function so automatically that they are rarely consciously aware of it, whereas learners of English as a foreign language must often acquire this function explicitly, since their first languages may distribute similar communicative work across entirely different phonological resources (for example, through particles, verb morphology, or facial expression rather than pitch). This observation is directly relevant to the population examined in this study: EFL university students may possess the cognitive and emotional capacity to feel and intend to express a given emotion, while still lacking full command of the specific pitch-based resources English uses to encode that emotion in the voice. The gap between emotional intent

and acoustic realization is, in effect, the central phenomenon this study sets out to describe.

Taken together, Crystal (1969), Cruttenden (1997), and Wells (2006) converge on the same essential point from slightly different angles: intonation is not a single, unified phenomenon but a bundle of related functions that happen to share the same acoustic medium (pitch). Isolating the attitudinal/emotional function from the grammatical and discourse/focusing functions—as this study attempts to do through the use of semantically neutral, emotion-ambiguous sentences (see 3.3.1)—is therefore not merely a methodological convenience, but a theoretically motivated attempt to examine one specific function of intonation in relative isolation from the others.

2.3 Emotion Theory in Speech

To examine emotional intonation meaningfully, a theoretical account of emotion itself is needed. This study draws on the basic emotions framework proposed by Ekman (1992), which posits that a limited set of emotions—including joy, sadness, anger, fear, disgust, and surprise—are universally recognizable and are each associated with distinctive, coherent patterns of expression across modalities, including the voice. Ekman (1992) argues that these basic emotions share properties such as rapid onset, brief duration, and automatic appraisal, which distinguishes them from more complex or culturally variable emotional states. This framework offers a principled justification for the four emotion categories examined in this study—joy, sadness, calmness, and anxiety—as belonging to a set of readily identifiable, contrastive emotional states suitable for controlled elicitation through scripted speaking tasks.

While Ekman's framework explains *which* emotions can be reliably distinguished, Scherer's (2003) work on the vocal communication of emotion explains *how* those emotions are encoded acoustically in the voice. Scherer

(2003) proposes a Brunswikian lens model in which a speaker's internal emotional state is encoded into a set of acoustic cues—including fundamental frequency (F0), pitch range, intensity, and speech rate—which listeners then decode to infer the speaker's emotional state. According to Scherer's synthesis of empirical findings, high-arousal emotions such as joy and anxiety are typically associated with elevated pitch level, wider pitch range, and increased intensity, whereas low-arousal emotions such as sadness and calmness tend to correspond with lower pitch level, narrower pitch range, and reduced intensity and speech rate. This acoustic patterning provides the direct theoretical basis for the acoustic parameters measured in this study (see 3.3.3) and for the interpretive framework used to analyze the Praat data in Chapter IV.

Taken together, Ekman's (1992) categorical model of emotion and Scherer's (2003) acoustic-encoding model form the theoretical backbone of this study: emotions are treated as discrete, recognizable categories (Ekman), and each category is expected to leave a measurable acoustic signature in the speaker's pitch and intensity patterns (Scherer).

A useful complement to Ekman's categorical approach is Russell's (2015) dimensional account of emotion, known as the circumplex model of affect. Rather than treating emotions as a fixed list of discrete categories, Russell (2015) proposes that any emotional state can be located within a two-dimensional space defined by *valence* (how pleasant or unpleasant the emotion is) and *arousal* (how physiologically activated or energized the emotion is). Within this space, joy is typically located in the high-arousal, positive-valence quadrant; anxiety in the high-arousal, negative-valence quadrant; calmness in the low-arousal, positive-valence quadrant; and sadness in the low-arousal, negative-valence quadrant.

This dimensional framing adds an important layer of nuance that a purely categorical model does not by itself provide. Under Scherer's (2003) acoustic-encoding model, arousal is the dimension most consistently linked to

pitch-related acoustic cues: high-arousal emotions—regardless of whether their valence is positive or negative—are predicted to show elevated pitch and wider pitch range, while low-arousal emotions are predicted to show the opposite pattern. Because joy and anxiety share the same high-arousal quadrant in Russell’s (2015) model despite having opposite valence, a straightforward reading of arousal-based acoustic encoding would predict that both should be acoustically similar to one another, and both should differ similarly from sadness and calmness. This is a testable, specific prediction that follows directly from combining Russell’s (1980) dimensional model with Scherer’s (2003) acoustic-encoding model, and it is a prediction this study is well positioned to evaluate, since joy and anxiety are both included as target emotions alongside their low-arousal counterparts, sadness and calmness.

At the same time, the dimensional model also leaves room for a competing possibility: if valence, and not only arousal, influences how an emotion is realized acoustically, then joy and anxiety—despite sharing high arousal—might diverge in their acoustic profiles, with positive-valence high-arousal emotion (joy) more reliably associated with wide pitch variation than negative-valence high-arousal emotion (anxiety), which might instead be marked through other cues such as irregular pacing, hesitation, or voice quality. Both possibilities are considered when interpreting the acoustic results of this study in Chapter IV.

2.4 Emotional Intonation in Speaking

Emotional intonation, as a specific application of the attitudinal function described in 2.2, has been investigated in several recent studies. Dwiyantri and Lolita (2023) describe intonation as functioning as a vehicle for communication that often conveys meaning beyond the semantic content of words, with emotional expression in speech being largely shaped by prosodic features—particularly pitch level and contour type—which determine how

emotions such as joy, sadness, anxiety, and calmness are perceived by listeners.

Building on this, Tymbay (2024) highlights that pitch level alone is not sufficient to express emotion effectively; rather, the intonation contour—the rise-and-fall pattern of pitch across an utterance—is more decisive in conveying emotional states. High-arousal emotions such as joy and anxiety tend to involve higher pitch levels and greater pitch variation, while emotions such as sadness and calmness are associated with lower pitch levels and flatter contours. This finding is consistent with Scherer's (2003) acoustic-encoding model discussed above and confirms that emotional intonation is not reducible to a single acoustic feature but emerges from the interaction of several prosodic elements.

These findings carry direct relevance for EFL contexts, as they underscore that teaching pronunciation cannot be limited to segmental accuracy; the expressive, attitudinal quality of speech is equally essential for effective and natural-sounding communication. Furthermore, Anum, Limbeng, Lubis, and Nazhira (2024) argue that speaking proficiency is shaped by both linguistic competence and affective factors, including emotional understanding and willingness to communicate—positioning emotional intonation not as a peripheral stylistic feature, but as a legitimate component of communicative competence.

From a psycholinguistic perspective, Levelt's model of speech production (as cited in Fernández-García & Fonseca-Mora, (2022) frames speaking as a process involving conceptualization, formulation, and articulation, continuously monitored by the speaker. This process is shaped not only by cognitive mechanisms but also by emotional and social factors such as motivation, anxiety, and self-confidence. Viewed through this lens, speaking is a multidimensional skill in which emotional intonation represents the point where cognitive-linguistic processing and affective expression

converge. Emotional aspects in language learning are not limited to learners alone, but are also influenced by the emotional environment created within the classroom. According to Gumelar, Wulandari, Lestari, and Ruswandi (2024), emotional intelligence plays an important role in supporting student engagement in EFL classrooms. Their study found that emotionally supportive learning environments encourage students to participate more actively in language learning activities, including speaking tasks.

Emotional intelligence refers to the ability to recognize, understand, manage, and express emotions effectively. In EFL contexts, emotional intelligence contributes to learners' confidence, willingness to communicate, and emotional expression during speaking activities. Students who feel emotionally supported are more likely to engage in communicative interaction and express themselves more naturally.

The study also highlights that emotional engagement is closely related to communicative performance. Learners who are emotionally involved in classroom interaction tend to demonstrate greater participation and more expressive communication. This is relevant to the present study because emotional intonation is closely connected to how emotions are conveyed through speech.

Furthermore, the findings suggest that emotional awareness may influence students' ability to produce expressive intonation patterns. Therefore, emotional factors should be considered an important aspect in developing speech production, particularly in relation to suprasegmental features such as pitch and intonation.

Acoustic analysis focuses on measurable elements such as:

- a) Pitch (fundamental frequency)
- b) Pitch range
- c) Intonation contour

d) Intensity

These features are essential for identifying emotional patterns in speech, as highlighted in previous studies on intonation and emotion. By using such tools, researchers can move beyond subjective evaluation and obtain quantitative data on speech production.

2.5 Suprasegmental Features in EFL Speaking

Emotional intonation is one component of a broader set of suprasegmental features that includes stress, rhythm, pitch, and intonation more generally. Gilakjani (2011) notes that these features play a significant role in shaping overall speaking ability and intelligibility, often more so than segmental accuracy alone. Gilakjani's (2011) findings indicate that many EFL learners experience persistent difficulty mastering suprasegmental features, with notably low performance in areas such as intonation and pitch control. These difficulties contribute to speech that sounds unnatural or unclear, frequently resulting in a pronounced foreign accent and reduced intelligibility even when grammar and vocabulary are accurate.

Gilakjani (2011) further observes that suprasegmental features are often neglected in language teaching curricula, despite being essential for meaningful spoken communication—a gap that reinforces the need for focused research on intonation, and particularly emotional intonation, within EFL speaking contexts.

This neglect appears to persist even in more recent contexts. Alotaibi (2024), in a survey of EFL teachers, found that only 48% of teachers reported teaching suprasegmental features at all, and just 20% gave them attention comparable to segmental features. This recent evidence confirms that Gilakjani's (2011) findings are not merely historical; the underemphasis of suprasegmental instruction, including intonation, remains a current issue in EFL teaching practice.

2.6 Emotional Factors and Speaking Proficiency

Speaking proficiency is shaped not only by linguistic competence but also by emotional and psychological factors. Mospan (2022) highlights the importance of emotional understanding in the development of EFL learners' speaking ability, finding that students with higher levels of emotional understanding tend to demonstrate stronger speaking proficiency overall. Emotional understanding, in this view, allows learners to recognize and express emotions effectively, which in turn strengthens their communicative competence. Mospan (2022) also identifies willingness to communicate (WTC) and emotional engagement as significant factors that encourage students to participate more actively in speaking activities.

This body of research suggests that emotions have often been under-examined in second language acquisition research relative to their apparent influence on communication. Learners who demonstrate greater emotional awareness tend to express meaning more naturally—a pattern that aligns directly with the construct of emotional intonation examined in this study, as intonation is one of the primary channels through which emotional awareness becomes audible in speech.

More recently, Afifah, Ningrum, Wahyuni, and Syaifulloh (2024) directly examined whether self-efficacy, anxiety, and emotional intelligence contribute to EFL speech production, and found that these affective factors made a measurable contribution to how well students performed in speaking tasks. This recent finding lends further empirical support to the theoretical link, established above, between emotional factors and observable speech production—of which emotional intonation is one audible component.

2.7 Acoustic Analysis of Speech Using Praat

Advances in speech technology have made it possible to move beyond subjective, impressionistic judgments of intonation toward objective, measurable analysis. Praat, developed by Boersma and Weenink, is a widely used software program for acoustic phonetic analysis that allows researchers to visualize and quantify speech signals in terms of pitch (fundamental frequency, F0), pitch range, intensity, and intonation contour (Boersma & Weenink, 2021). Gumelar, Wulandari, Lestari, and Ruswandi (2024) note that Praat has become one of the most widely adopted tools in phonetics and speech research precisely because it provides objective, replicable acoustic measurements rather than relying solely on listener perception.

Beyond its technical capabilities, Gumelar et al. (2024) also report that emotionally supportive learning environments encourage EFL students to participate more actively in speaking tasks, suggesting that emotional factors operate at both the individual (psycholinguistic) and classroom (social-affective) levels.

The direct applicability of Praat to EFL intonation research has been demonstrated recently by El-Garawany (2021), who used Praat to examine and develop English majors' intonation production, finding that acoustic visualization allowed both researchers and learners to observe intonation patterns that would otherwise be judged only subjectively by ear. This recent study confirms that acoustic analysis—centered on parameters such as pitch, pitch range, intonation contour, and intensity—allows researchers to move beyond subjective evaluation and obtain quantitative, comparable data on speech production in an EFL population directly comparable to the participants in the present study. These four parameters (F0, pitch range, contour, and intensity) constitute the specific measurement targets used in the present study's Praat-based analysis, as detailed in Chapter III.

2.8 Review of Previous Related Studies

Several studies provide relevant background for the present research, though none directly combine emotional intonation, EFL speech production, and acoustic analysis in the way this study does. Each is considered below in more detail, with particular attention to its methodology and how it relates to the present study's design.

Fernández-García and Fonseca-Mora (2022) examined the relationship between emotional understanding, willingness to communicate, and speaking proficiency among EFL learners, finding a significant positive relationship between emotional understanding and speech production. Their study collected data through self-report questionnaires and teacher-assessed speaking scores rather than through direct acoustic measurement, meaning that “emotional understanding” in their study was operationalized as a general psychological trait rather than as something observable in the moment-to-moment acoustic signal of a student's speech. This is an important methodological contrast with the present study: whereas Fernández-García and Fonseca-Mora (2022) treat emotion as a stable individual-difference variable that predicts speaking scores, the present study treats emotion as a variable that is actively and intentionally expressed within a specific utterance, and asks how that expression is acoustically realized.

Sinambela (2017) investigated the impact of suprasegmental features on EFL speaking and found that learners consistently struggle with intonation and pitch control, reinforcing the importance of these features for communicative competence. This study relied on impressionistic rater judgments of reading fluency rather than instrumental acoustic analysis, meaning that “pitch control” in Sinambela's (2017) study reflects how intonation was perceived by listeners rather than a directly measured acoustic value. The present study addresses this specific limitation by extracting F0, pitch range, and intensity values directly from the speech signal using Praat, rather than relying on a rater's subjective impression of whether pitch control was adequate.

Rodero (2011), working outside the EFL context, used controlled acoustic analysis to demonstrate that pitch level and contour type systematically differ across emotions such as joy, sadness, and calmness in professional voice recordings. Rodero's (2011) participants were professional radio broadcasters and voice actors trained in vocal expression, recorded under studio conditions—a population and recording context very different from the naturalistic, mixed-proficiency EFL university students examined in the present study. Despite this difference in population, Rodero's (2011) parameters and emotion categories form the direct empirical model adapted for the speaking tasks used in this study (see 3.3.1), on the reasoning that if trained professional voices show a particular acoustic pattern for a given emotion, this provides a useful benchmark against which to compare the less-trained, foreign-language-mediated vocal performances of EFL students.

More recently, El-Garawany (2021) applied Praat directly within an EFL population to examine intonation production, and Afifah, Ningrum, Wahyuni, and Syaifulloh (2024) quantitatively linked emotional intelligence and anxiety to EFL speech production. Both studies confirm that the individual building blocks of this research—Praat-based analysis in EFL contexts, and the link between emotion and speech production—are active, current areas of inquiry. However, El-Garawany's (2021) study centered on training and improving intonation production through explicit instruction over a period of weeks, comparing pre- and post-instruction recordings, rather than describing how naturally-occurring emotional intonation is realized across different emotion categories at a single point in time; the present study, by contrast, is not an intervention study, and instead aims to describe baseline patterns before any instructional treatment is introduced. Afifah et al. (2024), meanwhile, measured emotional intelligence and anxiety through self-report instruments rather than through instrumental acoustic analysis of speech itself, meaning that their study establishes that emotional factors statistically predict speech production scores, without describing what

those emotional factors actually sound like acoustically—a gap the present study is specifically designed to fill.

Although each of these studies contributes valuable insight—affective factors in speaking (Fernández-García & Fonseca-Mora, 2019; Afifah et al., 2024), the significance of suprasegmental features in EFL (Sinambela, 2017; Alotaibi, 2024), acoustic patterning of emotion in speech (Rodero, 2011), and Praat-based EFL intonation research (El-Garawany, 2021)—none specifically examines emotional intonation in EFL students’ speech, across multiple discrete emotion categories, through instrumental acoustic analysis, without an instructional intervention, and without relying on self-report or rater-impression measures alone. This is the precise gap the present study addresses.

2.9 Research Gap

Based on the review above, four gaps in the existing literature can be identified:

1. Many studies address general speaking proficiency, but comparatively few examine emotional intonation as a specific, measurable construct.
2. Suprasegmental features are widely acknowledged as important for communication, yet remain underemphasized in both EFL teaching practice and research.
3. Although emotional factors are consistently linked to speaking ability, research directly connecting emotional expression to instrumental acoustic analysis remains limited; where acoustic analysis has been used in EFL contexts (e.g., El-Garawany, 2021), it has generally been paired with an instructional intervention rather than used to describe baseline, naturally-occurring emotional expression.
4. Few studies apply acoustic analysis tools such as Praat to examine emotional intonation in the naturalistic speech of EFL students specifically, as opposed to professional voice actors or native-speaker corpora (Rodero, 2011).

This study addresses these gaps by combining a theoretically grounded emotion framework (Ekman, 1992; Scherer, 2003), an established model of intonation's attitudinal function (Crystal, 1969; Cruttenden, 1997), and instrumental acoustic analysis (Praat) to examine how emotional intonation is realized in the speech production of EFL university students.

2.10 Conceptual Framework

The conceptual framework of this study can be summarized as follows: EFL students' speech production (Thornbury, 2005) is shaped in part by their command of suprasegmental features (Gilakjani, 2011), one of which is intonation in its attitudinal/emotional function (Crystal, 1969; Cruttenden, 1997; Wells, 2006). When students attempt to convey a target emotion—joy, sadness, calmness, or anxiety—that emotion can be understood both categorically, as a discrete, recognizable state (Ekman, 1992), and dimensionally, as a particular combination of valence and arousal (Russell, 1980). Under Scherer's (2003) acoustic-encoding model, that emotional intent is expected to leave a measurable signature in the speaker's pitch, pitch range, intonation contour, and intensity—a signature this study captures and describes using Praat.

Figure 2.1 illustrates this framework as a conceptual chain, moving from the broadest construct (EFL speech production) down to the specific acoustic parameters measured in this study.

This framework situates the analysis at the intersection of four bodies of theory: EFL speech production theory, prosodic/intonation theory, emotion theory (both categorical and dimensional), and instrumental acoustic phonetics. It also generates a specific expectation that is directly testable against the data presented in Chapter IV: if arousal is the primary driver of acoustic realization, joy and anxiety (both high-arousal) should pattern together and both should differ from sadness and calmness (both low-arousal); if valence also plays an independent

role, joy and anxiety may instead diverge from one another despite sharing the same arousal level.

2.11 Summary

This chapter has established the theoretical and empirical foundation for the study. Speech production in EFL involves more than grammatical accuracy; it depends on suprasegmental control, particularly intonation, and existing speaking-assessment rubrics do not clearly capture the attitudinal/emotional function of intonation specifically (2.1, 2.5). Intonation itself carries an attitudinal/emotional function alongside its grammatical, discourse, and focusing functions (Crystal, 1969; Cruttenden, 1997; Wells, 2006) (2.2), and emotional expression can be understood through both Ekman's (1992) categorical model and Russell's (1980) complementary dimensional model of valence and arousal, with Scherer's (2003) acoustic-encoding model linking either view to measurable acoustic cues (2.3). Prior research supports the connection between emotional intonation and EFL speaking (2.4), the difficulty EFL learners have with suprasegmental features (2.5), and the role of emotional and psychological factors in speaking proficiency (2.6). Praat provides the instrumental means for measuring these patterns objectively (2.7), and a review of related studies (2.8) reveals a clear gap (2.9) that this study is positioned to address, as summarized in the conceptual framework and accompanying figure above (2.10), which also generates a specific, testable expectation regarding whether arousal or valence more strongly shapes the acoustic realization of emotional intonation in EFL speech.