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Task-specific emotions in L2 writing: A control-value theory approach from a positive psychology perspective

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Abstract

This study investigates task-specific emotions, examining how they arise and impact performance in a second language writing task through the lens of control-value theory and a positive psychology (PP) perspective. Participants were 206 secondary English-as-a-foreign-language learners from rural China. They completed an English argumentative writing task and filled out scales measuring task-specific appraisals (control, intrinsic value, and extrinsic value) as well as task-specific emotions (enjoyment, anxiety, and boredom). Correlation analyses showed consistently significant intercorrelations between control-value appraisals, task emotions, and task performance. Structural equation modeling revealed that: (1) task performance was directly predicted by extrinsic value appraisal and indirectly predicted by control appraisal, with anxiety being a mediator; (2) enjoyment was positively predicted by both control appraisal and intrinsic value appraisal; and (3) boredom was not predicted by any of the appraisals. The findings highlight the emotional dimension of the task and provide implications for task design, implementation, and assessment. The article concludes by advocating for a control-value theory approach to task-specific emotions from a PP perspective.

Keywords: task enjoyment; task boredom; control-value theory; positive psychology (PP); task-based language teaching (TBLT)

1. Introduction

The introduction of positive psychology (PP) into second language acquisition (SLA) research has sparked significant interest in understanding how diverse emotions affect second or foreign language (L2) learners' well-being and impact key learning processes and outcomes (Dewaele & MacIntyre, 2014; C. Li, W. Li, et al., 2024; MacIntyre & Gregersen, 2012). Among the emotions studied, enjoyment, anxiety, and boredom are frequently experienced in L2 learning contexts and have been identified as significant predictors of overall L2 performance (Dewaele, Botes, et al., 2023; Dewaele, Saito, et al., 2023; C. Li & Wei, 2023). These emotions are linked to proximal antecedents, as outlined by the control-value theory (Pekrun, 2006), including learners' control-value appraisals, namely, perceived control over L2 and the intrinsic and extrinsic value of L2 (C. Li, 2021; Zhao & Yang, 2023). However, research has predominantly focused on trait emotions, which are situation-independent, relatively stable emotional tendencies or dispositions that persist over a long period (C. Li & Dewaele, 2024; C. Li, W. Li, et al., 2024; S. Li, 2024). State emotions, which are situation-dependent, temporary, and task-specific, have received much less attention (C. Li & Dewaele, 2024; S. Li, 2024). Consequently, research has often been limited to general control-value appraisals of L2 and overall L2 achievement rather than examining the appraisals and outcomes related to specific language tasks. A more nuanced, situation-dependent approach is needed to understand better the interaction between learners and tasks, and the emotional mechanisms underlying task performance and L2 acquisition at a micro level. This is crucial because tasks are viewed as fundamental units and platforms for L2 acquisition and development (R. Ellis et al., 2020).

When we examine the task-based language teaching (TBLT) literature, considerable attention has been paid to the effects of task features (Kormos & Trebits, 2012), learner cognitive individual difference factors, such as working memory and aptitude (Güvendir & Uzun, 2023; Kormos, 2023; Manchón et al., 2023), and general trait anxiety (Fu & S. Li, 2024; Rahimi & Zhang, 2019) on task performance. However, there has been less focus on other emotions, particularly positive emotions experienced during the task (C. Li, Wei, et al., 2024; C. Li & Dewaele, 2024; S. Li, 2024; S. Li et al., 2022; Tabari et al., 2024). Additionally, while many studies have explored how task features affect linguistic dimensions like complexity, accuracy, and fluency (Fu & S. Li, 2024; Rahimi & Zhang, 2019), few studies have explored the emotional effects of these features.

In response to this gap, C. Li and Dewaele (2024) called for the integration of PP into TBLT research and practice. They emphasized that learners are emotionally responsive to the task, and their emotional experiences are crucial for their well-being. They argued that, in addition to the linguistic goal of enhancing

task performance and L2 skills, it is equally important to pursue a non-linguistic goal: fostering positive experiences (e.g., enjoyment) and reducing negative emotions (e.g., anxiety and boredom). This PP-based approach helps to improve learners' overall well-being and facilitates their engagement and motivation during tasks (C. Li, Wei, et al., 2023, 2024; C. Li & Dewaele, 2024).

The current study responds to C. Li and Dewaele's (2024) call to bridge TBLT and PP. It uses a control-value theory approach to examine three prevalent task-specific emotions: enjoyment, anxiety, and boredom. Specifically, it investigates how these emotions arise from control-value appraisals of an ongoing L2 writing task and how they influence task performance, both independently and in conjunction.

2. Literature review

2.1. The control-value theory of achievement emotions

The control-value theory (Pekrun, 2006), a fundamental theory in educational psychology, defines achievement emotions as emotions directly associated with achievement-related activities or outcomes. The theory has been introduced into SLA research and applied extensively for its essential assumptions on the multidimensional nature, origins and consequences, and situational specificity of achievement emotions (see Sections 2.1.1.-2.1.3.; C. Li, W. Li, et al., 2024).

2.1.1. Multidimensional nature of achievement emotions

The three-dimensional taxonomy of the control-value theory posits that achievement emotions differentiate from each other in three dimensions: valence (pleasant vs. unpleasant), activation (activating vs. deactivating), and object focus (activity-oriented vs. outcome-oriented) (Pekrun, 2006). Valence involves the felt positivity or negativity of an emotion, activation pertains to the degree of physiological and psychological stimulation that an emotion induces, and object focus indicates the target of the emotion, whether it is directed toward the task/activity itself (i.e., activity-oriented) or the outcomes of the task/activity (i.e., outcome-oriented) (Pekrun, 2006). Following this taxonomy, enjoyment can be described as pleasant, physiologically and psychologically activating, and activity-oriented (mainly pertaining to the process of an ongoing achievement-related activity or task); anxiety is unpleasant, activating, and prospective outcome-oriented (primarily relating to the result of a future achievement-related activity/task); boredom is unpleasant with deactivating relaxation and activity-oriented (Pekrun &

Perry, 2014). The multidimensional conceptualization of achievement emotions helps to explain the way emotion is linked to achievement (see Section 2.1.2.).

2.1.2. Antecedents and outcomes of achievement emotions

As for the origins, the control-value theory assumes that achievement emotions can be instigated by a variety of individual factors (e.g., gender, achievement goals, and beliefs) and environmental factors (e.g., task features including clarity, structure, format, time constraints, demands, planning, and a second chance of retaking the task) (Pekrun & Stephens, 2010). Among these factors, control-value appraisals (control appraisal, intrinsic value appraisal, and extrinsic value appraisal) of these activities and outcomes are the proximal antecedents and play a significant role in the arousal of emotions (Pekrun, 2006; Pekrun & Perry, 2014). Control appraisal involves the subjective assessment of both situational demands and one's competence in meeting those demands (Pekrun, 2006), such as perceived control over an ongoing L2 task (C. Li, 2021). Intrinsic value appraisal concerns the perceived inherent worth or significance of an item or activity for its own sake. In contrast, extrinsic value appraisal pertains to the instrumental value attached to the item or activity based on the external rewards or advantages it may offer (Pekrun, 2006). Other distal antecedents can impact these emotions by influencing these control-value appraisals (Pekrun, 2006; Pekrun & Stephens, 2010). Informed by the theoretical assumptions on the determining effects of control-value appraisals on the instigation of achievement emotions, enjoyment is expected to occur when the ongoing activity is perceived as controllable (challenging at a manageable level), fun in itself, and having high instrumental utility (Pekrun & Stephens, 2010). Anxiety is expected to arise when the outcome of an achievement-related activity is attached to a high extrinsic value and an individual feels out of control of the activity (Pekrun & Perry, 2014). Boredom is assumed to be aroused when an ongoing activity is perceived as either over-challenging or under-challenging and neither interesting nor essential (Acee et al., 2010; Goetz & Hall, 2014; Pekrun et al., 2014).

The control-value theory also posits that achievement emotions are crucial for achievement-related performance, as they impact different aspects of cognitive functioning (e.g., attention, memory storage and retrieval, information processing, flexible and creative problem-solving, decision-making, convergent thinking, and divergent thinking), motivational process (autonomy, learner agency), and learning strategies (Pekrun & Linnenbrink-Garcia, 2014; Pekrun & Stephens, 2010). However, the theory does not assume a direct equation between positive emotions and positive achievement outcomes, nor between

negative emotions and negative achievement outcomes. For instance, positive emotions can sometimes impair task performance by consuming limited cognitive resources and distracting learner attention toward task-irrelevant information (the object of emotion), thus leaving fewer resources available for successful task completion (Ellis & Ashbrook, 1988; C. Li et al., 2020; Pekrun & Stephens, 2010).

Pekrun and Perry (2014) explained the complexity involved in the emotion-achievement links with the three-dimensional taxonomy of the control-value theory. They highlighted that the combination of the activation dimension and the valence dimension of an emotion determines the direction of its achievement effect rather than valence alone. Specifically, positive emotions with a high level of activation, such as enjoyment, should promote achievement as they facilitate the cognitive processes (such as focusing attention on task completion, allowing for deep information processing), foster interest, intrinsic motivation, and agentic engagement, and stimulate motivated behaviors. Eventually, these cognitive-motivational-behavioral benefits of positive activating emotions coalesce to facilitate achievement (C. Li & W. Li, 2024; Pekrun & Stephens, 2010). In contrast, positive deactivating emotions, such as relief, may impair achievement because the low level of activation can lead to "lazy thinking," reducing motivation to strive for higher achievement, particularly in challenging tasks. This may minimize mental effort and promote reliance on surface-level information processing (C. Li & W. Li, 2024; Pekrun & Stephens, 2010). Negative emotions with a high level of activation, such as anxiety, shame, and anger, can either improve or impair achievement (C. Li & W. Li, 2024; Pekrun & Stephens, 2010). For example, anxiety could debilitate achievement because future outcome-related worries may reduce cognitive resources, distract attention from task completion, and impair interest and motivation (C. Li & W. Li, 2024; Pekrun & Stephens, 2010). The adverse cognitive and motivational outcomes of anxiety further impair achievement. Anxiety could also improve achievement because it may alert learners to the potential failure in the task, boost learners' extrinsic motivation, and thus force them to stay focused on task completion with more motivated behaviors (C. Li & W. Li, 2024; Pekrun & Stephens, 2010). By contrast, those negative emotions with a low level of activation, such as boredom and hopelessness, are expected to have negative effects on achievement consistently because individuals who are physiologically deactivated tend to employ effortless learning strategies and surface-level information processing, get distracted, and demotivated in the task at hand (C. Li & W. Li, 2024; Pekrun et al., 2014). Clearly, as argued by Pekrun and Perry (2014), a more sophisticated understanding is needed for the associations between achievement emotions and subsequent achievement, inspiring the current study.

In a nutshell, the control-value theory depicts a chain of achievement emotions, starting with their distal antecedents (e.g., gender, achievement goals,

beliefs, and task environment), followed by proximal antecedents (control-value appraisals), which trigger achievement emotions and ultimately lead to achievement outcomes (Pekrun & Stephens, 2010). Any two variables in this chain are assumed to interact with each other, influencing their outcomes and being reciprocally linked over time. Consequently, achievement emotions mediate the relationship between control-value appraisals and academic achievement, providing the theoretical foundation for the current study.

2.1.3. Achievement emotions at three distinct levels of situational specificity

The control-value theory suggests that achievement emotions, along with their antecedents and outcomes, can be organized into three distinct levels based on the specificity of the situation: the academic domain, the specific subdomain or skill, and the specific task (Pekrun & Perry, 2014). At the most general level, the educational domain level, emotions are relatively stable and long-term, broadly associated with the experience of learning and performance within a broad field, such as mathematics or an L2. At the more specific subdomain or skill level, these long-term emotions become concentrated on particular skills within the domain, such as writing or speaking in L2, reflecting the unique emotional impact of mastering or struggling with each skill. At the most specific task level, emotions are transient and associated with individual tasks or assignments within a skill area, such as engaging in a speaking or writing task. These emotions reflect a person's responses to specific features of a task, whether they are perceived as desirable or undesirable.

Mirroring the three levels outlined by the control-value theory, L2 emotion research can accordingly be categorized into three distinct levels (see Figure 1). *Level 3* encompasses *general trait-like emotions*, which are long-term emotional dispositions related to L2 learning. These situation-independent emotions are relatively stable and persist over time, such as foreign language classroom anxiety (Horwitz et al., 1986), enjoyment (Dewaele & MacIntyre, 2014), and boredom (C. Li, Dewaele, et al., 2023; Pawlak et al., 2020, 2022, 2023). *Level 2* concerns *skill-specific trait-like emotions*, which are long-term emotional dispositions in relation to specific L2 skills, such as anxiety in L2 writing, speaking, listening, or reading (Cheng, 2017) and foreign language writing enjoyment and boredom (C. Li, Wei, et al., 2023). *Level 1* involves task-specific emotions, which refer to short-term and transient emotional states arising in specific tasks (C. Li, Wei, et al., 2024), such as oral task anxiety (Wang et al., 2024), oral task enjoyment (C. Li & Dewaele, 2024), writing task anxiety (An & S. Li, 2024), and writing task enjoyment (Li, Wei, et al., 2024).

L2 learner emotions at the three distinct levels are linked to each other yet distinct from each other (C. Li & Dewaele, 2024). State emotions (e.g., task

enjoyment) at *Level 1*, if recurrently experienced, can stabilize as skill-specific trait emotions at *Level 2* and feed into general L2 trait emotions at *Level 3*, which are linked to long-term overall L2 achievement (C. Li & Dewaele, 2024). Trait emotions, on the other hand, persist across circumstances and can be brought to a specific task, influencing task-specific emotions and, potentially, task performance.

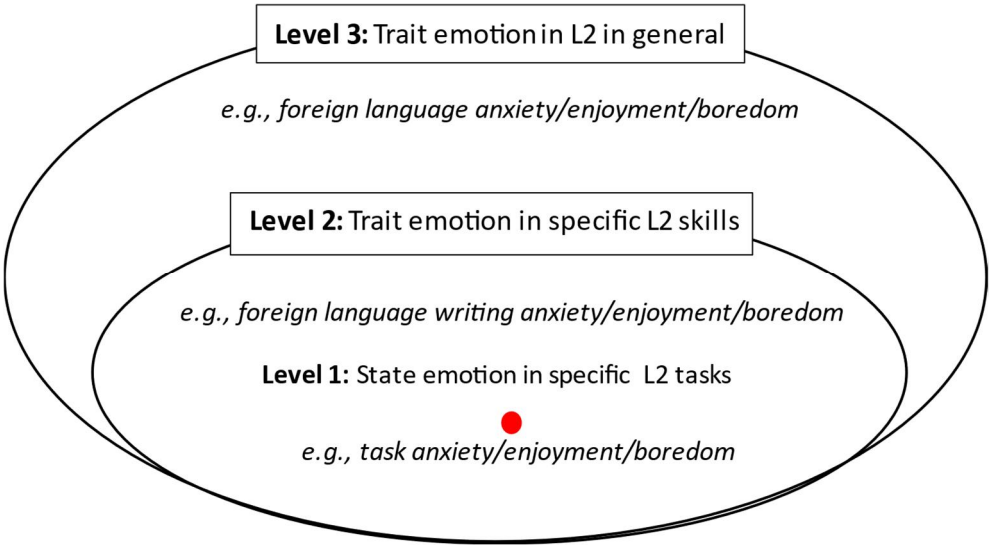

Figure 1 L2 learner emotions at three distinct levels of situational specificity (the red dot represents state emotion arising in a specific L2 task)

This multi-level framework provides a detailed understanding of how emotions operate at different levels of situational specificity. It enables the development of more effective strategies to support learners' emotional well-being and academic performance. These strategies can be applied at the micro, meso, and macro levels, addressing both short-term and long-term needs.

2.2. Empirical studies on L2 learner emotions at three levels of situational specificity

A review of existing research on emotions shows an extensive focus on L2 learner emotions – particularly enjoyment, anxiety, and boredom – at the general trait level (*Level 3*). There is also growing attention to diverse skill-specific trait emotions beyond anxiety (*Level 2*). However, interest in task-specific emotions (*Level 1*) is still emerging. Differentiating and examining emotions at these various levels is essential for fully understanding the emotional mechanisms underlying task performance and L2 acquisition, both in the short and long term.

Enjoyment, anxiety, and boredom have been the most extensively studied emotions in SLA (C. Li, W. Li, et al., 2024). They are considered to be "three stars orbiting each other in an unstable three-body system" (Dewaele et al., 2023, p. 7). The rationale for focusing on them can be summarized in terms of three issues. Firstly, the ubiquity of enjoyment, anxiety, and boredom has been consistently found across educational levels (e.g., secondary, tertiary), subjects (e.g., language, math, music, physics), and cultural backgrounds (e.g., Asia and Europe) (Goetz et al., 2012; Goetz & Hall, 2014; Nett et al., 2011). In L2 contexts, their high frequency and intensity have also been confirmed at the three levels of situational specificity: trait-level in general L2 (C. Li, Dewaele, et al., 2023; Pawlak et al., 2020, 2023), trait-level in specific L2 skills (e.g., writing, C. Li, Wei, et al., 2023; Solhi et al., 2024), and state-level in particular L2 tasks (An & S. Li, 2024; C. Li & Dewaele, 2024; C. Li, Wei, et al., 2024). Secondly, they have been conceptualized and defined as fundamental achievement emotions in L2 contexts based on the control-value theory (C. Li, 2021). By implication, the above-mentioned vital assumptions of the control-value theory, especially the comprehensive and dynamic nomological network of emotions and their antecedents and outcomes, can be applied to L2-specific enjoyment, anxiety, and boredom research. Lastly but equally importantly, there are psychometrically sound measures available for the three emotions at the three levels of situational specificity. For example, for general L2 trait emotions, the following well-established scales are available: the *Foreign Language Classroom Anxiety Scale* (Horwitz et al., 1986), the *Foreign Language Enjoyment Scale* (Dewaele & MacIntyre, 2014), the *Foreign Language Learning Boredom Scale* (C. Li, Dewaele, et al., 2023) and the *Boredom in Practical English Language Classes Questionnaire – Revised* (Pawlak et al., 2020). The items in these scales generally ask about relatively stable, long-term, situation-independent emotions in general. For skill-specific trait emotions, the *L2 Writing Anxiety Scale* (Cheng, 2017) and the *Foreign Language Writing Enjoyment and Boredom Scales* (C. Li, Wei, et al., 2023) are available. For task-specific emotions, the *Oral Task Anxiety Scale* (Q. Wang et al., 2024), the *Oral Task Enjoyment Scale* (C. Li & Dewaele, 2024), and *the Writing Task Enjoyment Scale* (C. Li, Wei, et al., 2024) were developed and validated.

2.2.1. L2 learner emotions at the general level (*Level 3)*

A large body of studies has examined the antecedents and achievement outcomes of L2 learners' general trait emotions within the theoretical framework of the control-value theory (C. Li, 2021; Zhao & Yang, 2023) separately or jointly. Enjoyment, anxiety, and boredom were found to be closely linked to a variety of

learner-internal factors (Dewaele, Saito et al., 2023) and learner-external factors (Dewaele et al., 2018; Dewaele & C. Li, 2021; C. Li, 2021). Underpinned by the control-value theory (Pekrun, 2006), some studies have also examined the links between control-value appraisals and the three emotions in relation to L2 learning in general. The results generally show that control-value appraisals predicted enjoyment positively, while anxiety and boredom negatively (C. Li, Pawlak, et al., 2023). In addition, control-value appraisals were found to interact with each other, which generally altered their respective predictive effect on each emotion (C. Li, Pawlak, et al., 2023). Notably, C. Li (2021) argued that there are curvilinear relationships between control appraisal and emotions. Other studies have also found that both overly high and overly low levels of perceived control can induce boredom (Kruk et al., 2021, 2022).

Many empirical studies have examined how anxiety, enjoyment, and boredom separately or jointly contribute to overall L2 achievement, commonly operationalized as self-perceived L2 proficiency, final-term course exam scores, or Grade Point Average (C. Li & Wei, 2023). Meta-analytic reviews found a positive correlation between enjoyment and L2 achievement (Botes et al., 2022), a negative correlation between anxiety and L2 achievement (Teimouri et al., 2019), and a negative correlation between boredom and L2 achievement (C. Li, Feng, & S. Li, 2024). The three emotions were shown to correlate with each other, and their respective contributions to L2 achievement generally diminished or vanished when examined jointly (C. Li & Wei, 2023). The changes in achievement outcomes could be attributed to the "undoing effects" between emotions with opposite valence and activation levels (C. Li, Pawlak, et al., 2023). As suggested by the control-value theory assumptions (Pekrun, 2006; Pekrun & Perry, 2014), emotions like enjoyment and boredom, which lie at opposite ends of valence-activation spectrums, have contrasting effects on performance (C. Li, Pawlak, et al., 2023). Enjoyment, with positive valence and high activation, is expected to contribute to better achievement for its enhancement effects on various learning processes such as engagement and cognition. In contrast, boredom, with low activation and often negative valence, is expected to impair outcomes due to its association with reduced motivation, attention, and effort. When the two emotions interact, the positive effects of enjoyment may counterbalance the adverse effects of boredom, causing fluctuations in achievement depending on which emotion dominates. This interaction highlights the complexity involved in the role of emotional states in performance. In contrast, there are only a handful of studies examining the control-value antecedents and achievement effects of achievement emotions collectively (e.g., Zhao & Yang, 2023), leaving the emotional mechanism underlying L2 achievement largely uncharted. Research on L2 learner emotions at *Level 3* reveals a notable limitation: The use of adapted versions of the

Achievement Emotions Questionnaire (Pekrun & Stephens, 2010), initially designed for general education, fails to address the domain-specific nature of L2 learning fully. This includes unique activities such as public speaking and interactions with (imagined) L2 users, which differ fundamentally from those in subjects like mathematics (C. Li, Feng, Zhao, et al., 2024).

2.2.2. L2 learner emotions at the skill level (*Level 2)*

L2 emotion research has shown a slow shift of focus from L2 emotions at *Level 3* to *Level 2* (C. Li & Dewaele, 2024; C. Li, 2022), for example, from general foreign language anxiety (Horwitz et al., 1986) to anxiety in listening, speaking, reading, and writing (Cheng, 2017). The primary rationale for this skill-specific trend is that an individual's emotional experiences (e.g., sources, outcomes, prevalence, and intensity) may vary across language skills as different skills differ from each other in their cognitive demands, linguistic goals, social pressure, time constraints, interactiveness, evanescence, and recursiveness (C. Li, Feng, Zhao, et al., 2024; C. Li, W. Li, et al., 2024). Such aspects may lead to different emotional experiences (C. Li, Wei, et al., 2023). Motivated by the PP movement, L2 emotion research has shown a sign of going beyond anxiety to include a greater variety of emotions arising in specific L2 skills, such as long-term enjoyment and boredom in writing (C. Li, Wei, et al., 2023; Solhi et al., 2024; Tahmouresi & Papi, 2021; Y. Wang & Xu, 2023).

L2 writing presents various cognitive and linguistic challenges and opportunities that are emotion-inducing and warrant further research attention (C. Li, Wei, et al., 2023). Directly relevant to the current study, C. Li, Wei, et al. (2023) found that the three emotions under discussion were among the most frequently experienced ones in L2 writing. Regarding the emotion-achievement links, C. Li, Wei, et al. (2023) confirmed the significant correlations between L2 writing achievement and writing-specific enjoyment, anxiety, and boredom among Chinese tertiary and secondary English as a foreign language (EFL) students. Mirroring the pattern for overall L2 achievement, when analyzed jointly, the significant links between L2 writing-specific emotions and achievement weakened or vanished (C. Li, Wei, et al., 2023). Research into skill-specific trait emotions is starting to increase, while little research has applied the control-value theory.

2.2.3. L2 learner emotions at the task level (*Level 1*)

TBLT, growing out of the communicative language teaching movement in the 1980s (Long, 1985), has been enormously influential (R. Ellis et al., 2020). TBLT

prioritizes meaning but does not overlook form. Instead, TBLT highlights the importance of engaging learners' abilities to acquire language incidentally "as they engage with language as a meaning-making tool" (R. Ellis et al., 2020, p. 1). In this way, TBLT differs from traditional structural approaches, which view language as "an object to be taught systematically and learned intentionally" (p. 1). Inspired by the control-value theory, TBLT can be argued to be more emotionally engaging or stimulating due to its focus on real-world communication and meaningful interaction in authentic, personally relevant contexts, which offer potentially higher perceived value and control, rather than focusing on rote memorization of structures.

An expansive body of research has examined the effect of task features (design and implementation) and cognitive learner ID factors (e.g., working memory and aptitude) on oral and writing task performance and L2 acquisition (S. Li, 2024). Nevertheless, attention to the role of emotional ID factors has primarily been restricted to trait anxiety at *Levels 3* and *2* rather than task-specific emotions at *Level 1* (Güvendir & Uzun, 2023; Lambert et al., 2023; Rahimi & Zhang, 2019). Challenging this focus, C. Li, Wei, et al. (2024) and C. Li and Dewaele (2024) argued that learners are not emotionless machines or passive task recipients, only experiencing anxiety. Instead, they are emotionally responsive to the ongoing task, and their emotions can be diverse and situational-specific, varying from task to task. In more challenging tasks, they may rely more on a cheerful emotional repertoire to energize themselves and boost their motivation.

To address existing gaps, C. Li and Dewaele (2024) advocated integrating PP into TBLT research and practice. They argued that fostering positive emotions and reducing negative ones should be a primary non-linguistic goal in TBLT, given that emotions are central to learner well-being. This call was addressed in a recent study by C. Li, Wei, et al. (2024), which found that while trait enjoyment and task-specific enjoyment in L2 writing were correlated, only task-specific enjoyment was linked to task motivation and performance. In contrast, trait enjoyment was not related to task performance. The current study further responds to C. Li and Dewaele's (2024) call by introducing the control-value theory (Pekrun, 2006) to explore three key emotions in L2 writing tasks: enjoyment, anxiety, and boredom. It examines how these emotions arise in a specific writing task and affect task performance. By investigating their links with proximal antecedents and achievement outcomes, the study aims to deepen our understanding of the emotional nomological network in the short term. This insight can inform pedagogical strategies to enhance emotional regulation and task performance, which are crucial for L2 acquisition and development (C. Li & Dewaele, 2024).

3. The current study

To address the identified research gaps, the following research questions (RQs) were formulated to guide the current study:

RQ1: How are task-specific control-value appraisals, task-specific emotions (enjoyment, anxiety, and boredom), and task performance (language, content, and organization) correlated with each other?
RQ2: How do task-specific control-value appraisals and emotions jointly predict task performance? Do task-specific emotions mediate the relationships between control-value appraisals and task performance?

For RQ1, it is hypothesized that control-value appraisals, task emotions, and task performance would be significantly correlated with each other based on the control-value theory (Pekrun, 2006) and relevant literature in L2 contexts (C. Li, 2021; C. Li & Dewaele, 2024; Pawlak et al., 2020). The correlations would be positive or negative depending on the nature of the emotions.

For RQ2, it is hypothesized that task emotions would mediate the relationships between control-value appraisals and task performance (see Figure 2) based on the control-value theory (Pekrun, 2006) and relevant literature in L2 writing contexts (C. Li, Wei, et al., 2023; C. Li & W. Li, 2024). Specifically, anxiety and boredom are expected to have negative mediating effects on the positive relationships between the three control-value appraisals and task performance, while enjoyment is expected to have a positive mediating effect.

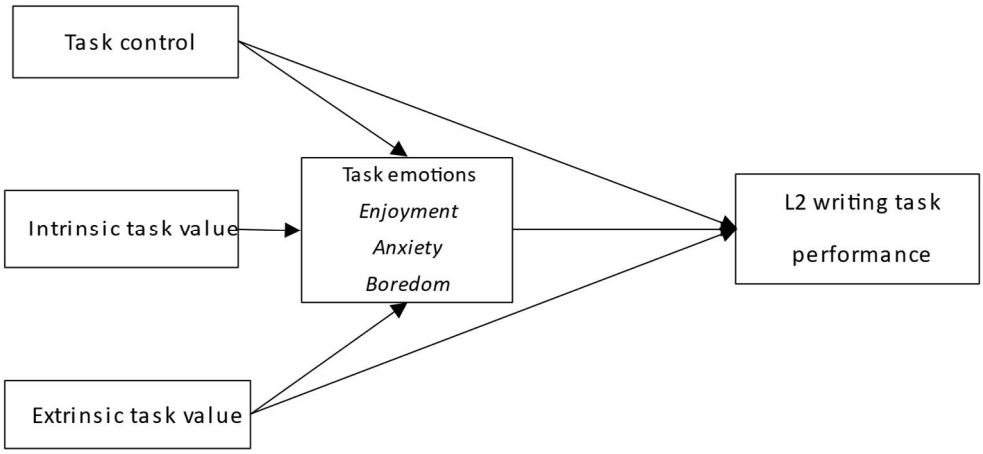

Figure 2 Conceptual framework of the current study

4. Methods

4.1. Participants

This study employed convenience sampling, with 206 adolescent students participating in the classroom-based research after obtaining online consent from the students, their headteachers, and their parents. The participants were eighth graders from five intact classes in a secondary school located in a rural region of eastern China. They were 120 (58.3 %) males and 86 (41.7 %) females, and their ages ranged from 12 to 15 years old (M = 13.31, SD = .72). English was their only foreign language.

They started English learning in Grade 3 and English writing in Grade 7. Two to three months before data collection, the students also participated in *the Cambridge A2 Key for Schools English Test,* an international English proficiency test for young school-age children. Their average scores on the test (M = 46.92 out of 85, SD = 14.73, the speaking section was declined by the research site) indicated that their English proficiency was relatively low, roughly corresponding to A1-A2 levels of the *Common European Framework of Reference for Languages*. The selection of this group of participants was based on several reasons. Firstly, L2 proficiency and age are critical predictors of L2 writing abilities (Kormos, 2023; C. Li, Wei, et al., 2024). Secondly, cognitive, emotional, and motivational factors, which are crucial individual difference factors in L2 writing (Kormos, 2023; C. Li, Wei, et al., 2024), are intertwined and influenced by socio-economic factors (Lamb, 2012; C. Li & W. Li, 2024; Ma et al., 2023). Given these considerations, this under-represented group of participants from this specific demographic was chosen.

4.2. Instruments

4.2.1. The writing task

The participants handwrote an argumentative essay of at least 80 words within 40 minutes. They were asked to choose the best roommate from four candidates based on three categories of qualities (hobbies, strengths, and weaknesses) and to explain their choice. The writing task was developed and validated by C. Li, Wei, et al. (2024) using the task format established by Cho (2015). To ensure a complete understanding of the task requirements, instructions were provided in both Chinese and English, considering the participants' low English proficiency.

To ensure the writing task was suitable for the participants, the author consulted with their English teachers to align the task difficulty with students' abilities, the task format with the local curriculum, and the task content with

real-life authenticity. Based on their feedback, the author made several revisions, including changing foreign names to Chinese names applicable to both males and females (e.g., "Li Wei"), incorporating common qualities that may lead to conflicts between roommates in the research site which is a boarding school, setting the word limit to 80 words, and extending the time limit to 40 minutes in accordance with usual classroom practices.

4.2.2. Scales for task-specific control-value appraisals and emotions

Upon the completion of the writing task, the participants were asked to fill in the task-based scales for control-value appraisals and emotions. Following the rating practices in L2 task perception and emotion literature (C. Li, Wei, et al., 2024; Révész et al., 2017; Robinson, 2001), participants rated their level of agreement with each statement on a 1-9 point scale to facilitate comparisons across relevant studies (see Appendix). Higher scores mean higher levels of agreement. Chinese was used on all scales to ensure a complete understanding of the items on the scale. For all the post-task scales, we assessed their construct validity as well as reliability (see Section 4.4. for statistical analyses and Table 1 for results).

The Scales for Task Control-value Appraisals were developed to evaluate participants' perceptions of the writing task in terms of its controllability and intrinsic and extrinsic value. Nine items, three for each, were generated based on: (1) the definition of control-value appraisals as posited by the control-value theory (Pekrun, 2006), and (2) existing relevant scales in general and L2 literature (Frenzel et al., 2007; C. Li, 2021). Example items for control appraisal, intrinsic value appraisal, and extrinsic value appraisal are "The essay task was easy for me," "The writing task was very interesting," and "I cared a lot about my final score on the writing task," respectively.

The Task Enjoyment Scale was developed to assess enjoyment experienced during the writing task. Five items were generated based on: (1) the definition of enjoyment (e.g., sense of accomplishment and engagement, Ainley & Hidi, 2014), (2) valance, activation, and object focus of enjoyment as assumed by the control-value theory (Pekrun, 2006), (3) proxies for describing enjoyment in L2 learning and writing (Dewaele & MacIntyre, 2014; C. Li, Wei, et al., 2023), and (4) existing relevant scales (Dewaele & MacIntyre, 2014; C. Li, Wei et al., 2023). An example item is "I felt positive during the completion of the essay." The scale was initially validated using a larger dataset collected from the same research site as the current study (C. Li, Wei, et al., 2024).

The Task Anxiety Scale was developed to assess anxiety during the writing task. Five items were generated based on: (1) valance, activation, and object focus

of anxiety (Pekrun, 2006), (2) proxies for describing anxiety in L2 learning and writing (e.g., feeling nervous and trembling with fear; Cheng, 2017; Horwitz et al., 1986; C. Li, Wei, et al., 2023), and (3) existing relevant scales (Cheng, 2017; Wang et al., 2024). An example item is "During the writing task, I worried about making mistakes."

The Task Boredom Scale was developed to assess boredom experienced during the writing task. Five items were generated based on: (1) the definition of boredom (Acee et al., 2010), (2) the valance, activation, and object focus of boredom (Pekrun, 2006), (3) proxies for describing boredom in L2 learning and writing (e.g., distorted time perception and wandering mind; Kruk et al., 2022; C. Li, Dewaele, et al., 2023; C. Li, Wei, et al., 2023), and (4) existing relevant scales (C. Li, 2021; C. Li, Dewaele et al., 2023; Pawlak et al., 2020). An example item is "During the writing task, time was dragging."

4.3. Data analysis

Participants' writing samples were assessed in terms of language, content, and organization, with each dimension scored on a five-point scale, following the *Writing Assessment Subscales for the Cambridge A2 Key for Schools* (see Cambridge English Guide). These subscales were selected for two reasons. Firstly, they were designed for young English learners, similar to the participants in the current study. Secondly, the rubrics closely align with those used at the current research site, ensuring consistency between the assessment criteria and the local curriculum.

Six English teachers from the research site voluntarily took part in the writing assessment process. Prior to evaluating the writing samples, they completed three 60-minute training sessions (see more details in C. Li, Wei, et al., 2024). The initial session focused on thoroughly understanding the rating rubrics. The second session provided practice with evaluating sample tasks from the *Cambridge Writing Assessment Guide*. In the final session, the teachers assessed three writing samples from the current study, engaging in group discussions to compare their ratings and reach a consensus. Each writing sample was evaluated by two teachers, with the final score for each dimension being the average of their ratings. The intraclass correlations for all dimensions were satisfactory (≥ .80; Koo & Li, 2016): .84 for content, .86 for organization, and .87 for language (*ps* < .001).

4.4. Statistical analysis

Data analyses were conducted with SPSS 19.0 and Mplus 8.3. Firstly, a series of preliminary analyses were performed, including reliability (Cronbach's alpha), construct

validity (confirmatory factor analyses [CFAs] with Maximum Likelihood estimator), descriptive statistics (means and range), and normality tests (skewness and kurtosis). To answer RQ1, Pearson correlation analyses were conducted. To address RQ2, structural equation modeling (SEM) was used to test to the hypothesized mediation model, where the three task emotions mediate the relationships between control-value appraisals and task performance. Missing data was handled automatically using Full Information Maximum Likelihood estimation. Model fit indices and criteria used were $\chi^2/df < 3$, comparative fit index (CFI ≥ .90), Tucker-Lewis index (TLI ≥ .90), and root mean square error of approximation (RMSEA ≤ .08) (Hair et al., 2010).

5. Results

5.1. Preliminary analysis

Table 1 displays the descriptive statistics, normality (skewness ≤ 2.0; kurtosis ≤ 2.0; Kline, 2023), reliability ($\alpha \geq .70$; Nunnally & Bernstein, 1994), and validity results. As indicated by the means and ranges, participants generally perceived the writing task as moderately controllable and valuable. Concerning their emotions, they generally felt a moderate level of enjoyment, a low-to-moderate level of anxiety, and a low level of boredom. The absolute values of skewness and kurtosis were smaller than 2, showing a general normal distribution of the data. Table 1 indicates generally acceptable reliability and validity for each scale, except for the α for extrinsic value (< .70) and the factor loadings for task control (< .40). This may be attributed to the reverse coding of the second items and the limited number of items in these two scales (Kline, 2023).

Table 1 Descriptive statistics, normality, reliability, and validity results

Variables	Range	*M* (*SD*)	Skewness (*SD*)	Kurtosis (*SD*)	α	CFA results					
						χ^2/df	RMSEA	CFI	TLI	SRMR	Factor loadings
Control	1-9	5.67 (1.73)	.11 (.18)	-.05 (.35)	.71	0/0	0	1	1	0	.33-.89
Intrinsic value		5.88 (1.86)	-.08 (.18)	-.45 (.35)	.86	0/0	0	1	1	0	.65-.94
Extrinsic value		5.88 (1.86)	-.08 (.18)	-.45 (.35)	.61	0/0	0	1	1	0	.85-.87
Task enjoyment		5.88 (1.75)	.11 (.17)	-.73 (.35)	.90	6.06/3	.07	1	.98	.02	.70-.88
Task anxiety		4.03 (2.13)	.41 (.17)	-.66 (.34)	.93	8.25/4	.07	1	1	.01	.73-.92
Task boredom		3.04 (1.85)	.72 (.18)	-.17 (.35)	.89	4.61/3	.05	1	.99	.01	.56-.95
Task performance	0-15	11.14 (2.26)	-.81 (.17)	.36 (.34)	.90						

5.2. Correlation analyses

Table 2 displays how task-specific control-value appraisals, emotions, and task performance were individually correlated with each other. The results indicate

moderate-to-strong positive correlations between task-specific control-value appraisals and enjoyment (.428 < r_s < .585, p < .001), weak-to-strong negative correlations between appraisals and anxiety (-.149 < r_s < -.535, p < .001), and moderate negative correlations between appraisals and boredom (-.358 < r_s < -.412, p < .001), following the benchmark proposed by Cohen (1988).

Table 2 also shows weak-to-moderate positive correlations between control-value appraisals and task performance (.249 < r_s < .324; p < .01/.001), a weak positive correlation between task enjoyment and performance (r = .234, p < .001), a moderate negative correlation between task anxiety and performance (r = -.308, p < .001), and a weak negative correlation between task boredom and performance (r = -.241, p < .01). The intercorrelations enable subsequent SEM.

Table 2 Correlation analyses results

Variables		1	2	3	4	5	6
1	Control	-					
2	Intrinsic value	.517***	-				
3	Extrinsic value	.517***	.462***	-			
4	Task enjoyment	.532***	.585***	.428**	-		
5	Task anxiety	-.535***	-.200**	-.149*	-.347***	-	
6	Task boredom	-.358***	-.372***	-.412**	-.371***	.371***	-
7	Task performance	.324***	.202**	.249**	.234***	-.308***	-.241**

5.3. Structural equation modeling

SEM results show that the hypothesized mediation model was an acceptable fit of the current data (χ^2/df = 466.005/254 = 1.83 < 3, RMSEA = .064 < .08; CFI = .906 > .90; TLI = .898 ≈ .90; 90% C.I.: [.054, .073]). Figure 3 displays the result generated automatically via Mplus 8.3.

Regarding task performance, it was predicted directly by extrinsic value appraisal (β = .225, p = .048, 90% C.I.: [.031, .597]) and indirectly by control appraisal through the mediator of task anxiety (β = .154, p = .007, 90% C.I.: [.054, .073]). In contrast, intrinsic value did not significantly predict task performance, either directly or indirectly.

As for task emotions, task enjoyment was positively predicted by both control appraisal (β = .376, p = .001, 90% C.I.: [.094, .450]) and intrinsic value appraisal (β = .285, p = .011, 90% C.I.: [.044, .382]); task anxiety was negatively predicted by students' perceived control over the task (β = -.619, p < .001, 90% C.I.: [-.089, -.489]). In contrast, boredom was predicted by none of the three types of control-value appraisals. The results suggested that only task anxiety mediated the relationship between control appraisal and task performance.

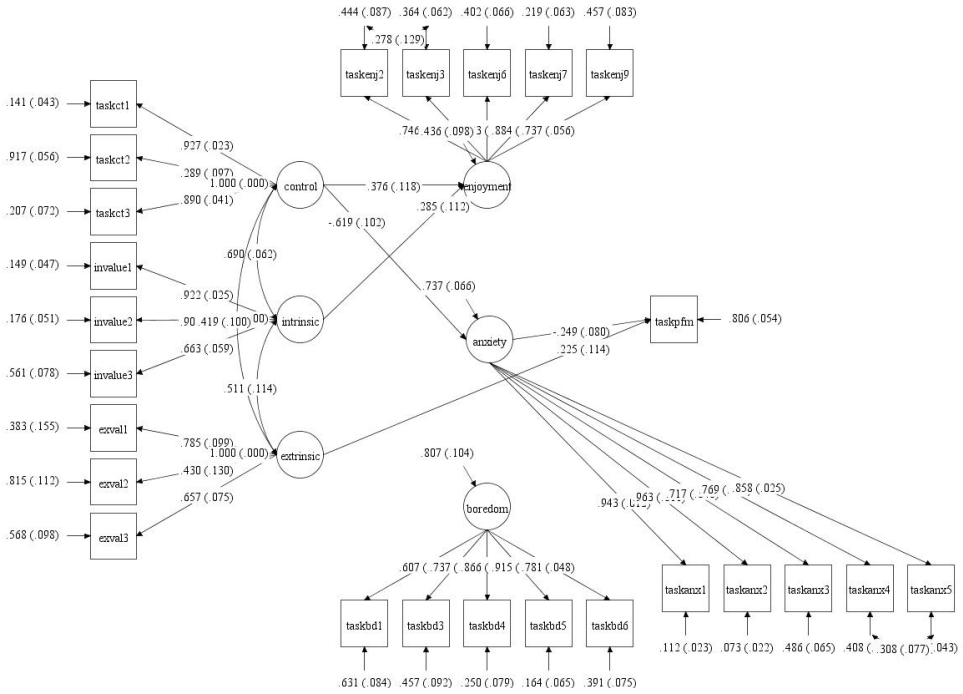

Figure 3 Structural equation modeling results (standardized coefficients were used; the figure only presents significant results; *p < .05, **p < .01, ***p < .001; taskpfm = task performance; intrinsic = intrinsic value; extrinsic = extrinsic value)

6. Discussion

This section interprets the results in accordance with the research questions, explaining the two-variable inter-correlations between task-specific appraisals, emotions, and task performance and the joint contributions of these appraisals and emotions to task performance.

6.1. Intercorrelations between task-specific control-value appraisals, emotions, and task performance

RQ1 addresses how task-specific control-value appraisals, emotions, and task performance are individually related. The results fully support the first hypothesis and align with the assumptions of control-value theory (Pekrun, 2006).

6.1.1. Control-value appraisal antecedents of task emotions

The correlation results in Section 5.2 show that the three types of control-value appraisals were individually linked to the three pervasive emotions – enjoyment, anxiety, and boredom – at the task-specific level (*Level 1*). These findings align with prior research on the connections between control-value appraisals and achievement emotions at a more general level (*Level 3*) (C. Li, 2021; Zhao & Yang, 2023). The consistency of these links across different levels of situational specificity instantiates the control-value theory across varying time scales (Pekrun, 2006).

The links between task-specific control-value appraisals and emotions are convincing, as participants were emotionally responsive to the task (C. Li & Dewaele, 2024). Task features, such as design and implementation, shape learners' perceptions, with task control, intrinsic value, and extrinsic value being crucial for emotional arousal, as posited by the control-value theory (Pekrun, 2006; Pekrun & Perry, 2014). When a task is perceived as controllable, learners are likely to feel psychologically safer, which may enhance enjoyment and reduce negative emotions like anxiety and boredom. Similarly, tasks perceived as inherently attractive (e.g., fun, playful, authentic, or creative) are likely to lead to greater appreciation and enjoyment while also reducing anxiety and boredom (C. Li, 2021; C. Li & Dewaele, 2024). If the task is perceived as necessary for its extrinsic value (e.g., a reward, praise, bonus, credit requirement, or development opportunity), the learner tends to be directed to the desired goal, enjoying rather than feeling bored or anxious during the process of pursuit (Pekrun, 2006; Pekrun & Perry, 2014).

6.1.2. Achievement outcomes of task emotions

The correlation results in Section 5.2 also show that task-specific emotions were individually linked to task performance, with small-to-moderate effect sizes. Specifically, enjoyment was positively correlated with task performance, and anxiety and boredom were negatively correlated with task performance. The links between task-specific emotions and performance found at the task-specific level (*Level 1*) dovetail with prior findings found at *Level 3* (C. Li & Wei, 2023) and *Level 2* (general L2 writing contexts; C. Li, Wei, et al., 2023). The findings at three different specificity levels strongly support the crucial short-term and long-term roles of emotional individual difference factors in L2 writing. The findings of the current study also extend the TBLT literature, which has mainly focused on the role of task features and certain learner factors, cognitive individual difference factors in particular (S. Li, 2024), largely neglecting diverse emotional individual difference factors except anxiety.

The significant task-specific emotion-performance links could also be explained by referring to the potential motivational, cognitive, and behavioral mediators between task emotions and performance from a control-value theory perspective (Pekrun, 2006; Pekrun & Perry, 2014). Positive emotions with a high level of activation, like enjoyment, are more likely to foster learners' interest, intrinsic motivation, and agentic engagement and stimulate learners to endorse a mastery approach goal that relies on focused attention on task completion, deep information processing, and motivated autonomous learning behaviors (Fiedler & Beier, 2014; Pekrun & Perry, 2014). Such motivational, cognitive, and behavioral benefits of positive activating enjoyment work together to improve task performance (C. Li, W. Li, et al., 2024). By contrast, the negative emotion of anxiety, characterized by a high level of activation, may distract learners from focusing on completing the task. In their attempt to avoid potential failure, learners may be prone to anxiety which can impair their interest and motivation, frustrate their efforts, and ultimately prevent them from engaging in agentic and exploratory motivated behaviors (Fiedler & Beier, 2014; Pekrun & Perry, 2014). These debilitative effects in cognition, motivation, and learning behavior work together to impair task performance. As for boredom, its negative valence and low level of activation prevent learners from making mental efforts, engaging in deep information processing, or showing agency or autonomy in the task (Fiedler & Beier, 2014; Pekrun & Perry, 2014). Surface-level information processing and demotivated behaviors lead to reduced task performance (C. Li, Wei, et al., 2024).

6.2. Joint relation of control-value appraisals and task emotions to task performance

RQ2 concerns the joint contributions of task-specific control-value appraisals and emotions to task performance. SEM results partially support the hypothesis that task emotions mediate the relationships between control-value appraisals and task performance. Specifically, task anxiety was found as a negative mediator between the positive relationship between control appraisal and task performance. The control-value theory can be drawn upon to explain the partial mediation model. When learners perceive a task as highly controllable, they feel a sense of psychological safety, leading to reduced anxiety about potential outcomes. Lower anxiety levels prevent learners from setting unnecessary limits and boundaries, thereby unlocking their potential to explore more aspects of the L2. This encourages learners to take advantage of the opportunities provided by the task to stretch their existing L2 skills (Fiedler & Beier, 2014; C. Li, W. Li, et al., 2024; Pekrun & Perry, 2014). Additionally, a sense of psychological certainty enhances self-efficacy, reducing concerns about future task outcomes that might otherwise impair attention. As a result,

learners are more likely to enjoy making breakthroughs, extending their limits, and fulfilling their potential to perform well in the task (Dewaele & MacIntyre, 2014; C. Li, W. Li, et al., 2024; Pekrun & Perry, 2014).

A closer look at the joint model points to the following changes: both enjoyment and boredom lost their individual significant links with task performance. The control-value theory can explain the changes in the joint model in comparison with the separate two-variable associations. As assumed, any two variables in the chain are mutually linked with each other and interact with each other to influence their outcomes in the chain over time (Pekrun & Stephens, 2010). By implication, their original two-variable associations may be magnified, diminished, or vanish as a result of the complex interactions between the variables in the tangled web (Pekrun et al., 2014). For example, the positive effect of enjoyment on task performance may counteract the negative impact of boredom, a phenomenon known as the undoing effect, as previously reviewed (C. Li, Pawlak, et al., 2023). According to the three-dimensional taxonomy (Pekrun, 2006), enjoyment and boredom are similar in their focus on the ongoing task but lie at opposite ends of the spectrum in terms of valence (positive vs. negative) and activation (activating vs. deactivating) (C. Li, Pawlak, et al., 2023; Pekrun & Perry, 2014; Pekrun & Stephens, 2010). Emotions with opposite levels of activation and valence are expected to exert opposite effects on task performance (Pekrun & Perry, 2014), which helps to explain the non-significant links between these emotions and task performance in the model.

A closer examination of the joint model reveals several interesting findings. First, intrinsic and extrinsic value appraisals no longer predicted anxiety and extrinsic value appraisals did not predict enjoyment, while none of the three control-value appraisals significantly predicted boredom. This indicates that learners can simultaneously experience enjoyment and anxiety during a task when both share the same control perceptions as proximal predictors. However, boredom does not fit this pattern. These findings support the idea that enjoyment and anxiety are not simply opposite ends of a continuum (Dewaele & MacIntyre, 2014), whereas enjoyment and boredom are more directly opposed (C. Li, Pawlak, et al., 2023). Additionally, boredom appeared to be less strongly associated with task perceptions and performance, potentially due to its low activation level, which is characterized by minimal physical and psychological stimulation – a precursor to deep engagement (Goetz & Hall, 2014). Second, extrinsic value appraisal was directly and positively linked to task performance, suggesting a potential mediating role of extrinsic motivation. This finding aligns with the study context, where participants were often rewarded or praised for excellent performance.

7. Strengths, implications, and limitations

This study has several strengths and can serve as one of the earliest examples of integrating TBLT and PP. Firstly, in this article, I argue for the need to differentiate trait emotions from state emotions (including task-specific emotions) and propose the three distinct levels of situational specificity of L2 learner emotions. The three levels provide conceptual implications for understanding the nature of these emotions. They also offer methodological implications for selecting measures that match emotions at a certain level of situational specificity. Secondly, the study is among the very first to investigate both positive and negative emotions (enjoyment, anxiety, and boredom) in a TBLT context by integrating the control-value theory with PP. The findings extend the TBLT literature by providing preliminary evidence for the crucial yet neglected role of emotional ID in task performance. The results also expand the TBLT literature by attending to the emotional effects of task features, which is also neglected in linguistic performance-oriented TBLT literature.

The findings contribute to the understanding of the task-learner interaction in relation to task performance. The pedagogical implications are that L2 teachers should take a PP approach to TBLT, including fostering learners' positive emotions and reducing negative ones in the list of task objectives. Specifically, L2 teachers should consider not only the linguistic outcomes but also the emotional dimension of tasks, as emotions are crucial in shaping well-being and contribute to task performance (C. Li & Dewaele, 2024). For example, when designing a task, the teacher should anticipate the emotional responses to certain task features, such as task difficulty and authenticity, since these features are directly relevant to control appraisal, intrinsic value appraisal, and extrinsic value appraisal. These three appraisals, in turn, determine task emotions, which are further linked to task performance. When implementing the task, L2 teachers should also be emotionally aware and adaptive. To better manage learners' emotions during the task, L2 teachers could make pedagogical adjustments to the task, especially to features closely linked to appraisals of task control and value.

The study has several limitations. First, the study focused on enjoyment, anxiety, and boredom, neglecting other emotions in writing. It is recommended that other emotions (e.g., anger, hope, and pride) be included in future research. Second, the scales for emotions used in this study are task-dependent yet still retrospective by nature. Online physiological measures (e.g., heart rate) are recommended for future research to reduce memory bias and potential social desirability. Third, the scales were developed to assess task-specific control-value appraisals and emotions in the L2 writing context among a group of less proficient young EFL learners in a less-developed rural region of China. It remains to be explored whether these scales

are applicable to other groups of L2 learners and to different skills, such as L2 speaking, which is more public, less self-paced, and less recursive than writing. Fourth, the current study is an attempt to reveal the links between control-value appraisals, task emotions, and task performance using a correlational design with data collected at a single time point. To establish causal relationships, further research using experimental or longitudinal designs is needed. Lastly, this study relies exclusively on quantitative scales, which may reduce the possibility of revealing curvilinear relationships between control appraisal and emotions (C. Li, 2021). Future research can include qualitative techniques to provide a more nuanced understanding.

8. Conclusions

The study examined the direct and indirect links between task-specific emotions, control-value appraisals, and task performance. The findings offer preliminary evidence on the role of distinct emotions in task performance, extending both L2 emotion research and TBLT research. By integrating insights from control-value theory in educational psychology, TBLT, and PP into L2 writing research, the study identifies several critical areas for future investigation. These include examining emotional responses to specific task characteristics such as difficulty, complexity, clarity, format (e.g., open-ended or forced choice), topic familiarity, novelty, and authenticity, as well as planning time, time constraints, task repetition, opportunities for retaking, and reward and punishment systems. Additionally, future research could explore a broader range of emotions (e.g., shame, pride, guilt, hope, and anger) across different levels of situational specificity (task-specific, skill-specific, and general) in a variety of L2 tasks, including listening, speaking, and reading. Further investigation is also needed into the interplay between emotion, motivation, cognition, and engagement in task performance and how emotions influence specific task processes, such as writing behaviors (e.g., pausing, revision, and eye-gazing). In conclusion, there is a need for continued empirical research on diverse task-specific emotions within the intersection of TBLT and PP.

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APPENDIX

Scales for task-specific control-value appraisals and emotions

说明：请回忆你刚才完成的英语写作任务，阅读以下描述，并对各条描述进行评分，评分区间为 1-9 分，分值越高代表你越赞成该描述。

Instructions: Please recall the English writing task you have just completed, read the following statements, and then give your ratings for each statement. Higher scores from 1 to 9 mean higher levels of agreement.

在刚才的写作任务中.....
During the writing task...

Task Control Scale

《任务可控感量表》	*Task Control Scale*
1. 我觉得写刚才这篇作文很轻松。	The essay task was easy for me.
1. 刚才这篇文章很费脑筋。*	The writing task required a lot of mental effort. *
2. 刚才这篇文章我写得很顺畅。	The writing task was completed smoothly.

* Reverse coding

Intrinsic Task Value Scale

《内在价值量表》	*Intrinsic Task Value Scale*
1. 刚才的写作任务很有意思。	The writing task was very interesting.
2. 我很喜欢刚才的写作任务。	I like the writing task.
3. 刚才的写作练习很重要。	The writing task was important.

Extrinsic Task Value Scale

《外在价值量表》	*Extrinsic Task Value Scale*
1.我希望能在刚才的写作任务中取得好成绩。	I hoped to get high scores on the writing task.
2. 我完成了写作任务只是因为老师要求我们这样做。*	I completed the writing task just because the teacher required us to do so. *
3. 我很在意刚才那篇作文的成绩。	I cared a lot about my final score on the writing task.

* Reverse coding

Task Anxiety Scale

《任务焦虑量表》	*Task Anxiety Scale*
1. 我很紧张。	I was anxious.
2. 我紧绷着神经。	I was terribly nervous.
3. 我怕出错。	I worried about making mistakes.
4. 我很受挫。	I was frustrated.
5. 我捏着一把汗。	I was trembling with fear.

Task Boredom Scale

《任务无聊量表》	*Task Boredom Scale*
1. 我感到很枯燥。	I felt bored.
2. 我走神了。	My mind was wandering.
3. 我做了其他的事情。	I did something irrelevant to the task.
4. 我无所事事。	I didn't know what to do.
5. 时间过得好慢。	Time was dragging.