

Article

Control–Value Appraisals and Achievement Emotions: A Moderation Analysis

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Abstract: Emotions in second language acquisition have started to gain attention in the past few years. One of the main theories that has been used to investigate students' achievement emotions is Pekrun's control–value theory of achievement emotions. This research aims to use the control–value theory to investigate the relationship between control and value appraisals, their interaction, and the effect they have on anxiety, boredom, and enjoyment in the context of SLA. Data were collected from 515 university students enrolled in an English language course whose first language was Arabic. The results of analyzing the data indicated that students' perceived intrinsic, attainment, and utility value interacted differently with students' perceived control to affect anxiety, boredom, and enjoyment. The results highlight the role played by intrinsic value in the relationship between control and anxiety and control and enjoyment.

Keywords: emotions; SLA; CVT; control appraisals; value appraisals; moderation; interaction; language learning



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1. Introduction

Second language acquisition (SLA) refers to learning a second language (L2) after the first language (L1) has been learned [1]. The beginnings of the modern-day study of SLA have roots in the time when much of the educational research was immersed in the cognitive revolution of linguistics, psychology, and learning [2], and SLA research just followed suit. Emotions have only started to make their way into SLA research quite recently. The main two emotions that had the biggest share of research interest were anxiety and enjoyment, labeled as the right and left feet of every language learner [3]. Other emotions that have also been researched in the field of SLA include but are not limited to shame and guilt [4], joy, interest, hope, pride, hate, sadness [5], and boredom [6,7].

For the purpose of this research, three achievement emotions will be under investigation in the context of SLA, namely, anxiety, boredom, (negative deactivating emotions), and enjoyment (a positive activating emotion). Anxiety in SLA has been reported to be a common occurrence among language learners and has been proven to have a pervasive effect on language learning [8]. Enjoyment in language learning has been reported to co-occur with anxiety [3,9]. Boredom is a relatively new area of research in SLA [10], hence more light needs to be shed on it.

1.1. Anxiety in SLA

Anxiety has had its fair share of interest in SLA research. This interest roughly started in the early 1980s [8] and was given more ground by Horwitz et al. (1986)'s article that aimed to conceptualize anxiety that is specifically aroused in the contexts of second and foreign language learning. Foreign Language Anxiety (FLA) is defined as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom learning

arising from the uniqueness of the language learning process” [11] (p. 128). The use of “distinct” indicates that FLA is viewed as state anxiety arising in/from specific situations; in this case, from learning a foreign language [12]. Later, Horwitz (2017) elaborated on this by stating that learners who experience FLA “have the trait of feeling state anxiety” [13] (p. 33) whenever they are engaged in any form of language use or learning due to them feeling distressed at the restrictions of using the foreign language, which prevent them from being themselves and connecting with others in a genuine way.

The early beginnings of research on anxiety in SLA yielded inconsistent findings regarding anxiety’s effect on the different aspects of language learning [8,14]. These inconsistencies were also reported in other educational fields, which has led to an ongoing lingering discussion of anxiety having a debilitating or facilitating effect on learning [13]. According to MacIntyre and Wang [8], these inconsistencies could be explained through the lens of the broaden-and-build theory of positive emotions [15,16]. The facilitating effect occurs when experiencing a small amount of anxiety during a learning task or situation prompts the learner to evaluate the consequences of failing that task, which in turn triggers the learner to employ coping strategies to avoid those consequences. However, when anxiety arousal is too high, it could lead to debilitating effects and negatively affect language learning [8].

However, with a better understanding of anxiety, later findings seem to agree that there is a negative association between anxiety and learners’ achievement [4], progress, and performance in L2 [6,8,17]. As for the triggers of FLA, it has been reported to be a result of both learner-internal factors (e.g., personality traits and motivational orientations) and learner-external factors like harsh feedback [8]. In a study by Su [18] investigating the sources of FLA in 231 Chinese university students, self-factors were reported to be the most-occurring sources, followed by teacher factors, and then peer-related factors.

1.2. *Enjoyment in SLA*

As Positive Psychology made its way into the field of SLA, enjoyment and its effects on language learning started to attract research interest [6,19]. In their article, MacIntyre and Gregersen [20], building on the works of [15,16], emphasized the distinctly different but equally important role played by both positive and negative emotions in the language classroom. On the one hand, negative emotions, such as anxiety, could have an adverse effect on language learning. On the other hand, positive emotions, enjoyment in this case, could have the opposite effect by broadening the learner’s perspective [15] and fostering engagement [21]. This has brought attention to the effects of positive emotions, such as joy, pride, and happiness, on language learning. Out of these emotions, enjoyment was the one that attracted the most attention [17,22]. This could be credited to enjoyment being reported to have frequent occurrence within language learners [23] and its relatedness to students engaging in classroom communications in the target language [24].

Enjoyment refers to emotions experienced by language learners when their psychological needs are being met and they are “experiencing desirable outcomes related to personal success and interpersonal relatedness” [9] (p. 242). The interest in the effects of enjoyment on SLA was given more solid theoretical underpinnings with the development of the Foreign Language Enjoyment Scale (FLES) by Dewaele and MacIntyre [9]. Since then, findings have emerged reporting evidence for the positive impact of enjoyment on foreign language acquisition and performance. In a recent meta-analysis of the effects of FL enjoyment [25], it was reported that there was a positive correlation between FLE and willingness to communicate, academic achievement, and self-perceived achievement. Other studies have evidenced the positive impact enjoyment has on motivation [26,27], flow [24], and the development of comprehensibility [27].

In regards to the sources of FLE, it was concluded that FLE was more linked to externally related variables, while FLA was more linked to internally related variables [18]. In a sample of 231 university students, sources that were mostly linked to FLE were classroom activities, teacher support, classroom atmosphere, and excellent classroom

performance, while, in a previous study, FLA was reported to be caused by a failure to finish tasks, speaking without preparation, and poor English proficiency.

1.3. Boredom in SLA

Boredom is classified as a negative deactivating emotion arising from activities that are either under- or over-challenging for the learner [6] and low cognitive stimulation [22]. It comprises feelings of “dissatisfaction, disappointment, annoyance, inattention, lack of motivation to pursue previously set goals and impaired vitality” [28] (p. 177). Prior studies have reported that boredom has a negative impact on different aspects of learning, including students’ motivation, self-regulation, engagement, learning strategies, and achievement [29].

Empirical research has found that boredom is a pervasive emotion in the language classroom [7,30,31]. However, boredom is a relatively new emotion of interest in the field of SLA [6,29]. Hence, a firm understanding of boredom as an emotion in language learning is still lacking. Recently, Li and colleagues [6] have conceptualized the construct of foreign language learning boredom (FLLB) and developed the FLLB scale following the control–value theory by Pekrun [32]. Li and colleagues [6] have also reported that a number of negative feelings or symptoms denote FLLB, such as sadness, disengagement, inattention, dislike, mind blankness, and a desire to escape.

Investigating the relationship between FLA, FLE, and FLLB, Li and Wei [33] reported that higher levels of boredom were linked to lower levels of FLE, which was also reported by Kurk and colleagues [34]. Contrastingly, higher levels of anxiety were reported to relate to higher levels of boredom [33], a finding that was also corroborated by [35] using a sample of 328 Arab university students majoring in English.

1.4. Control–Value Theory of Achievement Emotions

The control–value theory of achievement emotions posits an integrative framework of the reciprocal relationships between achievement emotions, their antecedents, and outcomes in educational settings [32,36]. According to the theory, achievement emotions are defined as the emotions that arise out of achievement activities or achievement outcomes. These emotions are affected by a number of factors (antecedents) and could lead to certain outcomes. However, a key aspect of the theory is that the relationships between antecedents, emotions, and outcomes are not one-directional; this means that although antecedents are postulated to affect achievement emotions, those emotions could also influence the antecedents, and it is the same for the outcomes.

As proposed by the theory, achievement emotions can be classified using a three-dimensional taxonomy [32,36], based on object focus, valence (positive/negative), and degree of activation. With regards to object focus, emotions can be categorized into activity-related emotions or outcome-focused emotions. Activity-related emotions are related to the tasks or activities that are ongoing, such as enjoyment, boredom, and frustration. However, outcome-related emotions are those that relate to the outcome of the situation or the activity. Outcome-related emotions could be prospective emotions of future outcomes such as the hope for success or retrospective emotions arising from past experiences such as shame experienced after receiving feedback.

As for valence and activation, achievement emotions include a range of positive emotions such as enjoyment, hope, and relief, as well as a range of negative emotions such as boredom, anger, and shame. Those emotions, whether positive or negative, can be activating or deactivating. For example, enjoyment is described as a positive activating emotion, while relief is a positive deactivating emotion. On the other hand, anger and boredom are negative emotions, where the former is activating while the latter is deactivating [32,36].

1.5. Control–Value Appraisals

CVT posits that emotions that arise in academic situations are instigated by two types of cognitive evaluation, which are appraisals of value and control of the ongoing

activity or a future outcome. Once these emotions are instigated, they lead to certain academic outcomes like motivation, performance, and self-satisfaction [32]. Control appraisals are defined as students' perceived control over activities and outcomes, which include self-concept, self-efficacy, causal attributions, and outcome expectancy [32], while value appraisals, having their roots in the expectancy–value theory of motivation [37,38], are defined as the subjective value students give to achievement-related activities or outcomes [39]. Student appraisals of control and value act as proximal antecedents (direct predictors) of achievement emotions [40] that then mediate achievement outcomes. The theory also suggests the existence of distal antecedents that affect students' control–value appraisals and in turn affect students' achievement emotions, variables such as learner attitudes towards the subject they are learning, and teacher-centered variables [21].

According to CVT, value appraisals are categorized into intrinsic and extrinsic [41]. Extrinsic value relates to the perceived instrumental usefulness of achievement-related activities and outcomes in the pursuit of acquiring other goals [32], such as valuing effort and success in learning English because it is in line with the attainment of a future goal [22]. On the other hand, intrinsic value is the value of the achievement-related activities and outcomes per se, in spite of their instrumental utility [22,32], such as enjoying an activity because the activity itself is interesting and intriguing to the learner.

Another level could also be added to the categorization of perceived value using Eccles' expectancy–value theory of motivation [37,38]. According to the expectancy–value theory, perceived value is divided into intrinsic, attainment, and utility value. Attainment value is defined as the perceived importance of task achievement for one's identity or self-worth, while utility value is the perceived instrumental usefulness of the task for one's goals [37,38]. These definitions indicate that under the umbrella of CVT, attainment and utility value are subcategories of extrinsic value [42]. For the purpose of this research, the conceptualization of value will, based on Eccles' categorization of perceived value, include intrinsic, attainment, and utility value [37,38].

According to CVT, in order to instigate an achievement emotion, appraisals of both control and value are required [41]. More precisely, it is proposed that positive emotions are a result of an interplay between the perceived value and the perceived controllability of academic activities or outcomes. Contrarily, negative achievement emotions are thought to be a simultaneous effect of a perceived lack of control and high value. Achievement emotions are assumed to increase in intensity with higher levels of value and control for positive emotions and a lack of control for negative ones. Enjoyment, for instance, is assumed to be a result of the multiplicative evaluation of a high level of value and control, while anxiety is a negative emotion that is instigated in situations where a student would value the activity or the outcomes as important and have uncertain feelings of perceived controllability to prevent failure. This implies that value moderates the effect of control on achievement emotions [43]; a higher perceived value exerts a stronger influence of control over achievement emotions.

When it comes to boredom as an achievement emotion, it does not completely fit within the previously stated assumptions [43]. Boredom is related to a lack of value, whether negative or positive, and can be induced in activities that either require no sufficient challenge from the student, indicating high levels of control, or activities that are over-challenging, indicating low levels of control [41].

Control–value appraisals have been widely researched in educational contexts. The results of empirical research have confirmed the assumption of CVT that perceived control and value as positively correlated with positive emotions and negatively with negative ones [44]. Pekrun and Perry [45] reported that control and value appraisals were antecedents of enjoyment and boredom, as they positively predict enjoyment and negatively predict boredom. This was confirmed by a later study [46], which also investigated the interaction of control–value appraisals on enjoyment and boredom, reporting that the interaction between control–value appraisals amplified control appraisals' relationship with enjoyment, which otherwise was low. Investigating the reciprocal relations between

appraisals of control and value, emotions, and achievement in math classes, Forsblom and colleagues [47] confirmed the reciprocal nature of that relationship, as the findings revealed an indirect effect of achievement on emotions mediated by control.

A later study [42] using a sample of 1298 school students investigated how control and value appraisals and their interaction would predict enjoyment, boredom, and anxiety. The results reported a strong positive correlation between intrinsic, attainment, and utility value and enjoyment and a negative correlation with boredom. The findings have also revealed that intrinsic and utility value had a moderately negative correlation with anxiety, while attainment value was found to be unrelated to anxiety, which contradicts CVT's proposal of anxiety occurring at higher levels of attainment value. Control, on the other hand, was found to positively correlate with enjoyment and negatively with boredom and anxiety. On the multiplicative effect of control and value appraisals on emotions, it was reported that having low intrinsic value amplified the relationship between control and enjoyment. However, there was no interaction found between control and utility value, nor control and attainment value, that predicted enjoyment. This differs from the findings of an earlier study [46], as achievement value was reported to intensify the relationship between control and enjoyment. This could be explained by a change in the context and outside factors affecting the participants, as for the earlier study, they had to sit high-stakes exams, while for this one, they did not. Finally, anxiety was not predicted by any of the interactions between control and utility, attainment, and intrinsic value.

1.6. CVT as a Theoretical Underpinning in the Context of SLA

From what we have gathered so far, it is evident that the control–value theory of achievement emotions has proven to be a solid foundation for investigating and explaining students' emotions, their antecedents, and outcomes in different educational fields (please refer back to the presented literature review). With the theory being built upon assumptions drawn from some of the main theories in psychology and educational psychology related to emotions [14], CVT provides a tight-net network of functional mechanisms connecting achievement emotions with their antecedents and outcomes that are common across academic disciplines yet discipline-specific in their content and strength [14,32]. This shows that the fundamental ideas underpinning the notion of achievement feelings can be applied to several topics, including SLA.

Employing CVT in understanding anxiety, enjoyment, and boredom in the context of SLA provides the framework needed to study these emotions and their triggers. After all, FLA, FLE, and FLLB are emotional reactions [8], so understanding their antecedents within the context of SLA is of high importance. Research on SLA has just recently started to turn its attention to the use of the control–value theory in the investigations of L2 emotion. The authors of [48] used the CVT as a framework to investigate how students' actual and self-perceived L2 competence relate to FLE and FLA. The results revealed that both actual and perceived self-competence negatively correlate with FLA and positively correlate with FLE. Li [22] adopted the CVT to investigate the effects of control and value appraisals on FLLB using a sample of more than 2000 university students. The findings confirmed control and value appraisals to be proximal antecedents of FLLB. In a qualitative study, Pinieel and Albert [23] used the CVT as a guiding theory for analysis. The results of the study confirmed that students' emotions in FL classrooms are categorized according to their object focus, valence, and activation, which are the three dimensions within the framework of the CVT. In another study based on the CVT, Shao and colleagues [43], using a latent interaction analysis between control–value appraisals, subsequent achievement emotions, and resulting performance in foreign language learning, concluded that emotions mediated the impact of control–value appraisals on L2 learners' performance. These results validate the applicability of CVT in SLA research.

In light of the presented literature, this study attempts to employ the control–value theory of achievement emotions as a theoretical underpinning to investigate the effects of control and value appraisals on students' emotions in the context of learning English as

a second language. These relationships are still unexplored in the context of learners of English whose first language is Arabic. Exploring these relationships would provide an understanding of how students' control and value appraisals affect their emotions in the English language classroom, which in turn would lead to better learning outcomes.

1.7. Research Questions and Hypotheses

Based on the above discussion, this study aims to investigate the following research hypotheses:

Hypothesis 1. *Control and value appraisals of English language learners whose first language is Arabic would correlate positively with enjoyment and negatively with anxiety and boredom.*

Hypothesis 2. *Value subscales will interact differently with control to moderate the relationship between control and achievement emotions. More specifically, control and value appraisals and their interaction will positively predict enjoyment and negatively predict boredom and anxiety.*

Hypothesis 3. *Higher levels of value will amplify the relationship between high levels of control and enjoyment and low levels of control and anxiety, while lower levels of value will amplify the relationship between control and boredom.*

2. Materials and Methods

2.1. Research Design

This research follows a cross-sectional correlational design [49]. This design aims to investigate the relationship between the proposed variables and their strength in the context of SLA in higher education. Understanding these relationships will give better insights into how these relationships play out in this context.

2.2. Participants and Procedure

Data for study 1 was collected through snowball sampling, which is a form of non-probability sampling technique. An online questionnaire was created and then the link was sent to a number of teachers working at the Language Center at An Najah National University. Teachers were asked to forward the link to the questionnaire to their students and students were asked to forward the link to any of their colleagues enrolled in any of the English 101 courses offered by the Language Center for the fall semester of 2022/2023. A total of 515 students filled out the questionnaire.

The sample consisted of 367 females (74.9%) and 123 males (25.1%). The sample included 265 students (54.1%) who came from scientific majors while 225 (45.9%) came from humanities. Out of those students, 62 (12.7%) were first-year students, 181 (36.9%) were in their second year, 115 (23.5%) were in their third year, and 132 (26.6%) were seniors. At the time of collecting the data, all 515 participants were enrolled in an English 101 course offered by the Language Centre at An-Najah National University. This course is mandatory for all undergraduate university students to take as part of their degree completion. All undergraduate students have to enroll in this course and pass it at some point in their undergraduate studies. English 101 is an English language course that aims to enhance students' language skills in English, especially those skills needed for them as university students like academic reading and writing, speaking, and listening. A typical class of the E101 course usually includes about 35 students from different university majors like medicine, economics, nursing, education, and many others. These students usually have different levels of English language proficiency, but all of them, in order to be able to enroll in the course, must pass a placement test first or take a remedial English course in case they have failed the placement test. Participants for this research were asked to rate their perceived proficiency level in English. In total, 117 (23.9%) students perceived themselves as beginners, the majority of the participants (64.1%) perceived themselves at an intermediate level of English, while 59 (12%) students perceived themselves as advanced.

2.3. Data Collection Tools

A composite questionnaire of widely used scales was used to collect data for this research. The first section of the questionnaire collected demographic information like age, university major, and academic year. The second section of the questionnaire consisted of 3 scales assessing control, value, and emotions. All of the measures used a 5-point Likert scale with 5 indicating strongly agree and 1 indicating strongly disagree. The questionnaire was originally formed in English and then it was translated to Arabic. The accuracy of the translation was checked by a number of experts through the method of back-translation. Once ready, the questionnaire was pilot-tested on a sample of 72 students. Below is a description of the scales used with the internal consistency reported from the pilot study.

Value: To measure students' subjective task value, a 12-item scale was adopted from Putwain and colleagues [42], which was originally taken from the Michigan Study of Adolescent Life Transitions scales. The scale measured utility, intrinsic, and attainment value with 4 items for each subscale. For example, the item "I want to show how good I am at English" was used to reflect attainment value, "I find working with English interesting" reflected intrinsic value, while "English will help me later in life" represented utility value. Results from the pilot study revealed a good internal consistency [50] for the whole measure and its subscales, with a Cronbach's alpha of $\alpha = 0.879$ for the whole scale and $\alpha = 0.780$, $\alpha = 0.835$, and $\alpha = 0.873$, for intrinsic, attainment, and utility value, respectively. The scale also has a good construct validity with factor loading ranging from 0.720 to 0.912.

Control: Students' perceived control was measured using The Perceived Academic Control scale [51]. The scale consists of eight items related to influencing academic achievement outcomes and uses a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). According to the scale, students are designated as either "moderate" or "high" in academic control on the basis of a median split procedure. Examples of items used in the scale include "The more effort I put into my English course, the better I do in it" and "There is little I can do about my performance in university." The scale has a reasonable internal consistency [50] of Cronbach's $\alpha = 0.690$, indicating good reliability and good construct validity.

Emotions: Emotions were assessed using the short version of the Achievement Emotions Questionnaire (AEQ) [52]. The AEQ is a well-established instrument for measuring achievement emotions in educational research. Four subscales were used with 4 items each to measure anxiety, enjoyment, and boredom. An example of an item measuring anxiety is "I feel nervous in the English class", enjoyment is "I am looking forward to learning a lot in this class", and boredom is "I get bored." Internal consistency from the pilot study was reported as a Cronbach's alpha of $\alpha = 0.891$, $\alpha = 0.916$, and $\alpha = 0.946$ for the subscales, respectively, indicating the high reliability of the scale [53]. The subscales have good construct validity with factor loading ranging from 0.863 to 0.941.

2.4. Research Procedures

First, the composite questionnaire was made using the different scales outlined above. Permission to use the value scale was sought from and granted by the main author of [42]. The other scales were published in their original papers. Once the questionnaire was ready, it was translated into Arabic by the researcher using forward translation. Then, the Arabic translation was sent to an expert to ensure the items were translated correctly from English to Arabic using backward translation and to check the accessibility and clarity of the language used. A number of comments were made and taken into consideration.

Once the questionnaire was ready, it was pilot-tested on 77 students enrolled in the E101 course during the second semester of 2021/2022. Construct validity and internal consistency were checked for each of the scales used using IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY, USA, and the results of the analysis are reported in the above section. Based on the results of the pilot study, no changes were made to the questionnaire and data collection was commenced.

2.5. Data Analysis

The aim of this study was to investigate the relationships between the study variables and to test the moderation of the suggested variables. To this end, the data collected were analyzed using SPSS v.26 and PROCESS Macro. Correlation analysis was used to uncover the nature of the relationships between appraisals of control and value and achievement emotions. Moderation analysis was carried out using Hayes' PROCESS Macro V4.2. PROCESS is a path analysis tool that uses ordinary least squares (OLS) regression [54] to produce direct and indirect effects in mediation and moderation analysis. PROCESS is a reliable and user-friendly tool that offers a number of mediation and moderation models that are customizable. All moderation analyses were estimated using a 10,000 bootstrapping sample and a 95% confidence interval.

3. Results

3.1. Data Cleaning and Preliminary Analysis

Data were screened for outliers using a boxplot via SPSS V.26. This resulted in the deletion of 25 cases that were reported as outliers, leaving 490 cases for analysis. Descriptive statistics for the data collected from the questionnaire are shown in Table 1. Most variables seem to be within the near normal [0 ± 0.25], slight [$\pm0.26\pm0.75$], and moderate [$\pm0.76\pm1.25$] levels of skewness and kurtosis [55]. For example, control ($M = 3.54$, $SD = 0.58$) is right-skewed, with skewness of 0.23, and platykurtic, with a kurtosis of -0.52 , while utility value ($M = 4.51$, $SD = 0.57$) is left-skewed (-1.14) and leptokurtic (0.80). Having data that deviate from the normal distribution is a common occurrence within research using psychological variables. Blanca et al. [55] reported that 94.5% of the samples used in the studies reviewed were outside the range of [±0.25], which indicated a departure from normal distribution. For this reason, PROCESS Macro [54] will be used in conducting the moderation analysis, as it leverages the bootstrapping technique to allow fewer assumptions about the distribution of the data to be made. Moreover, PROCESS offers user-friendly models for moderation analysis.

Table 1. Descriptive statistics and normality tests.

	M	SD	Range	Min	Max	Sum	Skewness	Kurtosis
Intrinsic value	4.16	0.60	2.75	2.25	5	2039.75	−0.46	−0.26
Attainment value	4.39	0.54	2.25	2.75	5	2153.75	−0.65	−0.40
Utility value	4.51	0.57	2.50	2.50	5	2212.75	−1.14	0.80
Control	3.54	0.58	2.88	2.13	5	1738.25	0.23	−0.52
Anxiety	2.46	1.10	4	1	5	1210.25	0.46	−0.70
Bored	2.56	1.04	4	1	5	1255.00	0.39	−0.55
Enjoyment	3.95	0.77	3	2	5	1936.25	−0.33	−0.55

The descriptive statistics indicate that students reported very high levels of perceived value with the highest being for utility value ($M = 4.51$, $SD = 0.57$) and high levels of enjoyment and engagement. Meanwhile, students reported moderate levels of anxiety and boredom.

3.2. Hypothesis Testing

H1 predicted that control and value appraisals for English language learners whose first language is Arabic would correlate positively with enjoyment and engagement and negatively with anxiety and boredom. A Pearson correlation coefficient was run to test H1. According to Cohen [56], an effect size of 0.10 is considered small, 0.30 is considered a medium effect size, and 0.50 is considered a large effect size. The results revealed that intrinsic value, attainment value, utility value, and control had a significant positive moderate correlation with enjoyment ($r(490) = 0.57$, $p = 0.00$; $r(490) = 0.41$, $p = 0.00$; $r(490) = 0.36$, $p = 0.00$; $r(490) = 0.34$, $p = 0.00$), respectively. However, all the value subscales

and control had a significant negative moderate correlation with both anxiety and boredom, as seen in Table 2, with control having the strongest correlation with anxiety and boredom out of those variables ($r(490) = -0.65, p = 0.00$; $r(490) = -0.52, p = 0.00$), and utility value having the weakest association with anxiety ($r(490) = -0.18, p = 0.00$) and boredom ($r(512) = -0.16, p = 0.00$).

Table 2. Significant correlations between the variables of study 1.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Intrinsic value	--						
(2) Attainment value	0.45 **						
(3) Utility value	0.44 **	0.43 **					
(4) Control	0.51 **	0.38 **	0.29 **				
(5) Anxiety	−0.43 **	−0.21 **	−0.18 **	−0.65 **			
(6) Bored	−0.48 **	−0.23 **	−0.16 **	−0.52 **	0.66 **		
(7) Enjoyment	0.57 **	0.41 **	0.36 **	0.34 **	−0.22 **	−0.41 **	

Note. $N = 490$. ** $p < 0.01$.

To test H2 and H3, a moderation analysis process macro was used. H2 predicts that control and value appraisals and their interaction will positively predict enjoyment and negatively predict boredom and anxiety, while H3 predicts that high levels of value will amplify the relationship between high levels of control and enjoyment and low levels of control and anxiety, and low levels of value will amplify the relationship between control and boredom. To test H2, a moderation analysis (Model 1) was used using PROCESS Macro [54], as value is assumed to moderate the relationship between control and achievement emotions. Moderation analysis uses bootstrapping with a 95% confidence interval to test whether the effect of the independent variable on the dependent variable is different from zero with the existence of the moderator. Nine different regression models were constructed to test the moderating effect of intrinsic value, attainment value, and utility value on the relationship between anxiety, boredom, and enjoyment (Figure 1).

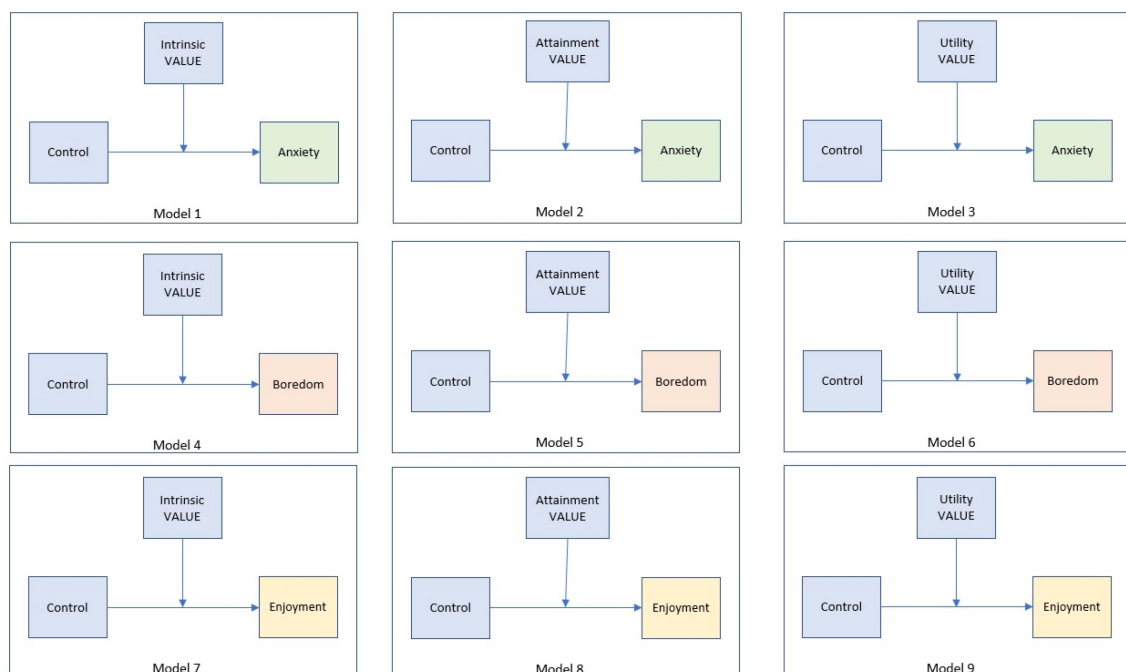


Figure 1. Moderation conceptual regression models.

First tested were regression models 1, 2, and 3 for the effect of control on anxiety moderated by value. First, all three models were significant at $F(3, 486) = 125.1687$,

$p < 0.001$, $R^2 = 0.4359$ for intrinsic value, at $F(3, 486) = 117.3162$, $p < 0.001$, $R^2 = 0.4200$ for attainment, and at $F(3, 486) = 117.9845$, $p < 0.001$, $R^2 = 0.4214$ for utility. Control was found to predict anxiety in all three models ($\beta = -1.1272$, $t(486) = -14.5498$, $p < 0.001$; [95% CI: $-1.2794, -0.9750$]), ($\beta = -1.2831$, $t(486) = -17.4047$, $p < 0.001$; [95% CI: $-1.4280, -1.1383$]), and ($\beta = -1.2725$, $t(486) = -17.6582$, $p < 0.001$; [95% CI: $-1.4141, -1.1309$]). However, only intrinsic value was found to predict anxiety ($\beta = -0.2305$, $t(486) = -3.1341$, $p < 0.001$; [95% CI: $-0.3749, -0.0860$])

The addition of the interaction of control with intrinsic value for model 1 was found to be significant and yielded an $F(1, 486) = 4.6531$, $p = 0.03$, change $R^2 = 0.0054$. Moreover, although utility value was found not to predict anxiety ($\beta = 0.0621$, $p = 0.40$; [95% CI: $-0.0582, 0.2099$]), the interaction of control with utility value was found to be significant at $F(1, 486) = 4.6886$, $p = 0.03$, change $R^2 = 0.0056$. On the other hand, attainment value was not found to moderate the relationship between control and anxiety ($p = 0.11$).

To answer H3 on higher levels of value amplifying the relationship between control and anxiety, the interaction slopes of control with intrinsic and utility value were examined. The results revealed that moderate and low levels of intrinsic value coincide with a stronger negative relation between control and anxiety. Having higher levels of intrinsic value still amplifies the relationship between control and anxiety, but the effect is strongest at low levels of intrinsic value ($\beta = -1.2724$, $t(486) = -11.1517$, $p < 0.001$) (Figure 2).

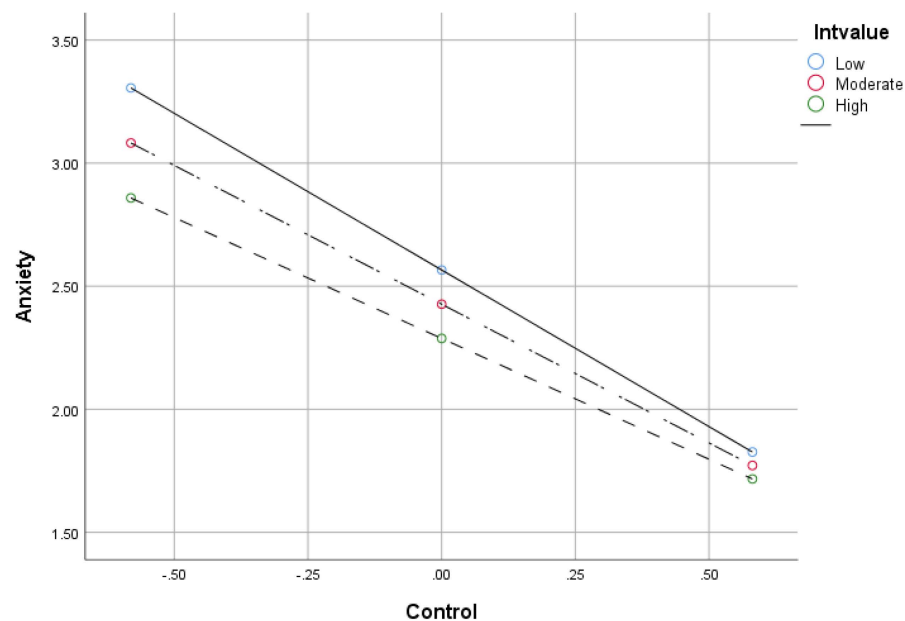


Figure 2. Control $\times$ intrinsic value interaction slope on anxiety.

As for utility value, the interaction slopes revealed that the interaction between control and anxiety is significant at low, moderate, and high levels of utility value (see Figure 3). However, at low levels of utility value, the negative relationship between control and anxiety is strongest ($\beta = -1.4462$, $t(486) = -11.7247$, $p < 0.001$).

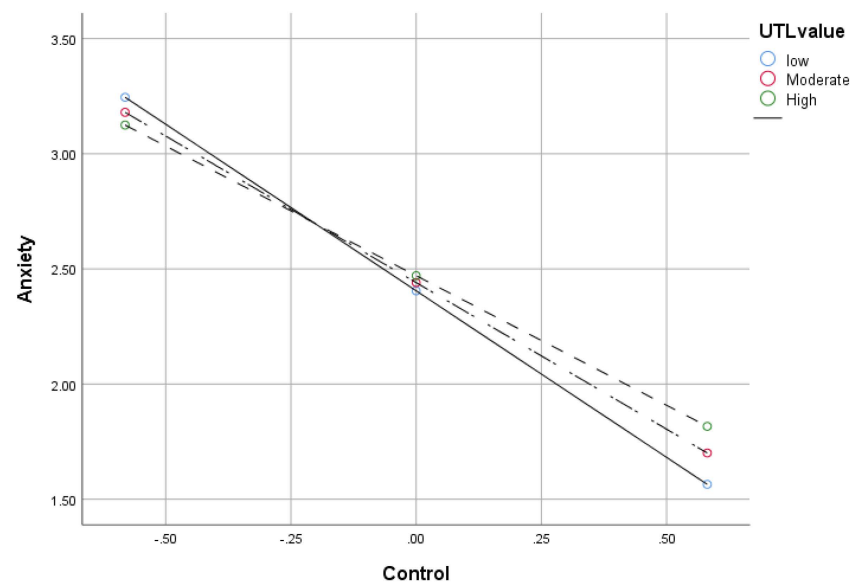


Figure 3. Control $\times$ utility interaction slope on anxiety.

The next three models (4,5,6) were used to test the interaction of control and value on boredom. All three models were significant at $F(3, 486) = 84.6626, p < 0.001, R^2 = 0.3432$ for intrinsic value, at $F(3, 486) = 63.314, p < 0.001, R^2 = 0.5301$ for attainment, and at $F(3, 486) = 63.1082, p < 0.001, R^2 = 0.5295$ for utility. It was found that control significantly predicted boredom in all three models ($\beta = -0.6642, p < 0.001$; [95% CI: $-0.8201, -0.5083$]), ($\beta = -0.9215, p < 0.001$; [95% CI: $-1.0746, -0.7684$]), and ($\beta = -0.9623, p < 0.001$; [95% CI: $-1.1122, -0.8124$]), respectively. However, only intrinsic value was found to predict boredom ($\beta = -0.5164, p < 0.001$; [95% CI: $-0.6644, -0.3685$]), but accounting for the interaction of control and value results revealed that it was not significant for all subscales of value and does not change the model. This indicates that value does not moderate the relationship between control and boredom.

The final set of models (7,8,9) was then tested for the moderation effect of value on the relationship between control and enjoyment. All three models were significant at $F(3, 486) = 83.1015, p < 0.001, R^2 = 0.5823$ for intrinsic value, at $F(3, 486) = 44.0418, p < 0.001, R^2 = 0.4623$ for attainment, and at $F(3, 486) = 40.5921, p < 0.001, R^2 = 0.4476$ for utility. Both attainment value and utility value were found to predict enjoyment when accounting for control, ($\beta = 0.4725, p < 0.001$; [95% CI: $0.3481, 0.5969$]) and ($\beta = 0.4215, p < 0.001$; [95% CI: $0.3000, 0.5430$]). However, neither utility nor attainment value were found to moderate the relationship between control and enjoyment.

On the other hand, control was found not to predict enjoyment when accounting for intrinsic value ($\beta = 0.0605, p = 3031$; [95% CI: $-0.0548, 0.1757$]). However, intrinsic value was found to moderate the relationship between control and enjoyment, as the addition of the interaction of control with intrinsic value to model 7 yielded significant results at $F(1, 486) = 7.2916, p = 0.03$, change $R^2 = 0.0099$. Interaction slopes for the results (Figure 4) revealed that at low levels of intrinsic value, the interaction between control and enjoyment was negative ($\beta = -0.0775, t(486) = -0.8927, p < 0.001$), meaning that having lower levels of intrinsic value will affect those with more control to experience less enjoyment. However, at moderate levels of intrinsic value, the interaction between control and enjoyment was not significant ($\beta = 0.0605, t(486) = 1.0310, p = 0.30$). On the other hand, at high levels of intrinsic value, the interaction between control and enjoyment was positive, with higher levels of intrinsic value having a stronger effect on that interaction ($\beta = 0.1980, t(486) = 2.9168, p < 0.001$). This means that having moderate to high levels of intrinsic value will cause students with more control to experience more enjoyment.

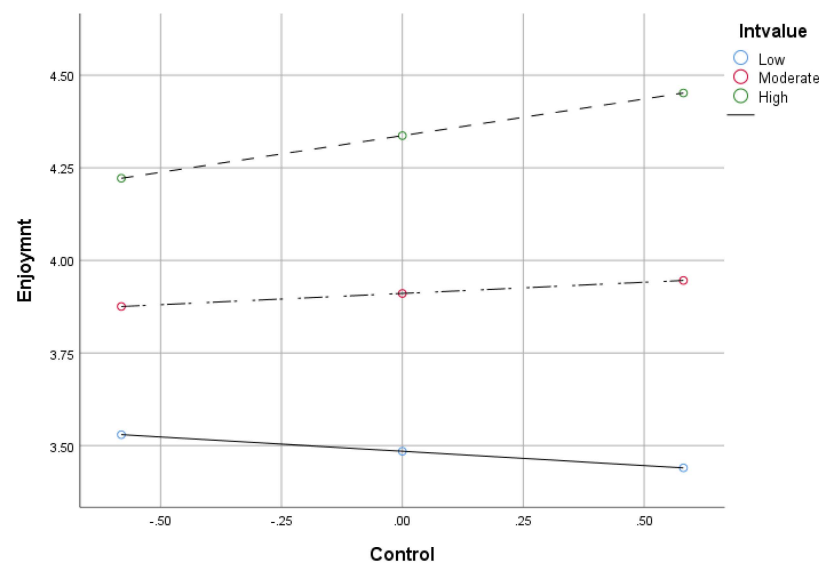


Figure 4. Control $\times$ intrinsic value interaction slopes on enjoyment.

4. Discussion

Directed by the control–value theory of achievement emotions, our study aimed to examine the relationships between appraisals of control and value, achievement emotions, and engagement. H1 predicted that appraisals of control and value for native Arabic speakers learning English will correlate positively with enjoyment and negatively with anxiety and boredom. The results were in line with the control–value theory assumptions [32] and with previous studies on language learners [43]. These results indicate that having a good level of control and value will result in a higher enjoyment of English language classes and activities, as well as lower levels of anxiety and boredom.

H2 and H3 predicted that control and value appraisals will interact differently to affect anxiety, boredom, and enjoyment. The results revealed that when it comes to anxiety, control negatively predicted anxiety, while only intrinsic value was found to negatively predict anxiety in the presence of control. Moreover, both intrinsic and utility value were able to moderate the relationship between control and anxiety. The lower the level of intrinsic value perceived by the students, the lower levels of control will lead to higher levels of anxiety. Experiencing higher levels of intrinsic value will still moderate the negative relationship between control and anxiety; however, the effect size is smaller than those who are experiencing lower levels of intrinsic value. Students who have either high or low levels of intrinsic value and low control will experience more anxiety. Utility value was also found to amplify the negative relationship between control and anxiety at low, moderate, and high levels, with the effect being the strongest at low levels of utility value. These findings partially support previous findings from the domain of mathematics as anxiety was found to be predicted by high levels of control and low levels of value [57].

These results somewhat align with the assumption of CVT that anxiety is instigated when students value the situation as failure and they are uncertain about whether they can change the outcomes or avoid failure due to their moderate to low control [41]. Considering the context of this research is very important for this, as there is a certain uniqueness to the anxiety experienced in the context of SLA [58]. Anxiety, which is assumed to be instigated in situations where the uncertainty about the outcome or the event implies possible danger [59], was reported to be strongly negatively predicted by the self-perceived proficiency of Arab learners of English [60]. Competence beliefs have been reported to shape students' emotions [61]. This provides support for the results in that students who have low controllability over the outcomes of the course and their expected grades (anxiety is classified as a prospective outcome emotion [62]) due to uncertainty in their language abilities will experience high levels of anxiety in spite of having low or high levels of

interest in the course or of whether the course is of high or low value to them. However, this effect will be stronger for those who have lower interest and value than those who have higher interest and value.

As for boredom, value was not found to moderate the relationship between boredom and control. This does not come fully in line with previous studies, as Li [22] reported that intrinsic value was found to interact with control to affect boredom. However, the results indicated that when control shared its variance with value, it had a significantly large negative effect on boredom. This could be explained by the fact that having low levels of control coupled with a lack of value leads to a high level of boredom. In other words, a student who is sitting in an English language class and does not find any value in that course alongside having low perceived control will experience higher levels of boredom than someone who has higher levels of perceived control. This is actually in line with the assumptions of CVT [32]. The level of perceived control and its effect on boredom is explained by being over-challenged, as [62] reported that for undergraduate students, boredom is usually the result of over-challenge and not under-challenge.

Finally, intrinsic value was found to be the only moderator in the relationship between control and enjoyment, while attainment and utility value did not interact with control to predict enjoyment, which is similar to results from other studies in the field of mathematics [42]. The results revealed that at low levels of intrinsic value, the moderation effect was negative, then dissipated at moderate levels of intrinsic value and returned at high levels of intrinsic value but with a positive effect. This means that students who have low levels of intrinsic value and high levels of control will experience less enjoyment, while those who experience high levels of intrinsic value and high levels of control will experience more enjoyment during the English language course. Intrinsic value has been reported to strongly predict enjoyment for undergraduate learners [62], and in the field of learning mathematics, low levels of intrinsic value were found to amplify the positive relationship between control and enjoyment [42], while other studies in mathematics [63] reported that enjoyment is instigated when there are high levels of control and domain value, which is the case in this study.

As for the findings of having low levels of intrinsic value and high levels of control resulting in lower levels of enjoyment, this might be due to the context in which the study was conducted. Students who filled out the survey are taking an English 101 course as a mandatory requirement for obtaining their B.A. degree in various fields at the university; they are there not because they want to be there but because they have to be. This might result in students experiencing low levels of intrinsic value for the course, especially those who have high competence beliefs (control) and do not feel like they need to take a basic English course. Consequently, those students might experience lower levels of enjoyment than those students who have higher levels of intrinsic value.

Implications and Limitations

Emotions, whether positive or negative, attracted the attention of educational researchers in recent years [63–70]. Our findings provide implications for research on emotions in SLA. First, the findings provide further evidence to substantiate the transferability of the control and value theory assumptions to the context of SLA, providing solid theoretical underpinning to investigate emotions in the context of SLA as the lack of theoretical grounds is a major issue in SLA research on emotions [17]. Furthermore, the findings highlight the role perceived control and value and their interaction play in instigating students' achievement emotions. To our knowledge, this is the first study in the field of SLA to investigate the different subscales of value and their interaction with control to predict achievement emotions. This is another area of research that needs to be probed into in the field of SLA, as research in other fields has reported some significant findings on the matter (for example, [40,42,46]).

The findings also bear important implications for educators. First, value, especially intrinsic value, was found to correlate with control to foster enjoyment. These findings

are of value to educators who aim to foster students' engagement and achievement inside the classroom. This can be done by using techniques and strategies that directly foster students' enjoyment inside the classroom [47] like using hands-on activities and providing students with the opportunities to engage in innately interesting activities. Moreover, it was evidenced in this study that students' intrinsic value and control at high levels enhance enjoyment. Educators could target students' competence and value beliefs to increase their enjoyment [61,62] through the use of well-designed instructions, informative feedback, relevant tasks and activities, and supporting feelings of belonging and relatedness. These implications could also be useful for designing educational interventions for research purposes.

There are a number of limitations of this study that need to be considered. First, this study only investigated three achievement emotions, which are anxiety, enjoyment, and boredom. Designing research that combines an array of achievement emotions is evidenced to result in a better understanding of how each one of these emotions uniquely relates to other variables [62]. Another limitation of this study is the use of a cross-sectional design and collecting data at only one point in time. Future research needs longitudinal research designs to investigate emotions, as previous studies in SLA have evidenced that achievement emotions and their effect on achievement could have a time limit and change with time [33]. A third limitation of this study is the use of self-reports to collect data. Although emotions are individual experiences and self-reports are considered suitable to unwrap these experiences [70], other measures are recommended to be used while studying emotions like observations, ethnographic designs, and quantifying typical emotions' facial expressions using artificial intelligence. A fourth limitation of this study is that it does not address the environment in which students' appraisals of value and control have been formed. According to the control-value theory, how students appraise their value and control of a certain topic is affected by a number of environmental factors like the educational institution, the teachers, the feedback provided, and their goals [32]. Taking these factors into consideration would provide a better understanding of how students' appraisals of control and value are formed and affect their emotions. Finally, the participants of this study were native speakers of Arabic learning English as a second language. Expanding the participants pool to include native speakers of other languages would provide a better understanding of the role played by the students' first language in their value and control appraisals as well as their emotions in the language classroom.

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