Original Paper

Exploring the Relationship between Value Belief, Behavioral Engagement, and Academic Achievement in the Chinese EFL Learning Context

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Abstract

Previous research has established a positive link between behavioral engagement and academic achievement. However, the mediating role of behavioral engagement between value belief and academic achievement, particularly in the context of English as a Foreign Language (EFL), has received limited attention. This study examined this mediation using Structural Equation Modeling (SEM) with a sample of 657 secondary EFL students. Results revealed that value beliefs positively influenced behavioral engagement, which in turn enhanced academic achievement. The indirect path from value beliefs to academic achievement through behavioral engagement was statistically significant, indicating partial mediation, alongside a direct effect of value beliefs on academic achievement. Descriptive statistics showed high mean scores for both value beliefs and behavioral engagement, reflecting strong perceptions of the importance of language learning and active class participation. No significant differences in value beliefs were found among participants. Possible explanations behind the observed results, as well as implications, limitations, and proposed directions for future studies are discussed.

Key words

expectancy-value theory, value belief, behavioral engagement, EFL achievement, mediating mechanism

1. Introduction

Value belief is considered to influence key learning-related outcomes such as motivation (Dörnyei & Csizér, 2005), EFL engagement (Noels et al., 2001), and persistence (Ushioda, 2013). Additional research indicates that value belief positively predicts optimal functioning, including engagement (Hoi & Hang, 2022), and student motivation (Eccles et al., 1983). While many studies have identified value belief as a predictor of engagement (Lam et al., 2012; Nagengast et al., 2011) and its relationship to motivational mechanisms influencing the quality and level of students' learning engagement (Wigfield & Eccles, 2000; Yli-Piipari & Kokkonen, 2014), as well as forecasting academic achievement, psychological well-being, and academic emotions (Turner & Schallert, 2001; Wigfield, 1994; Wigfield & Cambria, 2010), research specifically exploring how value belief predicts academic achievement remains limited, with Wu's study being a notable exception (Wu & Kang, 2021). Consequently, understanding value belief and its impact on foreign language performance provides an opportunity to deepen insight into the motivation, processes, and outcomes of English learning among Chinese secondary students.

As positive behavioral psychology continues to advance in education, student behavioral engagement has garnered increasing interest from educational researchers (Hiver et al., 2020; Li, 2021). Existing literature predominantly explores the predictive effect of behavioral engagement on academic achievement (Lam et al., 2012; Nagengast et al., 2011). However, with the exception of Wu et al. (Wu & Kang, 2021), there has been limited investigation into the antecedents of behavioral engagement, particularly the role of value beliefs. This study aimed to fill this gap by examining how value beliefs influence behavioral engagement and, consequently, academic achievement among 657 secondary students in China. The findings contribute to the literature by providing empirical evidence that value beliefs can enhance behavioral engagement and, in turn, improve academic achievement in EFL context, offering valuable insights for teaching interventions.

2. Literature Review

2.1 Value Belief in Foreign Language Classroom

Expectancy-value theory (Eccles et al., 1983) is a framework within educational psychology and motivation theory that seeks to explain and predict individuals' motivation to engage in specific behaviors, such as learning tasks or academic pursuits. Developed by Jacquelynne S. Eccles, Allan Wigfield, and others, EVT posits that motivation is influenced by two primary factors: expectancy beliefs and subjective task values. Task value beliefs refer to the perceived qualities of academic tasks and how those qualities influence students' desire to do the tasks (Wigfield & Eccles, 2020). Task values can be further divided into four separate facets, i.e. attainment value, intrinsic value, utility value and cost (Wigfield & Eccles, 2000). Intrinsic value encompasses students' enjoyment, liking, and interest. Attainment value is the personal importance of performing well on a given task and is

associated with students' identity (Rosenzweig et al., 2022) Utility value refers to how useful and relevant the task is to students' current and future goals and plans (Gladstone et al., 2022). Finally, cost depicts the negative consequences of choosing and engaging in a task, and opportunity cost. In the context of EFL, Hoi's research suggest that teaching relevance and peer support significantly predicted students' expectancy and task value belief, which in turn enhanced all dimensions of engagement (Hoi & Hang, 2022). Ghasemi and Dowlatabadi reported that L2 learners' task value beliefs positively predicted their deep learning strategies and metacognitive self-regulation, which act as indicators of cognitive engagement (Ali & Hamid, 2018). A similar predictive effect of perceived task value beliefs on L2 learner engagement was also found in Eren and Rakıcıoğlu-Söylemez's study (Eren & Rakıcıoğlu-Söylemez, 2023).

Although existing studies have verified the effect of task value beliefs on engagement (Hoi & Hang, 2022; Ali & Hamid, 2018; Eren & Rakıcıoğlu-Söylemez, 2023). However, few studies have considered the mediator mechanism of behavioral engagement between value belief and academic achievement, especially in secondary students' EFL learning context. And the present study aimed to address this gap by examining the relationships among value belief, behavioral engagement and academic achievement in a sample of secondary school students in their EFL learning.

2.2 Behavioral Engagement in Foreign Langue Classroom

Behavioral engagement is commonly conceptualized across three primary dimensions. The first dimension involves positive behaviors such as adherence to classroom norms and avoidance of disruptive actions like absenteeism and misconduct (Finn, 1993; Finn et al., 1995; Finn & Rock, 1997). The second dimension pertains to active involvement in academic activities, encompassing efforts, persistence, concentration, attention, inquiry, and contribution to class discussions (Birch, 1998; Finn et al. 1995; Skinner, 1993). The third dimension includes participation in extracurricular activities within the school context, such as athletics and involvement in governance (Finn, 1993; Finn et al., 1995). Finn demonstrated that behavioral engagement predicts performance on standardized achievement tests, a finding supported by numerous studies linking behavioral disengagement to both immediate and long-term academic underachievement (Alexander, 1997; Fincham et al., 1989; Finn & Cox, 1992; Laffey, 1982; Swift & Spivack, 1969). Collectively, these studies suggest that enhancing students' behavioral engagement can directly enhance academic achievement; greater active participation in coursework correlates positively with improved mastery of course content.

Behavioral engagement has been extensively studied due to its close association with student motivation and its significant influence on academic performance (Fredricks et al., 2004; Skinner et al., 2009). Recognizing behavioral engagement as an indicator of learning outcomes, previous research has primarily focused on identifying its antecedents. For instance, Hoi documented that the perceived relevance of teaching and peer support significantly predicted students' expectations and beliefs about task value, thereby enhancing overall engagement (Hoi & Hang, 2022). In another study involving

Latino students, Simpkins found that perceptions of support from family, teachers, and peers in 10th grade predicted students' self-concepts and values in science, which subsequently influenced their engagement in the classroom (Simpkins et al., 2018). However, previous studies have not thoroughly explored the relationships among value beliefs, behavioral engagement, and academic achievement, particularly in the context EFL. This study aims to address this gap by examining these relationships among a sample of Chinese secondary students engaged in EFL learning.

2.3 Associations between Value Belief, Behavioral Engagement, and Academic Achievement

Expectancy-value theories (Eccles et al., 1983; Pekrun, 1993; Pekrun, 1988; Vroom, 1964; Wigfield & Eccles, 2000; Gladstone et al., 2022) provide a motivational account of the factors that influence achievement-related choices, engagement, and performance. instead of forming a single factor (Marsh et al., 2018). Subjective task values and related expectancy for success are found positively correlated (Eccles & Wigfield, 2002) and interactively linked to students' achievement and academic choices in various domain-specific, cross-sectional studies (Buehl & Alexander, 2005;   Eccles & Wigfield, 2002; Guo et al., 2017; Nagengast et al., 2011; Spinath et al., 2006; Trautwein et al., 2012). And many studies have verified the relation that L2 learners' task value beliefs positively predicted their engagement (Ali & Hamid, 2018; Eren & Rakıcıoğlu-Söylemez, 2023). Besides, Behavioral engagement has been extensively studied due to its close association with student motivation and its significant influence on academic performance (Fredricks et al., 2004; Skinner et al., 2009). Along the Expectancy-value theory, Putwain et al., have examined how expectancy of success, attainment value, and their interaction predicted behavioural engagement, and how behavioural engagement, in turn, predicted achievement (Putwain et al., 2019). In other words, the associations between value belief, behavioral engagement, and academic achievement have been discussed sufficiently. Therefore, this study assumed that behavioral engagement may mediate the association between value belief and academic achievement in Chinese secondary students' EFL learning context.

2.4 The Present Study

This study examined secondary students' value beliefs, behavioral engagement, and academic achievement in foreign language classrooms, with a focus on gender differences among these constructs. It also investigated how value beliefs predict foreign language academic achievement and the mediating role of behavioral engagement in this relationship (see Figure 1). In Mainland China, English is a mandatory subject throughout the education system, from primary school to doctoral studies, and is critical for academic and professional advancement. Despite its importance, research on the predictive role of value beliefs in foreign language academic achievement is limited. This study addresses this gap by focusing on Chinese secondary students in the EFL context and explores the following four research questions:

RQ1: What are the overall profiles of secondary students' value belief, behavioral engagement, and academic achievement in foreign language classroom?

RQ2: Whether there is a significant difference in foreign language value belief, behavioral engagement, and academic achievement between boys and girls?

RQ3: How foreign language value belief predict foreign language academic achievement?

RQ4: Do the behavioral engagement mediate the relationship between value belief and academic achievement in foreign language classroom?

In summary, the main purpose of the current study examined the relationship between value belief and foreign language academic achievement and the potential indirect effects through behavioral engagement. The proposed model was shown in Figure 1.
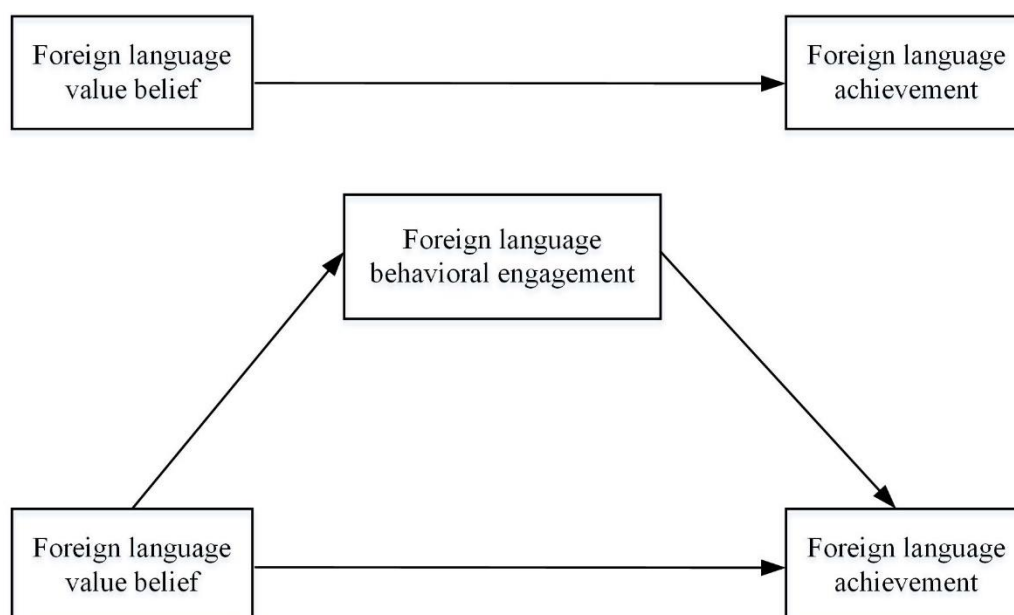

Figure 1. The Proposed Model

3. Methods

3.1 Participants and Procedure

This study was conducted at a middle school in Foshan, China, chosen for convenience. A total of 657 students participated, comprising 338 boys (51.4%) and 319 girls (48.6%), with a mean age of 12.96 years (SD = 0.76) and ages ranging from 12 to 15. All participants were in seventh grade. The questionnaire was administered in paper-pencil format during an English class, with assistance from the English teacher. The entire process lasted approximately 15 minutes.

Before conducting the questionnaire survey, this study performed an item analysis to pre-test the questionnaire and ensure its measurement quality. In accordance with pre-test size criteria (Oksenberg, 1991), 55 participants evaluated item discrimination. Specifically, 27% of the highest and lowest scores were selected and analyzed (Kelley, 1939). As shown in Table 1, the mean values for high and low groups were significantly different for each item, demonstrating that all items were discriminative and

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suitable for the formal investigation.

Table 1. The Results of Item Analysis for Pre-test

Items	*t*-test for Equality of Means				Group	*N*	Mean	SD
	t	*df*	*p*	Mean Difference				
VA1	-4.854	28	.000	-1.400	Low	15	3.47	1.06
					High	15	4.87	0.35
VA2	-31.000	28	.000	-2.067	Low	15	2.93	0.26
					High	15	5.00	0.00
VA3	-16.358	28	.000	-1.933	Low	15	3.00	0.38
					High	15	4.93	0.26
VA4	-11.832	28	.000	-2.000	Low	15	3.00	0.66
					High	15	5.00	0.00
VA5	-7.853	28	.000	-1.867	Low	15	3.07	0.88
					High	15	4.93	0.26
BE1	-10.250	34	.000	-1.941	Low	19	3.00	0.75
					High	17	4.94	0.24
BE2	-6.592	34	.000	-1.573	Low	19	3.37	0.96
					High	17	4.94	0.24
BE3	-8.237	34	.000	-1.941	Low	19	3.00	0.94
					High	17	4.94	0.24
BE4	-12.758	34	.000	-2.211	Low	19	2.79	0.71
					High	17	5.00	0.00
BE5	-9.336	34	.000	-2.000	Low	19	3.00	0.88
					High	17	5.00	0.00

Note: VA is abbreviation for value belief. BE is abbreviation for behavioral engagement.

3.2 Data-collection Instrument

3.2.1 Foreign Language Value Belief

The perceived value of the English course was evaluated using a 5-item adaptation of the A Manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, 1991). This scale encompasses three subscales: intrinsic value, attainment value, and utility value, each originally containing four items. For the purposes of this study, the items were tailored to align with the context of

English lessons and assessments. Examples include: "It is important for me to learn the course material in this class" (intrinsic value), "The effort required to excel in English courses is worthwhile to me" (attainment value), and "I find English useful" (utility value). Participants rated each item using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). In the current study, the analysis focused exclusively on the attainment value subscale, which demonstrated a Cronbach's alpha reliability coefficient of .82.

3.2.2 Foreign Language Behavioral Engagement

To assess students' behavioral engagement in EFL contexts, we employed a modified version of the Reeve and Tseng's study on engagement scale (Reeve & Tseng, 2011). This adapted instrument consists of five items specifically tailored for EFL settings, such as "I pay attention in English class". Participants' responses were recorded using a 5-point Likert scale, where 1 indicates "strongly disagree" and 5 indicates "strongly agree". The construct validity and internal consistency of this subscale have been previously established by (Skinner et al., 2009), and it has been shown to correlate with academic achievement and well-being (King & Gaerlan, 2014; King et al., 2015; Putwain et al., 2019). In this study, the internal consistency of the scale was found to be satisfactory, with a Cronbach's alpha of .82.

3.2.3 Foreign Language Academic Achievement

With the consent of participants and their parents, we collected academic records to evaluate English achievement based on final course exam scores. The exam was uniformly developed and scored by the district education bureau, ensuring consistency and adherence to the prescribed textbook and syllabus. It was a comprehensive assessment comprising a total of 120 points. The test was designed to evaluate both reading and writing skills through various components: 20 multiple-choice questions, 20 cloze test items, 20 sentence translation tasks, and a written composition. This structure aimed to provide a thorough measurement of students' English proficiency.

3.3 Data Analysis

The data were analyzed through a two-stage process. In the initial stage, the focus was on validating the measurement instrument. Specifically, Exploratory Factor Analysis (EFA) was employed to examine the constructs underlying the hope and engagement scale. Subsequently, the quality of the instrument was assessed by evaluating its reliability, convergent validity, and discriminant validity. In the second stage, an independent samples t-test was conducted to investigate differences in foreign language value beliefs and behavioral engagement between male and female participants. Additionally, the proposed theoretical model (refer to Figure 1) was tested using simple regression analysis and the PROCESS macro (Model 4) within the IMB SPSS Statistics 27 software (Hayes & Scharkow, 2013). To evaluate the mediation effects of value belief on academic achievement through behavioral engagement, we employed 95% bias-corrected Confidence Intervals (CI) with 5000 bootstrap samples. The indirect effect was deemed statistically significant if the CI did not encompass zero.

4. Results

4.1 The Validation of the Instrument

4.1.1 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) was employed to examine the factor structure of foreign language value beliefs and behavioral engagement. Initially, we conducted sample adequacy and Bartlett Sphericity tests to examine whether the data were appropriate for factor analysis. The results show that the Kaiser-Meyer-Olkin (KMO) value was 0.903, and Bartlett's Test of Sphericity was also significant (χ^2 = 4832.740, df = 45, p < .001). The cut-off values for evaluating KMO values were: "mediocre" = between 0.5 and 0.7; "good" between 0.7 and 0.8; "great' = between 0.8 and 0.9; and "superb" = above 0.9 (Hutcheson & Sofroniou, 1999; Field, 2013). To achieve a good result, Bartlett's Test of Sphericity should be significant. Therefore, Bartlett's Test of Sphericity being significant confirms that the data meet the necessary criteria for proceeding with the factor analysis.

Table 2. The Results of Exploratory Factor Analysis

Subscale	Factor loading	
	Value belief	Behavioral engagement
VA1	**0.570**	0.247
VA2	**0.806**	0.351
VA3	**0.869**	0.261
VA4	**0.854**	0.340
VA5	**0.799**	0.266
BE1	0.333	**0.807**
BE2	0.317	**0.734**
BE3	0.278	**0.824**
BE4	0.292	**0.830**
BE5	0.279	**0.802**
Eigenvalues	5.946	1.245
Explained variance	59.465	12.446
Total explained	71.911	

Note: VA = Value belief; BE = Behavioral Engagement.

Principal Component Analysis (PCA) was conducted to investigate the underlying factors within the data. The PCA results identified two distinct dimensions, as detailed in Table 2. For the dimension of foreign language value belief, the factor loadings of the items ranged from 0.570 to 0.869, indicating a strong correlation between the items and this factor. For the dimension of foreign language behavioral

engagement, the factor loadings ranged from 0.734 to 0.830, also reflecting substantial item correlation. All factor loadings were above the 0.5 threshold, suggesting a reliable factor structure. The eigenvalues for the two dimensions were 5.946 for foreign language value belief and 1.245 for behavioral engagement. The analysis revealed that these two dimensions together accounted for 71.911% of the total variance, with foreign language value belief explaining 59.465% and behavioral engagement explaining 12.446%. Additionally, Table 3 provides a detailed presentation of the descriptive statistics for each item, including mean, standard deviation, skewness, and kurtosis values, for both dimensions of foreign language value belief and behavioral engagement. This comprehensive analysis ensures a robust understanding of the factor structure and the statistical properties of the measured constructs.

Table 3. Descriptive Statistics for each Item

Factor	N	Mean	SD	Skewness	Kurtosis
Factor-VA					
VA1	657	3.85	1.03	-0.656	-0.013
VA2	657	3.67	0.98	-0.221	-0.488
VA3	657	3.82	0.90	-0.252	-0.573
VA4	657	3.80	0.93	-0.224	-0.634
VA5	657	3.94	0.92	-0.525	-0.183
Factor-BE					
BE1	657	3.81	0.95	-0.378	-0.430
BE2	657	3.86	0.89	-0.231	-0.676
BE3	657	3.88	0.90	-0.373	-0.295
BE4	657	3.85	0.96	-0.476	-0.250
BE5	657	3.81	0.93	-0.282	-0.520

Note: VA = Value belief; BE = Behavioral Engagement.

4.1.2 Reliability Analysis

Initially, we analyzed the corrected item-to-total correlations and inter-item correlations for each item. According to established guidelines, it is recommended that corrected item-to-total correlations exceed 0.50 and inter-item correlations exceed 0.30 (Hair et al., 2019). As illustrated in Tables 4 and 5, all corrected item-to-total correlations surpassed the 0.50 threshold, with values ranging from 0.501 to 0.840 for the dimension of value belief and from 0.698 to 0.802 for the dimension of behavioral engagement. Similarly, all inter-item correlations exceeded 0.30, ranging from 0.427 to 0.820 for value belief and from 0.565 to 0.838 for behavioral engagement. These results confirm that the items within each dimension exhibit strong internal consistency and interrelatedness, supporting the reliability of the measurement scales used in this study.

Table 4. Results of Reliability for Roreign Language Value Belief Scale

	Inter-Item Correlation					Internal consistency	
	VA1	VA2	VA3	VA4	VA5	Corrected Item-Total Correlation	Cronbach's alpha
VA1	-					0.501	0.887
VA2	0.478	-				0.791	
VA3	0.439	0.747	-			0.814	
VA4	0.449	0.796	0.820	-		0.840	
VA5	0.427	0.628	0.780	0.718	-	0.729	

Note: VA = foreign language value belief.

Subsequently, Cronbach's alpha coefficients were calculated to evaluate the internal consistency of the scales for value belief and behavioral engagement. The Cronbach's alpha for the foreign language value belief scale was 0.887, and for the foreign language behavioral engagement scale, it was 0.908. These values exceed the recommended threshold of 0.70 (Hair et al., 2019), indicating strong internal consistency. Therefore, the reliability of both scales used in this study can be considered highly satisfactory.

Table 5. Results of Reliability for Roreign Language Behavioral Engagement Scale

	Inter-Item Correlation					Internal consistency	
	BE1	BE2	BE3	BE4	BE5	Corrected Item-Total Correlation	Cronbach's alpha
BE1	-					0.794	0.908
BE2	0.570	-				0.698	
BE3	0.654	0.660	-			0.785	
BE4	0.838	0.565	0.708	-		0.802	
BE5	0.658	0.661	0.680	0.629	-	0.758	

Note: BE = Behavioral Engagement.

4.1.3 Convergent and Discriminant Validity

Convergent validity evaluates the extent to which two measures of the same construct are correlated. To

assess the convergent validity of the scales, the Average Variance Extracted (AVE) for each subscale was calculated. As presented in Table 6, the AVE for the value belief scale was 0.619, and for the behavioral engagement scale, it was 0.640. Both values exceed the recommended threshold of 0.5 (Hair et al., 2019), indicating that the scales used in this study exhibit strong convergent validity. This suggests that the scales are effective in measuring their respective constructs as intended.

Table 6. Convergent Validity and Discriminant Validity of the Scales

	Convergent validity	Discriminant validity	
	AVE	VA	BE
VA	.619	**.787**	-
BE	.640	.655**	**.800**

Note: VA for value belief; BE for behavioral engagement. The diagonal bold is the square root of AVE, and the correlations below the diagonal are Pearson correlation coefficient. ** $p < .01$.

Discriminant validity was evaluated by comparing the square root of the Average Variance Extracted (AVE) for each subscale with the Pearson correlation coefficients between the constructs. As detailed in Table 6, the square root of the AVE for each subscale exceeded the Pearson correlation coefficients between the value belief and behavioral engagement constructs. This indicates that the subscales exhibit strong discriminant validity, as each construct is distinct from the others.

Overall, the instruments utilized in this study, specifically the foreign language value belief scale and the foreign language behavioral engagement scale, demonstrated both robust construct validity and reliability.

4.2 The General Profiles of Students' Foreign Language Learning

Table 7 presents the descriptive statistics for the foreign language value belief and behavioral engagement scales. The results reveal that the mean score for foreign language value belief was 3.81, suggesting that participants generally perceive foreign language learning as important. Additionally, the mean score for foreign language behavioral engagement was 3.84, indicating a high level of student engagement in their foreign language classes. These scores reflect a positive attitude towards the significance of language learning and a strong commitment to participation in the classroom.

Table 7. Profile of Secondary Students' Foreign Language Learning

	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
VA	657	1.00	5.00	3.81	0.79	-0.253	-0.377
BE	657	1.00	5.00	3.84	0.79	-0.115	-0.617
Achi	657	0.00	119.00	81.85	24.95	-0.709	0.021

Note: VA = Value belief; BE = Behavioral engagement; Achi = academic achievement.

4.3 Gender Differences in Foreign Language Learning

To investigate potential cross-gender differences in foreign language value belief, behavioral engagement, and academic achievement, independent samples t-tests were conducted. The results, presented in Table 8, indicate that there were no statistically significant differences between genders in any of the measured variables. Specifically, the t-test results showed no significant differences in foreign language value belief (t = -0.863, p = 0.389 > 0.05), behavioral engagement (t = -1.569, p = 0.117 > 0.05), or academic achievement (t = -1.796, p = 0.073 > 0.05), as all p-values exceeded the 0.05 significance threshold. These findings suggest that gender does not significantly influence these aspects of foreign language learning in the sample studied.

Table 8. Results of Independent Sample *t*-test

Construct	*N*	Mean	SD	t-test		
				t	*df*	*p*
VA						
Boy	338	3.79	0.83	-0.863	655	0.389
Girl	319	3.84	0.75			
BE						
Boy	338	3.79	0.84	-1.569	655	0.117
Girl	319	3.89	0.73			
Achi						
Boy	338	80.22	24.62	-1.796	650	0.073
Girl	319	83.59	23.13			

Note: VA = Value belief; BE = Behavioral engagement; Achi = Academic achievement.

4.4 The Predictive Effect of Foreign Language Value Belief on Academic Achievement

To examine the relationship between foreign language value belief and academic achievement, a simple regression analysis was performed. The results, as detailed in Table 9, demonstrate that the regression model is statistically significant (F = 119.617, p < .001), indicating a valid analysis. The regression equation for this relationship is as follows:

$$Y = 36.055 + 12.007\ X$$

(Dependent variable is foreign language academic achievement; independent variable is foreign language value belief).

The findings further reveal that foreign language value belief is a significant positive predictor of academic achievement, as indicated by the unstandardized coefficient B = 12.007, with a t-value of 10.937 and a p-value of less than .001. This positive relationship implies that for every unit increase in foreign language value belief, there is a corresponding increase of 12.007 units in academic achievement. Additionally, the value belief variable accounts for approximately 39.4% of the variance in foreign language academic achievement, as reflected by an R² value of 0.394. This substantial proportion of explained variance underscores the significant influence that foreign language value belief has on academic success in this context.

Table 9. Results of Regression Analysis

Model		Unstandardized Coefficients		t	p	Standardized Coefficients	R^2	F
		B	SE			Beta		
Achi	Constant	36.055	4.275	8.434	0.000		0.394	119.617***
	VA	12.007	1.098	10.937	0.000	0.394		

Note: *** p < .001. VA= foreign language value belief; Achi = academic achievement.

4.5 Foreign Language Behavioral Engagement as a Mediator between Value Belief and Academic Achievement

To investigate how value belief of foreign languages influences academic achievement, particularly examining whether foreign language behavioral engagement mediates the relationship between value beliefs and academic success, we employed a simple mediation model (Model 4) as outlined by Hayes and Scharkow (2013). This analysis was performed using the PROCESS SPSS macro. We conducted 5,000 bootstrap resamples to obtain a Confidence Interval (CI) for the indirect effect of the independent variable (value belief) on the dependent variable (academic achievement) through the mediator (behavioral engagement). A mediating effect is considered significant if the 95% CI does not include zero, indicating a substantial mediation effect.
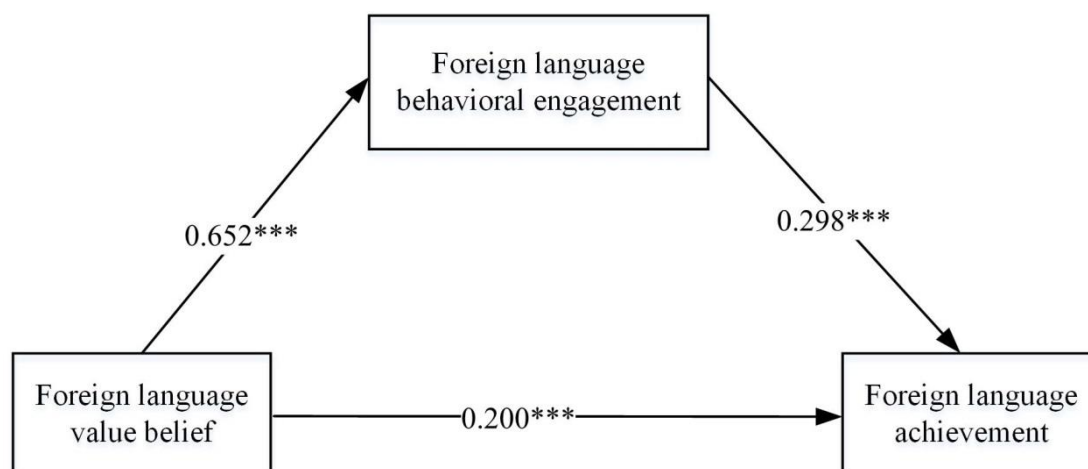
Figure 2. Results of Mediation Model

Note: *** *p* < 0.001. The coefficients are standardized coefficients.

The hypothesized indirect effect model, as depicted in Figure 2, was supported by the data. Specifically, the analysis demonstrated that foreign language value belief positively predicted foreign language behavioral engagement (β= 0.652, *SE* = 0.030, *p* < .001). This result suggests a strong positive relationship between value belief and behavioral engagement. Additionally, behavioral engagement was found to positively predict academic achievement (β= 0.298, *SE* = 1.400, *p* < .001). Further analysis of the indirect path from foreign language value belief to academic achievement via behavioral engagement revealed a significant effect (β= 5.917, SE = 1.064, 95% CI [3.812, 8.007]) (see Table 10). This finding indicates that behavioral engagement partially mediates the relationship between value belief and academic achievement. Moreover, a significant direct effect was observed between foreign language value belief and academic achievement (β= 6.090, SE = 1.405, 95% CI [3.332, 8.848]). The significance of both the direct and indirect effects confirms that behavioral engagement serves as a partial mediator in this relationship, emphasizing the importance of both direct and indirect pathways through which foreign language value belief influences academic achievement.

Table 10. Indirect Effects of Foreign Language Learning Behavioral Engagement

Model path	Unstandardized estimate	SE	Bia-corrected CIs (95%)	
			Lower	Upper
Direct effect	6.090	1.405	**3.332**	**8.848**
Indirect effect: VA→BE→Achi	5.917	1.064	**3.812**	**8.007**
Total effect	12.007	1.098	**9.851**	**14.163**

Note: VA = Foreign language value belief; BE = Behavioral engagement; Achi = Academic Achievement. Bolded CIs considered significant (value do not include zero).

5. Discussion

The present study investigated the relationship between value beliefs and academic achievement, with a focus on the mediating role of behavioral engagement within the context of EFL learning. The results indicated that behavioral engagement partially mediates the relationship between value beliefs and academic achievement. Additionally, no significant differences were found between genders regarding foreign language value beliefs, behavioral engagement, or academic achievement. The theoretical contribution of this study lies in highlighting the significant role of behavioral engagement in connecting value beliefs with academic achievement. Practically, it provides a pathway for enhancing students' behavioral engagement to improve academic outcomes in EFL classrooms.

First, this study found that students perceive the acquisition of foreign languages as significant and demonstrate a high level of engagement in their foreign language coursework, and thus the research question 1 was answered. From the 1980s onwards, leading authors such as David Crystal to make rather bold statements such as "English is the global language" (Crystal D., 1991). Lin also proved that English is a "global language" in China (Pan & Block, 2011). Nowadays, the emphasis on learning English has continued unabated in recent years and at present, China boasts the largest English learning population in the world. Over 200 million students in China (or about 20% of the total in the world) are learning English in schools, as are about 13 million young people at university (Jin & Cortazzi, 2002). This study contributes by offering practical evidence supporting above perspective that Chinese middle school students consider English learning to be highly significant. Additionally, it demonstrates that these students exhibit strong engagement in their English learning.

Second, this empirical study found no significant differences between boys and girls regarding their beliefs about the value of foreign languages, behavioral engagement, or academic achievement. According to Expectancy-Value Theory (Eccles, 2009), gender influences achievement-related behaviors through its impact on motivational beliefs. In the domain of mathematics education, multiple studies have reported that males typically exhibit more positive self-concepts, attitudes, and affect towards mathematics (Eccles & Wigfield, 2002; Marsh & Yeung, 1998; Trautwein et al., 2012). Conversely, recent research has highlighted a significant increase in educational aspirations among females, with secondary school females often reporting higher educational aspirations compared to their male peers (Schoon & Polek, 2011). However, in the context of EFL learning, this study found no significant gender differences in foreign language value beliefs, behavioral engagement, or academic achievement. This result contrasts with existing research on achievement-related behaviors and addresses a gap in the literature, as few studies have specifically examined gender differences in these constructs within the EFL context.

This study found that value belief directly influences academic achievement and indirectly affects it through the mediator of behavioral engagement. The finding also revealed that value belief has a positive predictive effect on FL achievement makes up for the lack of literature in the field of language

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learning. Specifically, students with a strong value belief are more likely to engage in EFL learning, which enhances their academic performance. In alignment with Expectancy-Value Theory, the study demonstrated that higher value beliefs lead to increased behavioral engagement, which in turn improves academic achievement (Wu & Kang, 2021). Additionally, the study confirmed the relationship among value belief, behavioral engagement, and academic achievement, consistent with prior research (Nagengast et al., 2011; Putwain et al., 2019). Overall, the study supports the hypothesis that behavioral engagement mediates the effect of value belief on academic achievement in a sample of Chinese secondary students learning EFL.

6. Limitation and Directions for Further Research

The present study has several limitations that suggest directions for future research. Firstly, the cross-sectional design employed to explore the influence of value belief on academic achievement through behavioral engagement limits the ability to draw definitive conclusions about the moderated-mediation mechanisms. A prospective longitudinal design, measuring all variables across multiple time points, would provide a more robust understanding. Secondly, our investigation focused solely on value belief, which comprises four distinct facets: attainment value, intrinsic value, utility value, and cost. However, expectancy beliefs, another momentous factor in Expectancy-Value Theory (EVT), may also interact with value beliefs to influence behavioral engagement and academic achievement. Thirdly, all data were collected through self-report measures. Although self-reporting is common in educational research, it is susceptible to common method variance. Future research should consider incorporating peer or teacher assessments to complement or replace self-reported data during the data collection phase.

7. Implications for Educational Practice

This study advances the existing literature by investigating how value belief influences academic achievement through the mediating role of behavioral engagement. The findings have two key implications for educational practice. First, EFL teachers should prioritize cultivating secondary students' task value beliefs in addition to enhancing academic competencies and teaching skills. In line with Expectancy-Value Theory, this study demonstrates that value belief, a crucial component of students' learning behavior, positively impacts their behavioral engagement, which, in turn, can enhance academic achievement in the EFL context. Consequently, it is recommended that EFL teachers focus on strengthening students' value beliefs to improve their academic outcomes. Second, to improve academic achievement, educational practices should prioritize strategies that enhance behavioral engagement in foreign language learning. This involves creating interactive learning environments (Monteiro et al., 2021), incorporating culturally relevant materials (Preusche & Göbel, 2021), and providing regular, constructive feedback ((Pishghadam et al., 2023). Additionally, aligning students'

personal value beliefs about language learning with classroom activities can further boost engagement and academic performance.

8. Conclusion

This study investigated the relationship between value beliefs and academic achievement, as well as the mediation mechanisms between these constructs, in a sample of students aged 12 to 14 years. Descriptive statistics revealed that students highly value foreign language acquisition and exhibit strong behavioral engagement in their language coursework. The findings underscore the positive influence of value beliefs on both academic achievement and engagement. No significant differences were found between boys and girls regarding foreign language value beliefs, behavioral engagement, or academic achievement. Furthermore, the study identified behavioral engagement as a key mediator through which value beliefs impact academic achievement in the context of EFL.

References

Alexander, P. A. (1997). Knowledge-seeking and self-schema: A case for the motivational dimensions of exposition. *Educational Psychologist*, *32*(2), 83-94. https://doi.org/10.1207/s15326985ep3202_3

Ali, A. G., & Hamid, R. D. (2018). Investigating the Role of Task Value, Surface/Deep Learning Strategies, and Higher Order Thinking in Predicting Self-regulation and Language Achievement. *The Journal of AsiaTEFL*, *15*(3), 664-681. https://doi.org/10.18823/asiatefl.2018.15.3.7.664

Birch, S. H., L. G., & W. (1998). Children's interpersonal behaviors and the teacher-child relationship. *Developmental Psychology*.

Buehl, M. M., & Alexander, P. A. (2005). Motivation and Performance Differences in Students' Domain-Specific Epistemological Belief Profiles. *American Educational Research Journal*, *42*(4), 697-726. https://doi.org/10.3102/00028312042004697

Crystal, D. (1991). Language: Medium, barrier, or Trojan horse. *Conference on Cultural Diplomacy at the Crossroads: Cultural Relations in Europe and the Wider World.* Wilton House.

Dörnyei, Z., & Csizér, K. (2005). The effects of intercultural contact and tourism on language attitudes and language learning motivation. *Journal of Language and Social Psychology*, *24*(4), 327-357. https://doi.org/10.1177/0261927X05281424

Eccles, J., A. T., F. R., G. S., K. C., M. J., & M. C. (1983). Achievement and achievement motivation. *Expectancies, Values and Academic Behaviors*.

Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, *53*(1), 109-132. https://doi.org/10.1146/annurev.psych.53.100901.135153

Eren, A., & Rakıcıoğlu-Söylemez, A. (2023). Language mindsets, perceived instrumentality, engagement and graded performance in English as a foreign language students. *Language*

Teaching Research, *27*(3), 544-574. https://doi.org/10.1177/1362168820958400

Fincham, F. D., Hokoda, A., & Sanders, R. (1989). Learned Helplessness, Test Anxiety, and Academic Achievement: A Longitudinal Analysis. *Child Development*, *60*(1), 138. https://doi.org/10.2307/1131079

Finn, J. D. (1993). School engagement & students at risk. *National Center for Education Statistics*.

Finn, J. D., & Cox, D. (1992). Participation and Withdrawal among Fourth-Grade Pupils. *American Educational Research Journal*, *29*(1), 141-162. https://doi.org/10.3102/00028312029001141

Finn, J. D., Pannozzo, G. M., & Voelkl, K. E. (1995). Disruptive and Inattentive-Withdrawn Behavior and Achievement among Fourth Graders. *The Elementary School Journal*, *95*(5), 421-434. https://doi.org/10.1086/461853

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, *82*(2), 221-234. https://doi.org/10.1037/0021-9010.82.2.221

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, *74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Gladstone, J. R., Wigfield, A., & Eccles, J. S. (2022). Situated Expectancy-Value Theory, Dimensions of Engagement, and Academic Outcomes. In *Handbook of Research on Student Engagement* (pp. 57-76). Springer International Publishing. https://doi.org/10.1007/978-3-031-07853-8_3

Guo, J., Marsh, H. W., Parker, P. D., Morin, A. J. S., & Dicke, T. (2017). Extending expectancy-value theory predictions of achievement and aspirations in science: Dimensional comparison processes and expectancy-by-value interactions. *Learning and Instruction*, *49*, 81-91. https://doi.org/10.1016/j.learninstruc.2016.12.007

Hair, J. F., Page, M., & Brunsveld, N. (2019). *Essentials of Business Research Methods*. Routledge. https://doi.org/10.4324/9780429203374

Hayes, A. F., & Scharkow, M. (2013). The Relative Trustworthiness of Inferential Tests of the Indirect Effect in Statistical Mediation Analysis. *Psychological Science*, *24*(10), 1918-1927. https://doi.org/10.1177/0956797613480187

Hiver, P., Zhou, S. (Ashlee), Tahmouresi, S., Sang, Y., & Papi, M. (2020). Why stories matter: Exploring learner engagement and metacognition through narratives of the L2 learning experience. *System*, *91*, 102260. https://doi.org/10.1016/j.system.2020.102260

Hoi, V. N., & Hang, H. Le. (2022). Student Engagement in the Facebook Learning Environment: A Person-Centred Study. *Journal of Educational Computing Research*, *60*(1), 170-195. https://doi.org/10.1177/07356331211030158

Jin, L., & Cortazzi, M. (2002). English Language Teaching in China: A Bridge to the Future. *Asia Pacific Journal of Education*, *22*(2), 53-64. https://doi.org/10.1080/0218879020220206

Kelley, T. L. (1939). The selection of upper and lower groups for the validation of test items. *Journal of Educational Psychology*, *30*(1), 17-24. https://doi.org/10.1037/h0057123

King, R. B., & Gaerlan, M. J. M. (2014). High self-control predicts more positive emotions, better engagement, and higher achievement in school. *European Journal of Psychology of Education*, *29*(1), 81-100. https://doi.org/10.1007/s10212-013-0188-z

King, R. B., McInerney, D. M., Ganotice, F. A., & Villarosa, J. B. (2015). Positive affect catalyzes academic engagement: Cross-sectional, longitudinal, and experimental evidence. *Learning and Individual Differences*, *39*, 64-72. https://doi.org/10.1016/j.lindif.2015.03.005

Laffey, J. M. (1982). The assessment of involvement with school work among urban high school students. *Journal of Educational Psychology*, *74*(1), 62-71. https://doi.org/10.1037/0022-0663.74.1.62

Lam, S., Wong, B. P. H., Yang, H., & Liu, Y. (2012). Understanding Student Engagement with a Contextual Model. In *Handbook of Research on Student Engagement* (pp. 403-419). Springer US. https://doi.org/10.1007/978-1-4614-2018-7_19

Li, X. (2021). EFL Teachers' Apprehension and L2 Students' Classroom Engagement. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.758629

Marsh, H. W., Pekrun, R., Murayama, K., Arens, A. K., Parker, P. D., Guo, J., & Dicke, T. (2018). An integrated model of academic self-concept development: Academic self-concept, grades, test scores, and tracking over 6 years. *Developmental Psychology*, *54*(2), 263-280. https://doi.org/10.1037/dev0000393

Marsh, H. W., & Yeung, A. S. (1998). Longitudinal Structural Equation Models of Academic Self-Concept and Achievement: Gender Differences in the Development of Math and English Constructs. *American Educational Research Journal*, *35*(4), 705-738. https://doi.org/10.3102/00028312035004705

Monteiro, V., Carvalho, C., & Santos, N. N. (2021). Creating a Supportive Classroom Environment Through Effective Feedback: Effects on Students' School Identification and Behavioral Engagement. *Frontiers in Education*, *6*. https://doi.org/10.3389/feduc.2021.661736

Nagengast, B., Marsh, H. W., Scalas, L. F., Xu, M. K., Hau, K.-T., & Trautwein, U. (2011). Who Took the "×" out of Expectancy-Value Theory? *Psychological Science*, *22*(8), 1058-1066. https://doi.org/10.1177/0956797611415540

Noels, K. A., Clement, R., & Pelletier, L. G. (2001). *Intrinsic, Extrinsic, and Integrative Orientations of French Canadian Leamers of English*.

Oksenberg, L. K. G. (1991). New strategies for pretesting survey questions. *Journal of Official Statistics*.

Pan, L., & Block, D. (2011). English as a "global language" in China: An investigation into learners' and teachers' language beliefs. *System*, *39*(3), 391-402.

https://doi.org/10.1016/j.system.2011.07.011

Pekrun, R. (1988). *Emotion, motivation und persönlichkeit*.

Pekrun, R. (1993). Facets of adolescents' academic motivation: A longitudinal expectancy-value approach. *Advances in Motivation and Achievement*.

Pintrich, P. R. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ). *Tech. Report No.91-B-004*.

Pishghadam, R., Derakhshan, A., Zhaleh, K., & Al-Obaydi, L. H. (2023). Students' willingness to attend EFL classes with respect to teachers' credibility, stroke, and success: A cross-cultural study of Iranian and Iraqi students' perceptions. *Current Psychology*, *42*(5), 4065-4079. https://doi.org/10.1007/s12144-021-01738-z

Preusche, Z. M., & Göbel, K. (2021). Does a Strong Bicultural Identity Matter for Emotional, Cognitive, and Behavioral Engagement? *Education Sciences*, *12*(1), 5. https://doi.org/10.3390/educsci12010005

Putwain, D. W., Nicholson, L. J., Pekrun, R., Becker, S., & Symes, W. (2019). Expectancy of success, attainment value, engagement, and Achievement: A moderated mediation analysis. *Learning and Instruction*, *60*, 117-125. https://doi.org/10.1016/j.learninstruc.2018.11.005

Reeve, J., & Tseng, C.-M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, *36*(4), 257-267. https://doi.org/10.1016/j.cedpsych.2011.05.002

Rosenzweig, E. Q., Wigfield, A., & Eccles, J. S. (2022). Beyond utility value interventions: The why, when, and how for next steps in expectancy-value intervention research. *Educational Psychologist*, *57*(1), 11-30. https://doi.org/10.1080/00461520.2021.1984242

Schoon, I., & Polek, E. (2011). Teenage career aspirations and adult career attainment: The role of gender, social background and general cognitive ability. *International Journal of Behavioral Development*, *35*(3), 210-217. https://doi.org/10.1177/0165025411398183

Simpkins, S., Estrella, G., Gaskin, E., & Kloberdanz, E. (2018). Latino parents' science beliefs and support of high school students' motivational beliefs: Do the relations vary across gender and familism values? *Social Psychology of Education*, *21*(5), 1203-1224. https://doi.org/10.1007/s11218-018-9459-5

Skinner, E. A., & B. M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*.

Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A Motivational Perspective on Engagement and Disaffection. *Educational and Psychological Measurement*, *69*(3), 493-525. https://doi.org/10.1177/0013164408323233

Spinath, B., Spinath, F. M., Harlaar, N., & Plomin, R. (2006). Predicting school achievement from general cognitive ability, self-perceived ability, and intrinsic value. *Intelligence*, *34*(4), 363-374.

https://doi.org/10.1016/j.intell.2005.11.004

Swift, M. S., & Spivack, G. (1969). Clarifying the Relationship between Academic Success and Overt Classroom Behavior. *Exceptional Children*, *36*(2), 99-104. https://doi.org/10.1177/001440296903600205

Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy-value theory: A latent interaction modeling study. *Journal of Educational Psychology*, *104*(3), 763-777. https://doi.org/10.1037/a0027470

Turner, J. E., & Schallert, D. L. (2001). Expectancy-value relationships of shame reactions and shame resiliency. *Journal of Educational Psychology*, *93*(2), 320-329. https://doi.org/10.1037/0022-0663.93.2.320

Ushioda, E. (2013). 1. Foreign Language Motivation Research in Japan: An 'Insider' Perspective from Outside Japan. In *Language Learning Motivation in Japan* (pp. 1-14). Multilingual Matters. https://doi.org/10.21832/9781783090518-003

Vroom, V. (1964). Expectancy theory. *Work and Motivation*.

Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, *6*(1), 49-78. https://doi.org/10.1007/BF02209024

Wigfield, A., & Cambria, J. (2010). Students' achievement values, goal orientations, and interest: Definitions, development, and relations to achievement outcomes. *Developmental Review*, *30*(1), 1-35. https://doi.org/10.1016/j.dr.2009.12.001

Wigfield, A., & Eccles, J. S. (2000). Expectancy-Value Theory of Achievement Motivation. *Contemporary Educational Psychology*, *25*(1), 68-81. https://doi.org/10.1006/ceps.1999.1015

Wigfield, A., & Eccles, J. S. (2020). *35 years of research on students' subjective task values and motivation: A look back and a look forward* (pp. 161-198). https://doi.org/10.1016/bs.adms.2019.05.002

Wu, Y., & Kang, X. (2021). A Moderated Mediation Model of Expectancy-Value Interactions, Engagement, and Foreign Language Performance. *SAGE Open*, *11*(4), 215824402110591. https://doi.org/10.1177/21582440211059176

Yli-Piipari, S., & Kokkonen, J. (2014). An Application of the Expectancy-Value Model to Understand Adolescents' Performance and Engagement in Physical Education. *Journal of Teaching in Physical Education*, *33*(2), 250-268. https://doi.org/10.1123/jtpe.2013-0067