Mirroring Emotional Beliefs of EFL Students via Path Analysis: An Insight into Reflective Thinking, Self-esteem, and Autonomy in CALL

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Abstract

It is believed that psycho-emotional concepts, social and emotional competencies, reflective thinking, self-esteem, and autonomy are critical to how successful learners are. In EFL settings, particularly in Computer Assisted Language Learning (CALL), the connections between emotional competencies, reflective thinking, self-esteem, and autonomy have not been investigated despite the importance of these concepts. This research sought to address this gap by examining the Oman higher education setting and the possible involvement of emotional competencies, reflective thinking, mindsets, and self-esteem. With this goal in mind, a convenience sample of 274 EFL learners participated in this research. The outcomes of path analysis indicated that EFL students with higher emotional beliefs had higher states of reflective thinking, self-esteem, and autonomy in CALL. According to the study's conclusions, higher education curricula should contain instruction in higher-order cognitive abilities, emotion regulation techniques, reflective thinking, self-esteem strategies, and autonomy techniques.

Keywords: Emotional Beliefs, Reflective Thinking, Self-esteem, Autonomy, Path Analysis Approach, CALL

Overview

The discipline of applied linguistics and second language acquisition (SLA) research has been increasingly intrigued by the connections between emotions and language learning. The efficacy or otherwise of language learning can be substantially influenced by emotional beliefs (EB), which comprise learners' beliefs, perceptions, and emotions toward the target language and how it is acquired (Becerra et al., 2022; Dörnyei & Ryan, 2015; Richards, 2022). Educators and researchers must comprehend the nature and impact of these EB to establish favorable learning settings for language learners and develop more efficient methods of instruction. A multifaceted interaction of individual, cultural, and social factors shapes EB (Netzer et al., 2018). The emotive beliefs of learners can be influenced by their cultural contexts, past experiences, and societal perceptions of language acquisition. Learners

from collectivist cultures, for instance, may have distinct affective perceptions of language learning than those from individualistic cultures. This, in turn, can influence their enthusiasm, commitment, and, ultimately, their language competency (Plonsky et al., 2022).

The emotional beliefs of learners have a notable impact on their acceptance and utilization of CALL technologies. That is, favorable beliefs, such as a belief in the worth and effectiveness of CALL, are linked to a higher inclination to interact with and employ CALL tools. Conversely, negative emotional beliefs, such as anxiety or the perception of difficulty in employing CALL, can impede learners' acceptance and comprehension of these technologies (Veilleux et al., 2015; Veilleux et al., 2023). Furthermore, the EB of learners can also impact their degree of involvement and determination in CALL activities. Positive EB, such as feelings of enjoyment or confidence, have been associated with higher levels of motivation, enhanced cognitive processing, and improved language learning outcomes in CALL environments (Veilleux et al., 2021). Adverse EB, such as frustration or anxiety, can result in reduced involvement, avoidance of CALL tasks, and, ultimately, inferior language learning performance (Hopwood et al., 2024).

Efficient CALL environments should cultivate favorable emotional attitudes by offering a nurturing, captivating, and user-friendly encounter. This may entail integrating components that cater to learners' emotional requirements, such as tailored feedback, chances for self-regulation, and a feeling of autonomy and mastery over the learning process. In this regard, Luo (2019) discovered that EFL learners with more pessimistic EB on language acquisition were more prone to experiencing heightened levels of foreign language anxiety. This worry, in turn, may impede their language competence. Similarly, Rafada and Madini (2017) found that Saudi EFL learners with greater emotional intelligence, strongly linked to their EB, demonstrated superior language abilities and more favorable emotional attitudes toward language acquisition.

Another critical concept in education is reflective thinking (RT). According to Dewey (1933), RT is a determined and cautious examination of an opinion or purported form of understanding, the premises that underlie that understanding, and the implications that that understanding contributes to. RT is a form of cognitive activity that motivates students to discover relationships between newly solved problems and prior knowledge. Chamdani et al. (2022) define RT as the ability to process data and other information to justify actions and elicit internal reactions. In addition to recognizing and rectifying their mistakes, reflective thinkers communicate ideas through symbolic or abstract imagery instead of physical objects (Aladini et al., 2024; Kablan & Gunen, 2021).

Moreover, Phan (2007) asserts that RT is the most critical skill in facilitating understanding in complex circumstances that require problem-solving, as it empowers students to adopt a reflective posture and contemplate problem-resolution strategies and how they accomplish their objectives. RT is defined by Phan (2006) as the deliberate, consistent,

constant, and purposeful evaluation of all presumptively true information or the structure of knowledge in conjunction with additional proof, culminating in forming a decision. Reflective individuals tend to respond with deliberation and careful consideration, resulting in generally correct replies (Hammad Al-Rashidi & Aberash, 2024).

Furthermore, reflective students are more likely to effectively resolve problems, make choices, retrieve structured information, and comprehend and understand written materials. Moon (2004) states that RT may also be utilized to facilitate cognitive functions while tackling issues. By implementing RT, which enables them to predict the correct response immediately, students can analyze issues through the formulation of ideas, the derivation of conclusions, the recognition of fundamental principles, the application of a variety of strategies, and the generation of alternative approaches (Rodgers, 2002; Aldosari et al., 2023). Moreover, RT is closely associated with cognitive, affective, and psychomotor domains, as Nurjamin et al. (2023) stated.

In addition, new CALL technologies like adaptive learning platforms and intelligent tutoring systems have created new possibilities for integrating reflective thinking into language learning. These systems can give learners specific feedback, make them think about how they did, and give them tips on how to get better. Integrating RT skills in the CALL setting has major ramifications for language acquisition. CALL settings may foster greater comprehension, self-awareness, and a feeling of agency in the learning process by including students actively in reflecting on their experiences. Increased motivation, more efficient language learning, and acquiring fundamental abilities, including critical thinking and problem-solving, may follow from this in turn.

Self-esteem (SE), the subject of considerable scholarly inquiry in education, concerns an individual's assessment of their value or worth (Benson, 2007; Booth & Gerard, 2011). Maintaining high SE to promote mental health and general well-being is essential. A high degree of self-esteem confers advantages upon individuals, including the ability to develop and employ efficient techniques for coping, navigate difficult circumstances with poise, and maintain a balanced perspective when confronted with adverse events (Lou et al., 2019). Individuals who possess high levels of SE consistently perceive themselves as more capable than others and engage in the behavior of underestimating the capabilities of others. In contrast, individuals who possess less self-assurance are uncertain of their abilities to accomplish a given task effectively and lack trust in their abilities (Li & Heydarnejad, 2024; Mackinnon, 2015).

Murk (2006) and Faramarzzadeh and Amini (2017) identified evidence supporting the hypothesis that instructors who exhibit positive social and emotional competencies for their pupils significantly contribute to the students' individual development in these domains. In the realm of SE, Li and Heydarnejad (2024) and Zhang (2022) indicate that enhancing students' SE, teacher support, and critical thinking might moderate students' anxiety and

shyness in language acquisition. Mandokhail et al. (2018) examined the links between EFL students' SE and their oral proficiency in a similar inquiry. They found that there was a positive relationship between SE and their oral proficiency and their level of academic achievement.

Another relevant concept is learner autonomy (LA). Autonomy is the ability of a person to make autonomous decisions based on their understanding of their surroundings. When learners are autonomous, they can exert control over their behavior. They may justify their behavior by pointing to an internal authority source (Little et al., 2017). To succeed in their educational pursuits, students must possess the ability to develop and use their skills in daily situations, as well as demonstrate creativity in their ongoing interactions with the social environment. An individual's assessment of their skills or abilities and desire to enhance those areas may be determined by considering external influences (Ushioda, 2011). Learners who possess a strong feeling of self-assurance in their position as community members are more inclined to engage in activities that promote a sense of connection, hence facilitating the growth of their ability to learn independently (Little et al., 2017). The level of support for autonomy that instructors provide is connected to the effort they put into teaching in a classroom environment that fulfills the learners' autonomy demands and promotes interaction between the teacher and the learner (Namaziandost et al., 2024; Wiranti & Widiyati, 2022).

Furthermore, the actions and mindsets of administrators play a crucial role in identifying, enhancing, and nurturing the innate motivational talents of learners (Tuan, 2021). The results of Ritonga et al. (2023) indicated that children who regularly engage in test-taking skills and LA are better able to control their test anxiety and achieve higher test scores. These findings demonstrated the important role that online learning plays in fostering/hindering students' psychological health and level of academic engagement.

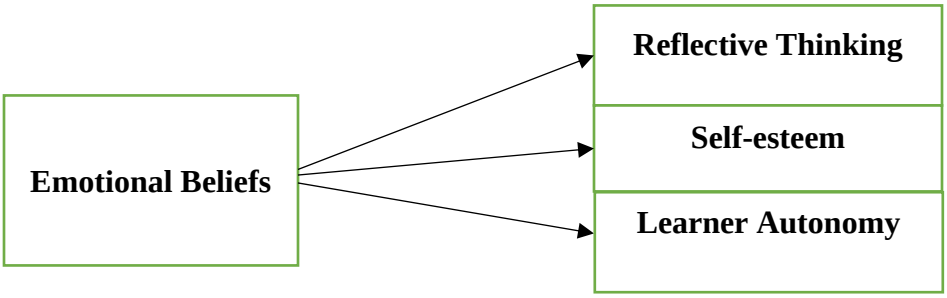
Furthermore, Positive psychology principles used within the CALL framework might improve several facets of language acquisition, including EB, RT, SE, and LA. Incorporating positive psychology concepts, CALL settings may provide a supportive and empowering learning experience, resulting in enhanced language competence, heightened well-being, and the cultivation of fundamental life abilities. By comprehending and addressing learners' EB, educators and CALL developers can generate language learning experiences that are more efficient and captivating, leading to positive emotional results and, ultimately, enhanced language proficiency. Therefore, with the prospective contributions of all the variables selected to language learning and student achievement in mind, this research aims to investigate the latent relationships between EB, RT, SE, LA, and perspectives in an EFL context. For this purpose, the subsequent research inquiry is formulated:

RQ: Do the emotional beliefs of language learners influence their reflective thinking, self-esteem, and learner autonomy in CALL?

Drawing upon extant literature and pertinent theoretical frameworks, the subsequent conceptual framework is developed (Figure 1):

Figure 1

The Conceptual Framework



Method

Participants and Setting

Using convenience sampling, the current study surveyed 274 intermediate-level EFL students (151 males and 123 females) from Dhofar university, Salalah, Oman. The students' ages ranged from 18 to 25, and data was collected using an online survey administered for five months in 2023 (with a return rate of 80.34%). Their classes were conducted in CALL.

Instruments

The Emotional Belief Questionnaire (EBQ) evaluates attitudes toward the utility and management of emotions, both positive and negative. This instrument consists of a 16-item self-report assessment developed by Becerra et al. (2020). This questionnaire has four subscales: negative controllability, positive controllability, negative usefulness, and positive usefulness. Additionally, many composite scores are provided, with the total scale score as an overall indicator of maladaptive emotional beliefs. Every question has a score on a 7-point Likert scale, with 1 denoting strongly disagree and 7 denoting strongly agree. Higher scores correspond to greater ideas that emotions are meaningless and uncontrolled.

The researchers of this study also examined the extent to which learners used reflection in the evaluation process using the Reflective Thinking Questionnaire (RTQ) developed and validated by Kember et al. (2000). The RTQ is a questionnaire comprising 16 items. Each item is rated on a 7-point Likert scale. The questionnaire measures four dimensions: habitual action, understanding, reflection, and critical reflection. The present research yielded a Cronbach's alpha coefficient of 0.879, indicating a satisfactory level of dependability.

The Foreign Language Learning Self-esteem (FLLSE) measured the participants' self-esteem. Based on a five-point Likert scale (where 1 indicates severe disagreement and 5 indicates strong agreement), this measure was created by Kember et al. (2000). FLLSE is a 25-item assessment that covers four domains: (1) language competence, (2) actual in-class language use, (3) in-class correlations, and (4) attitude toward/behavior in the context of the foreign language classroom. This research assessed the instrument's reliability and found an adequate Cronbach alpha value ($\alpha = 0.851$).

This study also used the Learner Autonomy Questionnaire (LAQ) developed by Rubio (2007) to measure the level of autonomy the participants showed in their efforts to learn English as a foreign language. This questionnaire has a response format based on a 5-point Likert scale and comprises eleven questions. Upon assessing the instrument's internal consistency, the researchers determined that the results were adequate ($\alpha = 0.854$).

Data Analysis

To complete the data analysis, the Kolmogorov-Smirnov test (K-MT) was used to ascertain whether or not the data were normal. Because the data did not follow a normal distribution, the CFA and SEM analyses employed Smart PLS 3.

Results

This section presents the results of the robust statistical analysis, which includes the computation of data screening. The first results of the descriptive statistics are shown in Table 1.

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
General-Controllability	274	18	56	33.412	6.905
Negative-Usefulness	274	8	28	15.321	4.308
Positive-Usefulness	274	7	28	16.131	3.744
Emotional Beliefs	274	36	99	64.865	11.990
Habitual Action	274	8	28	15.847	4.199
Understanding	274	4	28	15.631	4.669
Reflection	274	7	28	15.186	4.582
Critical Reflection	274	12	28	16.307	3.759
Reflective Thinking	274	38	85	62.971	11.174
Language Capability	274	12	30	22.471	4.421

Real In-class Language Utilization	274	10	30	20.201	4.926
In-class Correlations	274	6	30	21.770	6.113
Attitude toward Behavior in the Class of Foreign Language	274	7	35	25.245	6.966
Self-esteem	274	42	120	89.686	19.841
Learner Autonomy	274	16	55	39.533	9.993

According to Table 1, the descriptive statistics show that the participants perceived a moderate level of general controllability, with a mean score of 33.412 and a standard deviation of 6.905. The participants perceived the CALL materials to be slightly more useful in a positive sense (mean = 16.131, SD = 3.744) than in a negative sense (mean = 15.321, SD = 4.308). The participants generally held positive EB about their language learning experience, with a mean score of 64.865 and a standard deviation of 11.990. Regarding RT, the participants engaged in various levels of the different components, with mean scores ranging from 15.186 for reflection to 16.307 for critical reflection. The total RT score had a mean of 62.971 and a standard deviation of 11.174. The participants demonstrated moderate levels of language capability (mean = 22.471, SD = 4.421), in-class language utilization (mean = 20.201, SD = 4.926), and in-class correlations (mean = 21.770, SD = 6.113). The participants generally held a positive attitude toward their behavior in the foreign language class, with a mean score of 25.245 and a standard deviation of 6.966. They also exhibited relatively high levels of SE, with a mean score of 89.686 and a standard deviation of 19.841. Additionally, the participants demonstrated a moderate level of LA, with a mean score of 39.533 (SD = 9.993).

The K-MT test was used to check if the research factors were distributed normally. Table 2 shows how the tests turned out.

Table 2

K-MT Results

	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
General-Controllability	3.630	0.000
Negative-Usefulness	2.867	0.000
Positive-Usefulness	3.071	0.000
Emotional Beliefs	2.034	0.001
Habitual Action	2.410	0.000

Understanding	1.745	0.005
Reflection	2.745	0.000
Critical Reflection	3.639	0.000
Reflective Thinking	1.365	0.048
Language Capability	1.775	0.004
Real In-class Language Utilization	1.604	0.012
In-class Correlations	1.850	0.002

Given that the confidence level of the analysis for each component is below 0.05, the claim of normality for the research variables is rejected. The research claims are tested by analyzing the structural equations using the partial least squares technique and Smart PLS software. The validity of the measuring instrument has been established via the assessment of content, construct, convergent, and divergent validity.

A survey among EFL teachers was conducted to ascertain content validity and the extent to which measurement indicators align with contemporary research. When the indicators offer suitable factor structures for assessing the investigated structures in the study model, they possess high construct validity (Table 3). This quality serves to validate the accuracy and significance of the indicators. To complete this part, t-values were used to examine this phenomenon. At a confidence level of 95%, the indicators furnish appropriate factor structures for evaluating the investigated dimensions in the research model, provided that they exceed 1.96.

Table 3

Construct Validity Check

	Constructs	Questions	Original Sample	T -Statistics
Emotional Beliefs	General-Controllability	E1	0.534	8.022
		E2	0.658	9.549
		E3	0.756	17.967
		E4	0.720	18.394
		E5	0.861	42.250
		E6	0.675	12.563
		E7	0.831	31.886
		E8	0.758	13.954
	Negative-Usefulness	E9	0.969	30.457
		E10	0.565	8.470
		E11	0.679	14.945

		E12	0.647	13.913
	Positive-Usefulness	E13	0.675	11.299
		E14	0.822	17.926
		E15	0.913	77.514
		E16	0.822	34.492
Reflective Thinking	Habitual Action	R1	0.840	31.816
		R2	0.819	22.901
		R3	0.857	39.121
		R4	0.788	14.200
	Understanding	R5	0.916	71.729
		R6	0.906	65.709
		R7	0.849	28.493
		R8	0.861	46.536
	Reflection	R9	0.783	18.207
		R10	0.722	16.546
		R11	0.919	30.048
		R12	0.926	29.333
	Critical Reflection	R13	0.787	22.462
		R14	0.733	21.268
		R15	0.926	32.957
		R16	0.635	14.906
Self-esteem	Language Capability	S1	0.732	28.034
		S2	0.794	35.135
		S3	0.548	9.342
		S4	0.885	49.095
		S5	0.800	20.622
		S6	0.682	13.112
	Real In-class Language Utilization	S7	0.847	36.935
		S8	0.722	24.899
		S9	0.824	27.447
		S10	0.677	14.643
		S11	0.760	26.446
		S12	0.606	14.944
	In-class Correlations	S13	0.854	34.578
		S14	0.906	45.415
		S15	0.831	33.381
		S16	0.892	35.543

		S17	0.815	30.057
		S18	0.716	23.254
	Attitude toward Behavior in the Class of Foreign Language	S19	0.850	34.433
		S20	0.791	25.421
		S21	0.840	36.887
		S22	0.607	15.581
		S23	0.901	68.090
		S24	0.887	58.415
		S25	0.849	47.251
Learner Autonomy	Learner Autonomy	L1	0.849	31.037
		L2	0.738	17.599
		L3	0.741	18.891
		L4	0.785	23.169
		L5	0.844	30.959
		L6	0.744	15.856
		L7	0.657	12.361
		L8	0.654	14.384
		L9	0.659	16.890
		L10	0.780	21.428
		L11	0.746	25.769

Convergent validity refers to the need for a significant correlation between the indicators of each construct. Based on Fornell & Larcker (1981), an average variance extracted (AVE) greater than 0.5 is a prerequisite for establishing convergent validity. Furthermore, the research included Cronbach's alpha coefficient and compound reliability to evaluate the questionnaire's reliability. When the coefficients exceed 0.7, it indicates that the questionnaire is credible. Table 4 contains comprehensive information on the measurement instrument's convergent validity and reliability results.

Table 4

Convergent Validity and Reliability of Instruments

Constructs		Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Emotional Beliefs	General-Controllability	0.534	0.864	0.830
	Negative-Usefulness	0.535	0.769	0.759
	Positive-Usefulness	0.661	0.885	0.825

	total	0.696	0.901	0.867
Reflective Thinking	Habitual Action	0.683	0.896	0.846
	Understanding	0.781	0.934	0.906
	Reflection	0.709	0.906	0.875
	Critical Reflection	0.604	0.805	0.743
	total	0.710	0.889	0.837
Self-esteem	Language Capability	0.559	0.853	0.814
	Real In-class Language Utilization	0.553	0.814	0.782
	In-class Correlations	0.702	0.934	0.928
	Attitude toward Behavior in the Class of Foreign Language	0.677	0.936	0.919
	total	0.635	0.961	0.954
Learner Autonomy	total	0.560	0.933	0.923

Divergent validity is the third validity statistic in the PLS methodology. The research used the Tenenhaus et al. (2004) technique to examine divergent validity. Acceptable divergent validity indicates that a concept in the model is more associated with its indicators than with other ideas. According to Fornell and Larker (1981), divergent validity occurs when AVE for each construct surpasses the shared variance between that construct and the others, implying that the square root of AVE is greater than the correlation coefficients (Table 5). For this model to have appropriate divergent validity, the main diameter (AVE root) numbers must be greater than their corresponding values.

Table 5

Exploring Divergent Validity and Correlation Coefficients between Research Variables

	Emotional Beliefs	Reflective Thinking	Self-esteem	Learner Autonomy
Emotional Beliefs	0.834			
Reflective Thinking	0.826**	0.843		
Self-esteem	0.702**	0.657**	0.797	
Learner Autonomy	0.618**	0.725**	0.685**	0.748

Correlation is significant at the 0.01 level (2-tailed) **

Figure 2

Factor Coefficients and Path Coefficient of the First Research Model

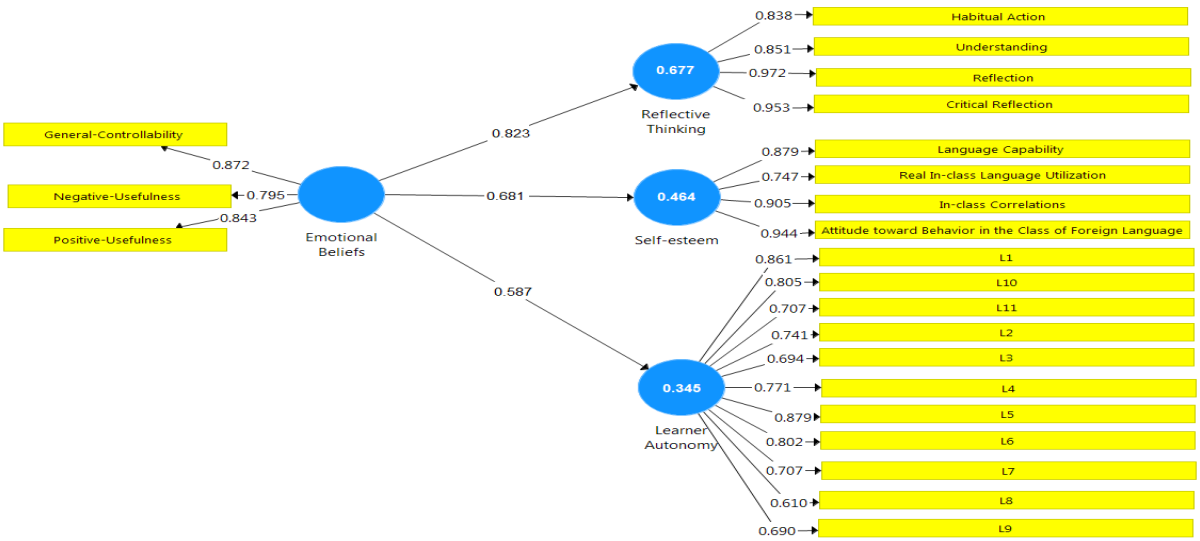


Figure 3

The Value of The First Research Model's Path Coefficients

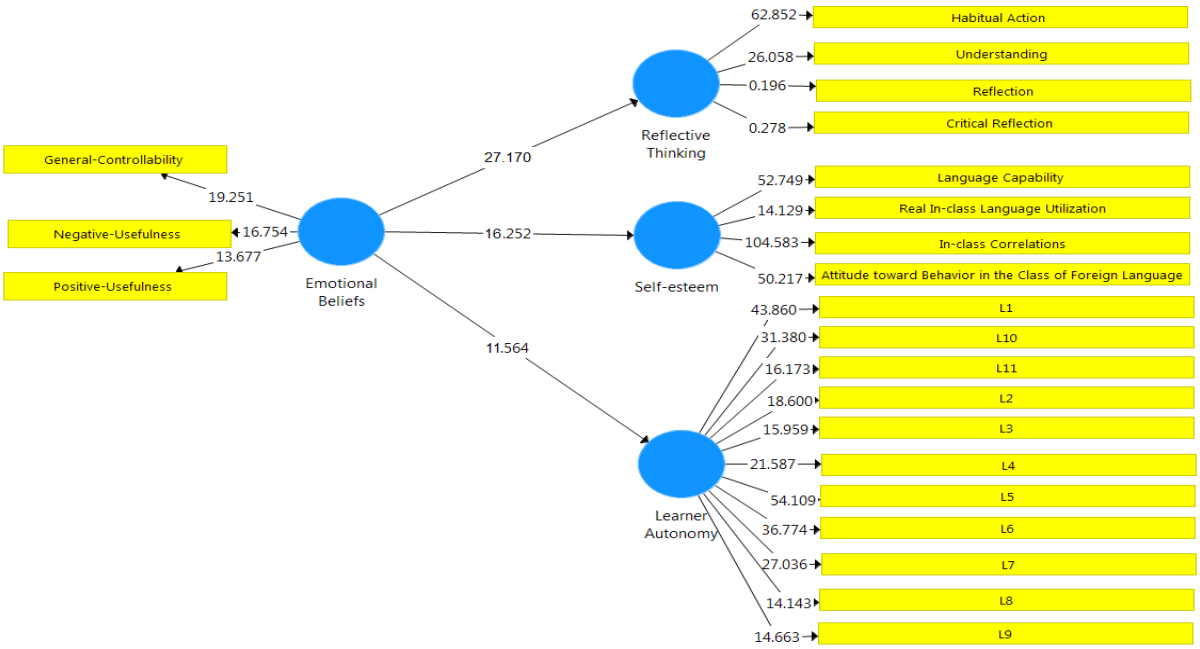


Table 6

Fit Indices of the First Model

	Q^2	R^2
Reflective Thinking	0.351	0.677
Self-esteem	0.201	0.464
Learner Autonomy	0.165	0.345

GOF=$\sqrt{0.713 * 0.495}$ =0.594

Table 6 shows a score of 0.594 for GOF, indicating a high fit to the model, with 0.01 classified as weak, 0.25 as medium, and 0.36 as strong (Tenenhaus et al., 2004). Next, the link between internal and external latent variables is examined. T-statistics are utilized to assess how each independent variable affects the dependent variables. If the statistic rises above 1.96 or goes below -1.96, the hypothesis is supported.

Table 7

Examining the Relationships between Latent Variables (First Model)

Paths			Path Coefficient	T Statistics	Test results
Emotional Beliefs	→	Reflective Thinking	0.823	27.170	Supported
Emotional Beliefs	→	Self-esteem	0.681	16.252	Supported
Emotional Beliefs	→	Learner Autonomy	0.587	11.564	Supported

Figures 2 and 3 (Table 7) comprehensively assess the robustness of the causal connections between the variables under consideration. The research revealed that EB had a significant and beneficial impact on RT (β=0.823, t=27.170), SE (β=0.681, t=16.252), and LA (β=0.587, t=11.564).

Figure 4

Factor Coefficients and Path Coefficient of the Second Research Model

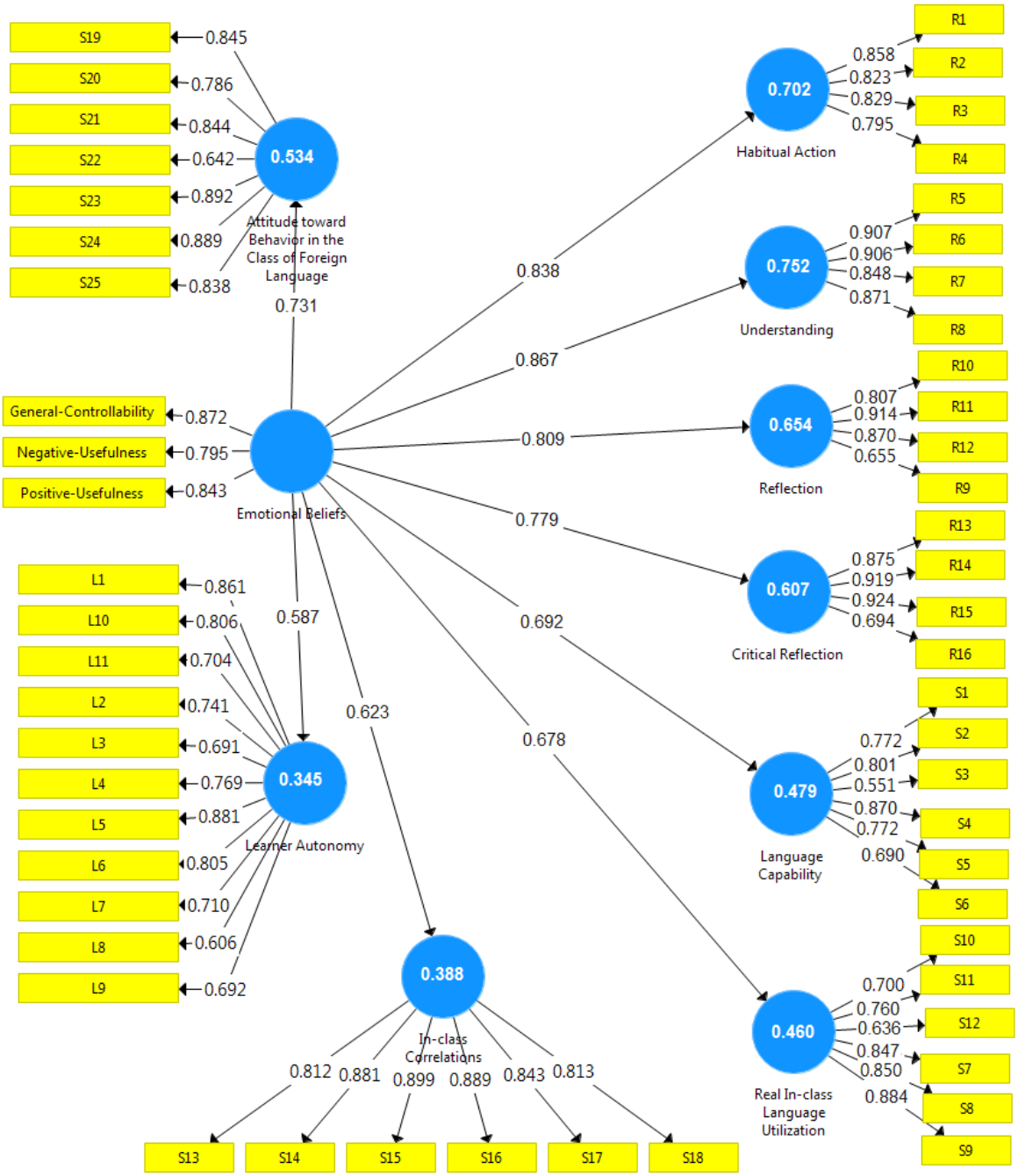


Figure 5

The Value of The Second Research Model's Path Coefficients

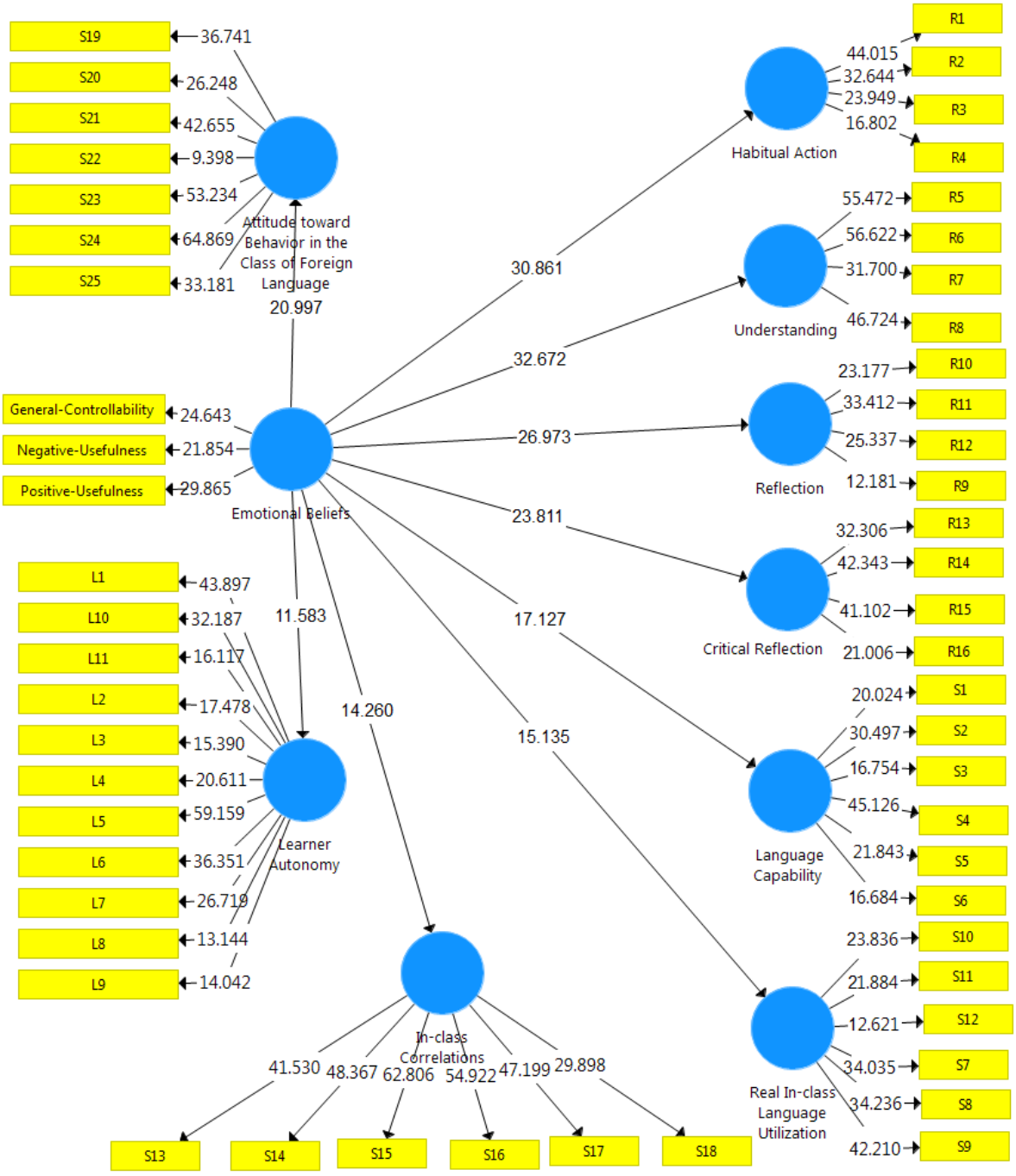

S19
S20
S21
S22
S23
S24
S25
36.741
26.248
42.655
9.398
53.234
64.869
33.181
Attitude toward Behavior in the Class of Foreign Language
20.997
General-Controllability
Negative-Usefulness
Positive-Usefulness
24.643
21.854
29.865
Emotional Beliefs
30.861
32.672
26.973
23.811
17.127
15.135
14.260
11.583
Habitual Action
Understanding
Reflection
Critical Reflection
Language Capability
Real In-class Language Utilization
R1
R2
R3
R4
R5
R6
R7
R8
R10
R11
R12
R9
R13
R14
R15
R16
S1
S2
S3
S4
S5
S6
S10
S11
S12
S7
S8
S9
44.015
32.644
23.949
16.802
55.472
56.622
31.700
46.724
23.177
33.412
25.337
12.181
32.306
42.343
41.102
21.006
20.024
30.497
16.754
45.126
21.843
16.684
23.836
21.884
12.621
34.035
34.236
42.210
L1
L10
L11
L2
L3
L4
L5
L6
L7
L8
L9
43.897
32.187
16.117
17.478
15.390
20.611
59.159
36.351
26.719
13.144
14.042
Learner Autonomy
In-class Correlations
41.530
48.367
62.806
54.922
47.199
29.898
S13
S14
S15
S16
S17
S18

Table 8

Fit Indices of the Second Model

	Q^2	R^2
Habitual Action	0.325	0.702
Understanding	0.348	0.752
Reflection	0.276	0.654
Critical Reflection	0.231	0.607
Language Capability	0.185	0.479
Real In-class Language Utilization	0.162	0.460
In-class Correlations	0.155	0.388
Attitude toward Behavior in the Class of Foreign Language	0.195	0.534
Learner Autonomy	0.151	0.345

GOF=$\sqrt{0.639 * 0.547}$ =0.591

The model's fit is assessed using GOF scores. A score of 0.591 for GOF signifies a high fit, while scores of 0.01 indicate a weak fit, 0.25 indicate a medium fit, and 0.36 indicate a strong fit (Table 8). Subsequently, the relationship between internal and external latent variables is investigated. Following this step, T-statistics are employed (Table 9) to determine the influence of each independent variable on the dependent variables.

Table 9

Examining the Relationships between Latent Variables (Second Model)

Paths			Path Coefficient	T Statistics	Test results
Emotional Beliefs	→	Habitual Action	0.867	32.672	Supported
Emotional Beliefs	→	Understanding	0.838	30.861	Supported

Emotional Beliefs	→	Reflection	0.809	26.973	Supported
Emotional Beliefs	→	Critical Reflection	0.779	23.811	Supported
Emotional Beliefs	→	Language Capability	0.731	20.997	Supported
Emotional Beliefs	→	Real In-class Language Utilization	0.692	17.127	Supported
Emotional Beliefs	→	In-class Correlations	0.678	15.135	Supported
Emotional Beliefs	→	Attitude toward Behavior in the Class of Foreign Language	0.623	14.260	Supported
Emotional Beliefs	→	Learner Autonomy	0.587	11.583	Supported

The current correlations among latent variables in Model 2, as represented by the coefficients in Table 9, Figures 4, and 5, are elaborated upon in this section. A significant relationship exists between Emotional Beliefs and the following subscales: Habitual Action ($\beta = 0.867$, $t = 32.672$), Understanding ($\beta = 0.838$, $t = 30.861$), Reflection ($\beta = 0.809$, $t = 26.973$), Critical Reflection ($\beta = 0.779$, $t = 23.811$), Language Capability ($\beta = 0.731$, $t = 20.997$), Real In-class Language Utilization ($\beta = 0.692$, $t = 17.127$), In-class Correlations ($\beta = 0.678$, $t = 15.135$), Attitude toward Behavior in the Class of Foreign Language ($\beta = 0.623$, $t = 14.260$), and Learner Autonomy($\beta = 0.587$, $t = 11.583$).

Discussion

The present study attempted to discover the relationships between EB, RT, SE, and LA in language classes. The outcomes of SEM and CFA indicated that EB is a predictor of the way and the depth of RT, SE, and LA in the Oman EFL context. Educational balance can be restored through their influence and modifications to academic emotions, academic

resilience, academic engagement, and self-efficacy beliefs within the EFL context. The findings corroborate Hammad Al-Rashidi & Aberash (2024), who found that RT improved EFL students' motivation and academic well-being. They found that the strategies used in RT lead to beneficial results in terms of learning. Similarly, Namaziandost et al. (2024) discovered that the ability to think critically and regulate emotions are interconnected in remote language learning.

There are some reasons why RT is beneficial for EFL students' academic well-being. By using RT, students may discover how to think about the best ways to achieve their learning goals. According to Ozudogru (2021), RT is essential for students to solve problems as effectively as possible. Consequently, it affects students' decision-making processes regarding cognitive, emotional, and psychomotor activities related to learning. Also, according to Moon (2004) and Phan (2007), students require RT skills to deal with real-life problems. Using RT, one may understand, evaluate, critique, find answers to problems, and analyze the subjects being studied. By using a range of teaching tactics, problem-based learning models, and open-ended essay questions, teachers may help students enhance their RT skills (Nurjamin et al., 2023).

Given how rare they are in FEL contexts, teachers and students might benefit from a deeper familiarity with SE and RT. Thus, including SE and RT activities in traditional ELT classrooms may help students understand the intended learning outcomes, identify their areas of strength and growth, and formulate strategies for future success. Most students felt that SE helped them communicate better by allowing them to acknowledge their strengths and weaknesses (Rodgers, 2002; Kablan & Gunen, 2021; Mandokhail et al., 2018). Students also need SE comprehension to complete this procedure. Results from SE training activities will be more reliable if students regularly follow instructions and use course resources well.

The research findings also highlighted that knowledge and equilibrium about emotions provide a healthy psychological state in the mind of EFL learners in CALL. Moreover, as described by Booth and Gerard (2011), SE instructs students to recognize their areas of proficiency and areas for improvement without negatively impacting their self-confidence. Additionally, it empowers individuals with greater autonomy in their education and enhances their accountability, enabling them to acquire knowledge more effectively. Moreover, SE cultivates students' reflective skills, improves their engagement in the learning process, and increases their awareness of the evaluation criteria. As Namaziandost et al. (2023) described, SE can potentially boost students' confidence and drive. SE encourages students to take an active role in their learning by letting them set goals for themselves, monitor their progress toward those goals, and ultimately increase their intrinsic motivation to succeed (Mandokhail et al., 2018). As stated by Mackinnon (2015), the formative nature of SE might enhance student motivation by enabling them to focus on specific areas of performance and monitor their development in those areas. Furthermore, according to

Dörnyei & Ryan (2015), SE can enhance EFL students' self-confidence, learning goal orientation, and self-efficacy in CALL.

By adopting a positive psychology approach, language instructors may create a more empowering and gratifying CALL environment that unleashes the complete potential of language learners and qualifies them for lifetime language learning accomplishment. By recognizing these deeper links, language educators and researchers may build CALL treatments that consistently tackle the interaction between positive emotional beliefs, reflective thinking, self-esteem, and learner autonomy. This comprehensive approach may provide an atmosphere for instruction that simultaneously promotes language competency and supports language learners' well-being and personal development (Aydın & Tekin, 2024; Peterson, 2006). Effective methods for implementing a positive psychology-informed CALL approach involve integrating positive feedback, inspections focusing on strengths, meditation exercises, and educational tasks promoting autonomy. These strategies can assist language learners in cultivating a greater awareness of self-value, a more profound comprehension of their learning journey, and an enhanced ability to engage in independent instruction.

Conclusion and Pedagogical Implications

While EB has been a subject of attention and inquiry for many decades, it is only in recent times that the potential for a structured and cohesive sub-field of analysis has been apparent. To get around this lacuna research, the current study tried to find the connections between EB, RT, SE, and LA using a path analysis approach. Educators may use various tactics in the classroom to inspire EB, RT, SE, and LA among their students. First, instructors may maximize language use and increase learning results by introducing EB, RT, SE, and LA into the language classroom. Teachers might offer their classes lectures on how hard work is crucial while learning a new language. At the same time, educators should commend and support pupils who demonstrate resilience in the face of adversity. Last but not least, educators might highlight the achievements of students who have shown remarkable linguistic proficiency via sustained effort in studying a second language. Consequently, pupils will be motivated to put more effort into their studies.

Acknowledging that these findings are not devoid of certain constraints is important. The primary constraint of this research is its scope. This research examined four variables: EB, RT, SE, and LA. Further investigation into unexamined possible variables would be advantageous to subsequent scholarly inquiries. An additional constraint pertains to a cross-section and correlational design implemented in this research, which precluded the identification of causal relationships between variables. It is recommended that future research endeavors employ experimental and longitudinal designs to investigate the interplay among EB, RT, SE, and LA in CALL.

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