

Language Testing in Asia

Learning-oriented Assessment in the Classroom: The Contribution of Self-assessment and Critical Thinking to EFL Learners' Academic Engagement and Self-esteem --Manuscript Draft--

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Full Title:	Learning-oriented Assessment in the Classroom: The Contribution of Self-assessment and Critical Thinking to EFL Learners' Academic Engagement and Self-esteem
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Abstract:	The core of self-assessment (CSA) and critical thinking (CT) empower learners to observe and evaluate themselves. Although the literature on CSA and CT reflects a long history, little is known about their contributions to the learners' academic engagement (AE) and self-esteem (SE), particularly in the EFL context. Therefore, the present investigation intended to explore a structural model of English as a Foreign Language (EFL) university students' CSA, CT, and SE. Accordingly, the Core of Self-assessment Questionnaire (CSAQ), Watson–Glaser Critical Thinking Appraisal-form A (WGCTA), The SInAPSi Academic Engagement Scale (SAES), and The Foreign Language Learning Self-esteem Scale (FLLSES), were administered to 427 Iranian EFL university professors. The results of Structural Equation Modelling (SEM) indicated that EFL university students with high levels of CSA were more engaged and could build up high SE. Moreover, the effective role of CT in boosting AE and SE was also confirmed. The implications of this study may unveil new prospects for implementing learning-oriented assessment in the classroom and CT practices in language learning instruction and assessment.
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Response to Reviewers:	Dear Respected Editor and Reviewers: Thank you very much for giving us the opportunity to revise our manuscript. We would like to thank the respected editor and the reviewer for their valuable comments. Below the answers to the reviewers' comments are provided (Reviewer 1 in green, Reviewer 2 in yellow, Reviewer 3 in blue): Reviewer #1: Dear Editor, Thanks for providing this opportunity. I read this manuscript entitled, "Learning-oriented Assessment in the Classroom: The Contribution of Self-assessment and Critical Thinking to EFL Learners' Academic Engagement and Self-esteem". It was well-

designed and well-structured. The authors applied SEM to explore the relationships between the contribution of self-assessment, critical thinking, learners' academic engagement, and self-esteem. Along all its merits, there are some sections that need revision and modification:

Firstly, I suggest the authors to provide deeper background about AE and SE in the introduction.

Response: Thanks for your constructive comment. The introduction is revised on page 2 and highlighted in green.

Secondly, more description about the suggested model is expected.

Response: Thank you. Based on this comment, the suggested model was elaborated on page 6 and 7 and highlighted in green.

Thirdly, the rationale for applying CFA to analyze the data should be determined.

Response: Thanks for raising this thoughtful comment. This information is provided on page 9 and 10.

Fourthly, what are the implications of the first and second model?

Response: Thank you. As it was written on page 12 and 14, the first model is depicted the schematic representation of path coefficient values for the relationships between CSA, CT, FLLSE, and SAE. In the second model, schematic representation of path coefficient values for the relationships between CSA, CT, FLLSE subscales, and SAE subscales were illustrated. Furthermore, the related findings were discussed in the result section.

Fifthly, I suggest the authors to discuss the contribution of self-assessment, critical thinking, academic engagement, and self-esteem with regard to students in higher education.

Response: Thank you. The discussion is revised and the findings were more elaborated to target students in higher education. The related sentences were highlighted in green.

Lastly, in the conclusion, the authors stated that, 'Additionally, as a further research avenue, it is suggested to explore the influence of CSA, CT, AE, and SE on other learner-related constructs.' I suggest the authors to add some of these constructs that may be related and assist the researchers in future to do further investigation.

Response: Thank you. Based on your fruitful comment, this sentence was revised on page 21.

Reviewer #2: This manuscript is an interesting study and the authors have collected a unique dataset. The data were analyzed via structural equation modeling and the participants were university students. The findings witness the significant roles of self-assessment and critical thinking to EFL learners' academic engagement and self-esteem. Despite the positive aspects of this manuscript, it suffers from some shortcomings. My comments are listed as following:

1) Suggestions for implementing learning-oriented assessment in the classroom should be highlighted in the text.

Response: Thanks for referring to this fruitful suggestion. The conclusion of the study is modified to address your comment.

2) The underlying gaps should be determined.

Response: Thank you. The underlying research gaps were discussed on page 2 and page 8.

3) The effect of self-assessment, critical thinking, academic engagement, and self-esteem in EFL domain is suggested to be discussed.

Response: Thanks for your constructive comment. The text is modified based on your fruitful comment and highlighted in yellow and green (as it was raised by the other respected editor).

4) More detail is suggested about the second model.
Response: Thank you. This model illustrates the relationships between CSA, CT, FLLSE subscales, and SAE subscales. Based on your constructive comment, in the discussion, the findings related to the second model is discussed in more details and highlighted.

5) To support the findings, critical review of the existing experimental studies is suggested.
Response: Thank you. The discussion is revised and the highlighted references indicate the change based on your fruitful comment (as some aspects were suggested by other respected reviewers these parts are highlighted in green, yellow, and blue).

6) The discussion of the correlation should be considered in the discussion and conclusion.
Response: Thanks for your fruitful comment. Based on your constructive comment, the discussion is revised and highlighted.

Reviewer #3: Dear Editor,

This study addressed four important learner attributed constructs in EFL context. The influence of the self-assessment and critical thinking on students' academic engagement and self-esteem was the target of this study. The authors concluded that CSA and CT play mediator roles in boosting AE and SE. Generally, this manuscript is well-developed and novel. The proposed model could advance future research. But I have some recommendations to improve this present state of this manuscript:
I. The significance of the study should be specified for the reader.

Response: Thank you. The significance of the study is emphasized in the objectives of the study and highlighted in blue.

II. A definition about SE is suggested in the introduction.
Response: Thanks for your thoughtful comment. The introduction is revised based on your comment and it is highlighted in green as it was raised by another respected reviewer.

III. This sentence in the literature, "According to Hu, 2022, CSA empowers learners to regulate their emotions." Needs revision.
Response: Thank you. This sentence is revised on page 3.

IV. As the main objective of the study, exploring the contributions of self-assessment and critical thinking to learners' academic engagement and self-esteem in EFL context as well as higher education can be noted in the objectives of the study.
Response: Thanks for your thoughtful comment. This suggestion is added to the text and highlighted in blue (page

V. More elaboration on the suggested model is expected.
Response: Thanks for raising this point. The second model was discussed more in the discussion and heighted in blue and green (as it was suggested by another respected reviewer).

VI. The cut value for the Root Mean Squared Error of Approximation (RMSEA) should be determined.
Response: Thanks for your constructive comments. This information is provided on page 12:
"The root mean square error of approximation (RMSEA) is recommended to be lower than 0.1 (Jöreskog, 1990)."

VII. More emphasis on the contributions of CSA and CT in higher education is expected in the discussion.
Response: Thanks for your thoughtful information. The discussion is modified and addressed the contributions of CSA and CT in higher education. This part is highlighted

	<p>in green as it was suggested by another respected reviewer.</p> <p>VIII. The findings related to the second model should be elaborated completely. Response: Thanks for your constructive comment. This model is elaborated in more details and highlighted in blue green and green as it was suggested by another respected editor.</p> <p>IX. Considering the existing literature and theory in the discussion is suggested. Response: Thanks for your fruitful comment. Based on your constructive comment, the discussion is revised and highlighted.</p> <p>X. The teachers' roles in implementing learning-oriented assessment in the classroom can be discussed in the conclusion. Response: Thanks for your fruitful suggestion. Based on this suggestion, the conclusion is revised and highlighted in blue.</p> <p>XI. The investment in higher order thinking skills in order to increase CSA, AE, and SE is suggested to be elaborated in the conclusion. Response: Thanks for raising this point. The discussion is revised in this regard and highlighted in blue.</p> <p>XII. In dealing with the limitations of the study, the authors can consider the educational context. This study was conducted among MA students. Response: Thanks for considering this part. The limitations of the study is revised and the comment is added and highlighted in blue.</p>
Additional Information:	
Question	Response

Learning-oriented Assessment in the Classroom: The Contribution of Self-assessment and Critical Thinking to EFL Learners' Academic Engagement and Self-esteem

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Declarations:

Availability of data and material: The authors state that all the data supporting the findings of this study are available within the article.

Competing interests: The authors declare that there is no conflict of interest.

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Learning-oriented Assessment in the Classroom: The Contribution of Self-assessment and Critical Thinking to EFL Learners' Academic Engagement and Self-esteem

Abstract

The core of self-assessment (CSA) and critical thinking (CT) empower learners to observe and evaluate themselves. Although the literature on CSA and CT reflects a long history, little is known about their contributions to the learners' academic engagement (AE) and self-esteem (SE), particularly in the EFL context. Therefore, the present investigation intended to explore a structural model of English as a Foreign Language (EFL) university students' CSA, CT, and SE. Accordingly, the Core of Self- assessment Questionnaire (CSAQ), Watson–Glaser Critical Thinking Appraisal-form A (WGCTA), The SInAPSi Academic Engagement Scale (SAES), and The Foreign Language Learning Self-esteem Scale (FLLSES), were administered to 427 Iranian EFL university learners. The results of Structural Equation Modelling (SEM) indicated that EFL university students with high levels of CSA were more engaged and could build up high SE. Moreover, the effective role of CT in boosting AE and SE was also confirmed. The implications of this study may unveil new prospects for implementing learning-oriented assessment in the classroom and CT practices in language learning instruction and assessment.

Keywords: the core of self-assessment, critical thinking, academic engagement, self-esteem, EFL university students, Structural Equation Modeling

Introduction

Assessment is an indispensable part of Instruction. Teachers' applied methodology and teaching style preferences, directly and indirectly, affect how they design and administer their assessments in the classroom. To ensure the educational and psychological well-being of the students, learning-oriented assessment in the classroom is highly recommended (Bachman, 2015). In CSA, learners are involved in critically evaluating their progress (Tavousi & Pour Sales, 2018). CSA is basically an integrated personality structure referring to the students' assessment and interpretation of their own learning (GuoJie, 2021). Put it in other words, CSA is intended to activate the learners to feel more responsible and reflect on every step of their learning experiences (Wongdaeng, 2022). Investment in CSA can improve learners' autonomy, emotion regulation, L2 grit, and social relationships (Heydarnead et al., 2022; Jiang et al., 2022; Zhuoyuan, 2021).

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4 CT is a higher-order thinking skill that is concentrated using intuition, insight, and artistry
5 to decide about any affairs (Amirian et al., 2022; Heshmat Ghahderijani et al., 2021). According
6 to Li et al. (2022), CT enables individuals to look back and forth to react efficiently in every
7 situation. Thus, CT is a helpful attribution for the learners that guarantee a safe road for learning.
8 While learning, students may face various chaos and complexities that ask for decisive reactions.
9 They need to be armed with CT skills to help them apply their metacognition and cognition to act
10 efficiently. CT allows learners to stop, step back, think deeply, and assess themselves (Syairofi et
11 al., 2022; Zhang et al., 2020).

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13 AE is an affective-motivational attribution highlighting learners' willingness, and
14 involvement in educational activities (Shu, 2022). Engaged learners have high levels of dedication
15 and they are completely immersed in the class activities (Burić & Macuka, 2017; Deng et al., 2022,
16 Topchyant & Woehler, 2020). Today's continuously challenging environment calls for engaged
17 learners to be self-initiated and self-reliant. Engagement can be regarded as an incentive to extend
18 the level of motivation and progress in individuals' education. (Namaziandost et al., 2022a). In
19 other words, LE can be considered a measure that illustrates the extent and depth of students'
20 participation in all aspects of their education.

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22 SE as a psychological construct is individuals' beliefs about themselves and their emotional
23 states. Smith and Mackie (2007) stated that " SE is the positive or negative evaluations of the self,
24 as in how we feel about it." In the educational context, SE refers to the learners' confidence in
25 their own worth or abilities. SE among learners is more likely to flourish in learning situations
26 when self-assessment is encouraged (Faramarzzadeh & Amini, 2017). Students with a healthy
27 level of self-esteem work toward finding solutions when challenges arise; they also respect
28 generally accepted social rules (Zhang, 2022). It is worth highlighting that practicing SE prepares
29 learners to cope with the demands of the modern world (Mandokhail, 2018). Thus, prerequisite
30 factors for the development and attainment of SE are necessary to be taken to the surface layer of
31 educational research. Despite the potential role of CSA, CT, AE, and ES in the well-being of the
32 learners, there remains a paucity of evidence on the extent and direction of the interplay among
33 them. In seeking to understand their associations better, the present study set forth to fill this
34 educational gap. In the following section, the related literature was critically reviewed.

35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 **Literature Review**

58 59 **The Core of Self-assessment (CSA)**

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4 Assessment is the systematic basis for making inferences about students' progress and their
5 learning (Bachman, 2015). Through the years, different methods were defined to facilitate
6 assessment and increase its validity and reliability. CSA is a type of assessment in which learners
7 are actively involved in the "assessment or evaluation of oneself or one's actions, attitudes, or
8 performance. That is why each learner should be encouraged and trained to go through a process
9 of self-assessment", (Bachman, 2010, p. 12). According to Andrade (2019), CT, metacognition,
10 monitoring, and self-regulated learning are the major principles of CSA. Furthermore, Judge et al.
11 (1997) CSA is considered a type of higher-order trait involving self-esteem, generalized self-
12 efficacy, neuroticism, and locus of control.

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CSA can be generated intrinsically and extrinsically (Bourke & Mentis, 2007). External values, feedback from others, and grades define the extrinsic phase of CSA. Internal values and goal setting define the extrinsic phase of CSA. Sociocultural settings as well as the learner's self-determination and self-identity are critical in CSA formulation (Bourke & Mentis, 2007, 2013). Learners need to evaluate their learning process and be involved in solving problems. The high levels of CSA armed learners to overcome different challenges and decide thoughtfully (Al-Mamoory & Abathar Witwit, 2021). According to Hu (2022), CSA empowers learners to regulate their emotions. It means that self-assessment influences both cognitive and affective aspects of learners' educational lives. The high state of CSA, especially in language learning can manage emotional experiences and improve academic achievement (Bijani et al., 2022; Punpromthada et al., 2022).

As the literature on CSA echoes, practicing self-assessment inhibits cognitive and metacognitive skills among EFL learners (Heydarnejad et al., 2022; Nemati et al., 2021; Wei, 2020). Moreover, Jahara et al. (2022) found that levels of coping style among EFL learners change the state of CSA and stress management. It was also approved that self-assessment is affected by self-efficacy beliefs (Amirian et al., 2022; Zheng et al. 2022), academic emotion (Pekrun et al., 2017), metacognitive skills (Wei, 2020), and critical thinking (Zhang, 2022; Li et al., 2022). Additionally, the impact of L2 grit on CSA and foreign language learning anxiety was investigated by Heydarnejad et al. (2022). The results of SEM indicated that L2 grit increased the level of CSA. That is, gritter students are more powerful in self-monitoring. They can also control and manage the anxiety that may be experienced in language classes.

Critical Thinking (CT)

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4 The concept of CT was born about two centuries ago by Socrates, who assumed that reasoning,
5 analyzing, and evaluating were the critical aspects of individuals' thinking (Fisher, 2001). Despite
6 the long introduction and vast application of CT, no agreed-upon definition is suggested (Fasko,
7 2003; Halonen, 1995). As Paul (1988) and Halpern (2003) stipulated, CT is a higher-order
8 thinking skill that activates mental processes and cognitive skills. Moreover, Dewey (1933)
9 defined CT as dynamic processes of analysis, synthesis, and evaluation to get an acceptable
10 conclusion. In the definition of CT by Ennis (1996), the intellectual and disciplined process of
11 mind, which is developed by critical reflection, is highlighted. In the same line of inquiry, Thomas
12 and Lok (2015) considered knowledge, skills, and disposition as the basis of CT.
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21 The introduction of CT as an essential part of education was first done by Dewey (1933).
22 Based on his proposal, higher-order thinking skills should be implemented in schools and
23 universities. In this regard, Mason (2008) noted that CT strategies should be taught and teachers
24 should learn how to apply them in the classroom. Reviewing the related literature on CT
25 highlighted the crucial role of teachers in implementing and practicing CT. For instance,
26 Heydarnejad et al. (2021a) concluded that EFL teachers' attitudes toward CT and self-regulation
27 influence their style of teaching. The contribution of CT to the identity formation of the teachers
28 (Sheybani & Miri, 2019), reflective thinking (Heydarnejad et al., 2018), self-efficacy (Amirian et
29 al., 2022), L2 grit (Zheng et al., 2022), and emotion regulation (Namaziandost et al., 2022a). When
30 teachers are empowered with higher-order thinking skills, they are more able to help their students
31 cultivate CT skills (Li et al., 2022).
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41 Due to the immense influence of CT on learners' academic achievement, various studies
42 attempted to investigate the practical strategies for implementing CT among learners. In this
43 regard, Rashtchi and Khoshnevisan (2020) suggested practicing CT strategies by writing tasks
44 among EFL learners. In another study by Sheikhy Behdani and Rashtchi (2019), the role of process
45 writing and its contribution to fostering CT was highlighted. Moreover, Davoudi and Heydarnejad
46 et al. (2022) practice reflective thinking among EFL learners and they found that reflective
47 thinking as a higher-order thinking skill could enhance the student's language achievement. Zare
48 et al. (2021) also documented that students' reading comprehension skills were improved with the
49 help of developing dynamic assessment, which is based on CT. From another perspective, Wale
50 and Bishaw (2020) confirmed that inquiry-based learning boosted CT skills in the EFL context.
51 Additionally, Wahyudi et al. (2019) conducted a study to explore the effect of a discovery learning-
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4 based assessment module to enhance CT. Based on their findings, the discovery learning-based
5 assessment could improve CT and creativity of the learners, especially in their speaking
6 production.
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9 **Academic Engagement (AE)**

10 Engagement is a multidimensional construct and entails different aspects. It affects the motivation,
11 cognition, behavior, and emotions of the learners (Robinson & Hullinger, 2008; Sharma &
12 Bhaumik, 2013). Engagement in the domain of education was defined and studied from different
13 perspectives: school engagement (Fredricks et al., 2004), study engagement (Schaufeli et al.,
14 2002), student course engagement (Handelsman, et al., 2005; Xu et al., 2022), and teacher
15 engagement (Deng et al., 2022; Namaziandost et al., 2022a). To describe engagement different
16 models and theories were proposed. Fredricks et al.'s (2004) Model of Engagement and Schaufeli
17 et al.'s (2002) Model of Engagement are the two comment models of engagement due to their
18 reliability and usage in different empirical studies.
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28 Fredricks et al.'s (2004) Model of Engagement defines engagement as a dynamic and
29 malleable construct including behavioral, cognitive, and emotional dimensions. They believe that
30 these three dimensions are integrated. Engagement from the eyes of Schaufeli et al. (2002) consists
31 of absorption, vigor, and dedication. These two models assess different aspects of students'
32 engagement, but they believe that engagement is one of the vital aspects of learners' academic
33 engagement. In these two models, learners' cognitive engagement and enthusiasm are described
34 as their involvement in school-related activities and willingness to learn (Rezai et al., 2022;
35 Tuominen-Soini & Salmela-Aro, 2014). Fredricks et al. (2004) and Schaufeli et al. (2002) also
36 conceptualize that AE increases learners' resilience, persistence, and positive attitudes toward
37 learning. In these two models, learners' cognitive engagement and enthusiasm are described
38 as their involvement in school-related activities and willingness to learn (Rezai et al., 2022;
39 Tuominen-Soini & Salmela-Aro, 2014). Fredricks et al. (2004) and Schaufeli et al. (2002) also
40 conceptualize that AE increases learners' resilience, persistence, and positive attitudes toward
41 learning.
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46 Through the years, AE and its correlation were studied and its contributions to learners'
47 well-being were highlighted in various empirical studies. For instance, Alonso-Tapia et al. (2022)
48 discovered that AE positively relates to motivation, self-efficacy, emotion, self-regulation, and
49 satisfaction. The reciprocal relationships between AE, school engagement, and motivation were
50 found by Hosseinmardi et al. (2021). Likewise, Amerstorfer and Freiin von Münster-Kistner
51 (2021) conducted a study to investigate the factors that affect AE. As they discussed, AE depends
52 on personal characteristics, the teacher, the teaching methodology, peers, and the learning
53 atmosphere. They believed that cognitive, metacognitive, affective, social, task-related, and
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4 foreign language-related factors influence AE. In a recent study by Namaziandost et al. (2022b),
5 the mediator role of emotion regulation in fostering engagement, self-efficacy, and anger in higher
6 education was confirmed. They concluded that a healthy state of emotion regulation will guarantee
7 a sense of engagement and self-efficacy among university teachers. In such a situation, they can
8 better manage and regulate their anger.
9

13 **Self-esteem (SE)**

15 SE is confidence in one's own worth or abilities (Mackinnon, 2015). It is the offspring of the
16 individual's beliefs about their skills, abilities, and social relationships (Wang & Ollendick, 2001).
17 SE is associated with the generation of self-image and self-conscience. According to Manning et
18 al. (2006), SE is linked to self-evaluation and involves cognitive appraisals relevant to self-worth
19 and affective experiences. Additionally, Dörnyei & Ryan (2015) argued that SE is related to self-
20 concept and self-evaluation. Self-concept refers to individuals' self-image and self-evaluation
21 addresses the procedures involved in the formation of individuals' SE. More precisely, Lawrence
22 (2006) defined self-concept as an umbrella term and includes SE, self-image, and ideal self.
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30 SE influences students' learning and academic success. It means that learners with higher
31 SE are more confident and define higher goals for themselves despite challenges and difficulties
32 (Murk, 2006). Their persistence in attempts helps them to become more successful. SE can also
33 foster self-regulatory strategies as well as the emotional states of individuals (Heydarnejad et al.,
34 2021b). According to Brown (2000), "no successful activity can occur without some degree of
35 self-esteem" (p.145). SE is related to students' autonomy and can increase their reading
36 comprehension (Zhang, 2022). The mediator role of SE in shaping spoken skills among advanced
37 and intermediate language learners was concluded by Faramarzzadeh and Amini (2017). Based on
38 their findings, language learners with high levels of self-esteem were more successful in total
39 spoken words, total spoken turns, and interruptions in mixed groups. It was also documented that
40 teachers' positive SE helps the development of positive SE in their students (Mandokhail, 2018).
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50 **Objectives of the Present Study**

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52 As the review of the existing literature reflected, CSA, CT, AE, as well as SE are student-attributed
53 constructs that foster learning and learners' well-being. When learners are armed with CSA, CT,
54 AE, and SE, they can act more skillfully and decide better, especially in the face of chaos and
55 complexity. Despite their immense contributions, the possible relationships between CSA, CT,
56 AE, and SE remained uncharted territories, particularly in the realm of language learning.
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4 Therefore, the present study intended to take a step forward and uncover the association between
5 CSA, CT, AE, and SE among EFL university students. In this regard, a model was proposed
6 (Figure 1) to picture the relationships between CSA, CT, AE, and SE with the aim of advancing
7 more meaningful learning and initiating future research. This model, based on previous studies
8 and relevant theories, proposed the possible association between CSA, CT, AE, and SE. Thus, the
9 possible contributions of CSA and CT to AE and SE in the EFL context as well as higher education
10 were explored in this study. In so doing, the suggested model was tested via Confirmatory Factor
11 Analysis (CFA) and SEM. The outcomes of this research can both theoretically and empirically
12 assist learners and teachers. Cultivating CSA and higher-order thinking skills can empower
13 learners to be active in their learning processes and the procedures involved in their assessment.
14

15 To reach these objectives, the following research questions were posed:

16 RQ1: To what extent does EFL university learners' CSA influence their AE?

17 RQ2: To what extent does EFL university learners' CSA influence their SE?

18 RQ3: To what extent does EFL university learners' CT influence their AE?

19 RQ4: To what extent does EFL university learners' CT influence their SE?

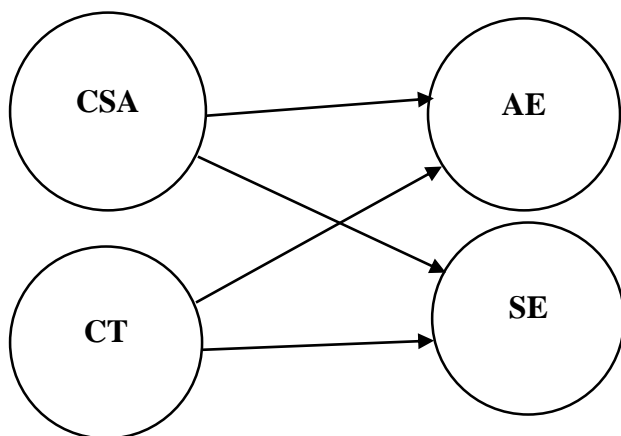
20 In this regard, the following null hypotheses were formulated:

21 H01. EFL university learners' CSA does not influence their AE.

22 H02. EFL university learners' CSA does not affect their SE.

23 H03. EFL university learners' CT does not influence their AE.

24 H04. EFL university learners' CT does not affect their SE.



57 **Figure 1**

58 *Theoretical Structural Equation Model*

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Methodology

In this section, the methodological steps are described in detail:

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Participants

12 This research was conducted among 427 university students (158 males and 269 females) at the
13 MA level from Iran. They were studying different branches of English in state universities of Iran.
14 Among 427 participants, 221 students were studying English Teaching, 54 English Literature, and
15 152 were English Translation. The criteria for selecting the participants were convenience or
16 opportunity sampling procedures.
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Instruments

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The Core of Self- assessment Questionnaire (CSAQ)

25 To investigate the level of EFL university students' CSA, the Core of Self- assessment
26 Questionnaire (CSAQ) was employed. This instrument was developed by Judge et al. (2003) with
27 12 items on a five-point Likert scale. The range of obtained scores was from 12 to 60. High scores
28 reflect high levels of self-assessment, while low scores indicate low levels of self-assessment.
29 Based on the report of Cronbach's alpha ($\alpha= 0.879$), the reliability of this instrument in our study
30 was acceptable.
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Watson–Glaser Critical Thinking Appraisal-form A (WGCTA)

38 University students' CT was assessed via the Watson–Glaser Critical Thinking Appraisal Form A
39 by Watson and Glaser (1980). This scale involves five sections: inference (16 items), recognizing
40 assumptions (16 items), making deductions (16 items), interpretation (16 items), and evaluation
41 (16 items). In this research, the report of Cronbach Alpha was satisfactory ($\alpha= 0.865$).
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The SInAPSi Academic Engagement Scale (SAES)

48 The SInAPSi (Services for active participation and inclusion of university students) Academic
49 Engagement Scale (SAES) was designed and validated by Freda et al. (2021). This instrument
50 aims to gauge university students' AE. This instrument comprises six dimensions on a five-point
51 Likert scale as follows: 1) University Value and Sense of Belonging (6 items), 2) Perception of
52 the Capability to Persist in the University Choice (4 items), 3) Value of University Course (7
53 items), 4) Engagement with University Professors (4 items), 5) Engagement with University Peers
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4 (5 items), and 6) Relationships between University and Relational Net (3 items). In the current
5 investigation, the report of Cronbach was 0.891, which indicated acceptable reliability.
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8 **The Foreign Language Learning Self-esteem Scale (FLLSES)**

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10 To explore EFL university students' self-esteem, the Foreign Language Learning Self-esteem
11 Scale (FLLSE) was used. This instrument was developed by Rubio (2007) on a five-point Likert
12 scale (from 1. Strongly Disagree" to 5. Strongly Agree). FLLSE includes 25 items in four
13 dimensions: 1) language capability, 2) real in-class language utilization, 3) in-class correlations,
14 and 4) attitude toward / behavior in the class of foreign language. The reliability of this instrument
15 was estimated in this study and the result of the Cronbach Alpha Coefficient was ($\alpha= 0.851$)
16 acceptable.
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19 **Procedures**

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21 This study was administered through a web-based platform. The data collection started in May and
22 ended in August 2022. The university students at the MA level were asked to complete an
23 electronic survey form including the CSEQ, WGCTA, FLLSES, and SAES via Google Forms. On
24 the whole, 427 forms were received and the return rate was 85.2%. No data were missed due to
25 the design of the electronic survey that all parts should be linked necessarily. More importantly, in
26 electronic surveys, researchers can gather data from different regions with varying age groups and
27 sociocultural backgrounds.
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30 **Data Analysis**

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32 Firstly, the normality of the data was examined through Kolmogorov-Smirnov Test. Due to the
33 normal distribution of the data, parametric methods were suggested to analyze the data. Thus, CFA
34 and SEM using LISREL (Linear Structural Relationships) 8.80 were applied. As Hair et al. (1998)
35 assert, CFA is used to validate the latent variables. Furthermore, SEM is a robust multivariate
36 procedure to take a confirmatory hypothesis-testing approach for the proposed structural theory
37 (Schreiber et al., 2006).
38

39 **Results**

40
41 The results of statistical analysis employed to gauge the relationships between CSA, CT, FLLSE,
42 and SAE are displayed in this part. At first, the descriptive statistics were calculated and displayed
43 in Table 1.
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46 **Table 1**

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48 *Descriptive Statistics*
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Instruments	Subscales	N	Minimum	Maximum	Mean	Std. Deviation	
The Core of Self- assessment Questionnaire (CSAQ)		427					
			12	60	39.129	11.076	
	. Watson–Glaser Critical Thinking Appraisal-Form A (WGCTA)	Inference	427	19	80	54.087	12.267
		Recognizing of Assumptions	427	17	80	53.956	12.240
		Making Deduction	427	17	80	53.845	12.752
Interpretation		427	16	79	56.838	12.005	
	Evaluation	427	7	30	20.386	4.784	
The Foreign Language Learning Self-esteem Scale (FLLSES)	Language Capability	427	9	30	21.813	5.662	
	Real in-class Language Utilization	427	4	20	13.855	4.573	
	In-class Correlations	427	7	35	26.454	6.263	
	Attitude toward Behavior in the Class of Foreign Language	427	4	20	13.932	4.305	
The SInAPSi Academic Engagement Scale (SAES)	University Value and Sense of Belonging	427	5	15	11.712	2.170	
	Perception of the Capability to Persist in the University Choice	427	46	145	105.836	23.410	
	Value of University Course	427	8	30	20.000	4.814	
	Engagement with University Professors	427	13	30	21.864	3.628	
	Engagement with University Peers	427	10	30	21.639	3.559	
	Relationships between University and Relational	427	12	35	26.546	4.579	

Based on Table 1, the mean score of CSA was 39.129 (SD=11.076). Among the subscales of CT, interpretation (M=56.838, SD=12.005) was at the highest level and evaluation was at the lowest level (M=20.386, SD=4.784). Furthermore, in-class correlations got the highest mean score (M=13.494, SD=4.183) and real in-class language utilization (M=13.494, SD=4.183) received the lowest mean score among the subscales of FLLSES. Considering the subscales of SAES, the highest mean score is related to the perception of the capability to persist in the university choice (M=13.494, SD=4.183) and the lowest mean score is related to university value and sense of belonging (M=11.712, SD=2.170).

Following this step, the normal descriptions of the data were explored via the Kolmogorov-Smirnov test to decide on applying convenient statistical methods. Table 2 reports the results of the Kolmogorov-Smirnov Test.

Table 2
The Results of Kolmogorov-Smirnov Test

Instrument	Subscales	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
The Core of Self- assessment Questionnaire (CSAQ)		0.594	0.872
Watson–Glaser Critical Thinking Appraisal-Form A (WGCTA)	Inference	0.961	0.315
	Recognizing of Assumptions	0.808	0.531
	Making Deduction)	1.094	0.182
	Interpretation	0.603	0.860
	Evaluation	0.749	0.628
The Foreign Language Learning Self-esteem Scale (FLLSES)	Language Capability	0.930	0.353
	Real in-class Language Utilization	1.459	0.028
	In-class Correlations	0.674	0.754
	Attitude toward Behavior in the Class of Foreign Language	0.904	0.387
The SInAPSi Academic Engagement Scale (SAES)	University Value and Sense of Belonging	1.220	0.102
	Perception of the Capability to Persist in the University Choice	0.939	0.341
	Value of University Course	0.997	0.273
	Engagement with University Professors	1.072	0.201
	Engagement with University Peers	0.739	0.646
	Relationships between University and Relational	1.354	0.051

Based on Table 2, the sig values for all the instruments and their subscales were higher than 0.05, which showed that the data were normally distributed and that applying parametric methods was logical. Therefore, the LISREL 8.80 statistical package was employed to explore the structural relationships among CSA, WGCTA, FLLSE, and SAE. The chi-square magnitude, the Root Mean Squared Error of Approximation (RMSEA), the comparative fit index (CFI), and the normed fit index (NFI) were utilized to evaluate the model fit. Based on Jöreskog (1990), the chi-square/df ratio should be lower than three and the chi-square should be non-significant. **The root means square error of approximation (RMSEA) is recommended to be lower than 0.1 (Jöreskog,**

1990). Moreover, the cut values for the NFI, GFI, and CFI are assumed to be greater than 0.90 (Jöreskog, 1990).

As Table 3 presented, the chi-square/df ratio (2.789) and the RMSEA (0.065) were acceptable. Furthermore, GFI (0.921), NFI (0.917), and CFI (0.952) reached the acceptable fit thresholds.

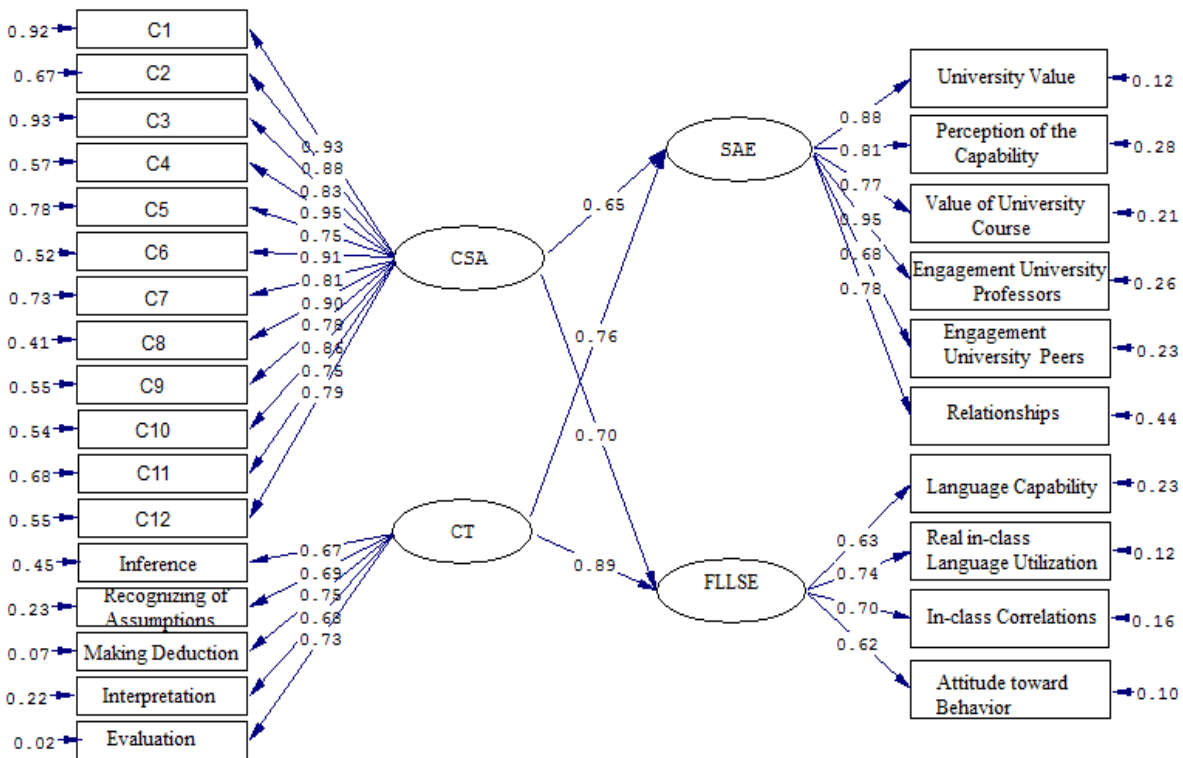
Table 3

Model Fit Indices

Fitting indexes	χ^2	df	χ^2/df	RMSEA	GFI	NFI	CFI
Cut value			<3	<0.1	>0.9	>0.9	>0.9
The First Model	889.79	319	2.789	0.065	0.921	0.917	0.952

Figure 2

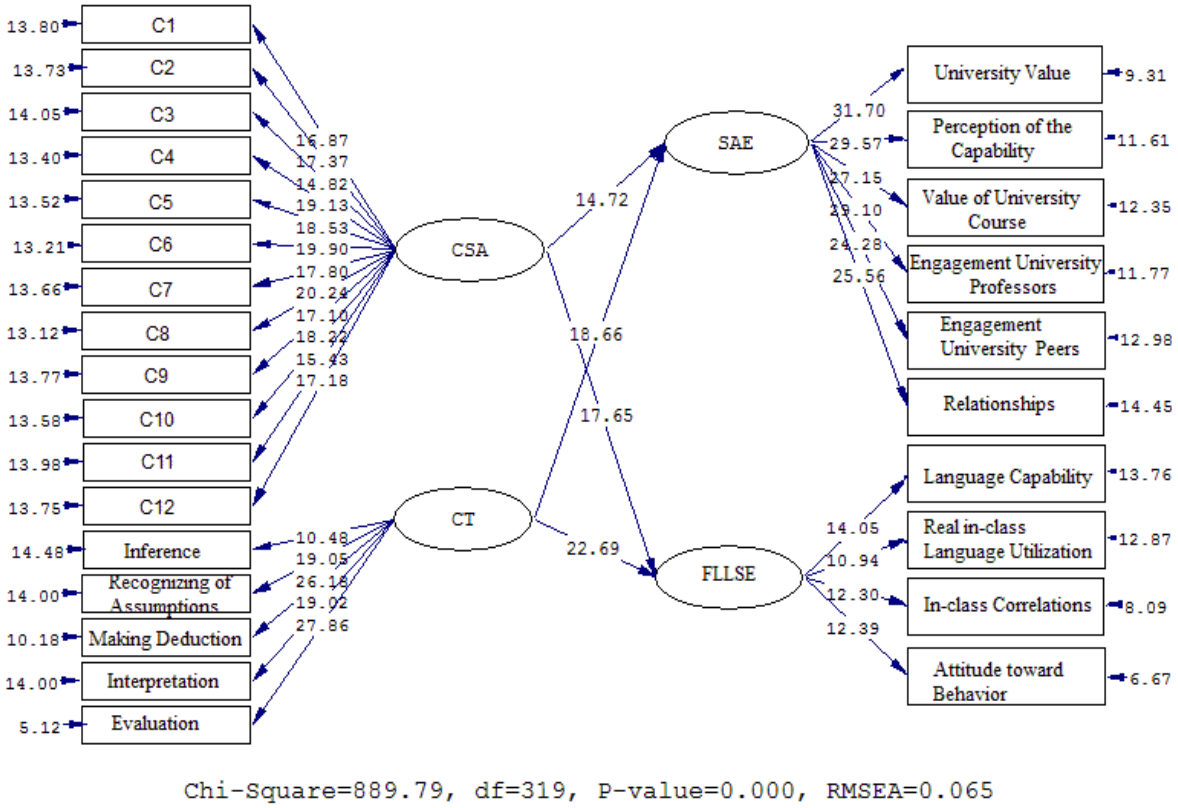
Schematic Representation of Path Coefficient Values for the Relationships between CSA, CT, FLLSE, and SAE (Model 1)



Chi-Square=889.79, df=319, P-value=0.000, RMSEA=0.065

Figure 3

T Values for Path Coefficient Significance (Model 1)



The standardized estimates and t-values were examined to inspect the strengths of the causal relationships among the variables. According to Figure 2 and Figure 3, the impact of CSA on FLLSE ($\beta = 0.70$, $t = 17.65$) and SAE ($\beta = 0.65$, $t = 17.65$) was statistically significant and in a positive direction. The influence of CT on FLLSE ($\beta = 0.89$, $t = 22.69$) and SAE ($\beta = 0.76$, $t = 18.66$) was significantly positive. In Table 4, the report of the fit indices in the second model was displayed. The chi-square/df ratio (2.915) and the RMSEA (0.067) presented the acceptable fit thresholds. In addition, GFI (0.916), NFI (0.913), and CFI (0.932) were acceptable.

Table 4

Model Fit Indices

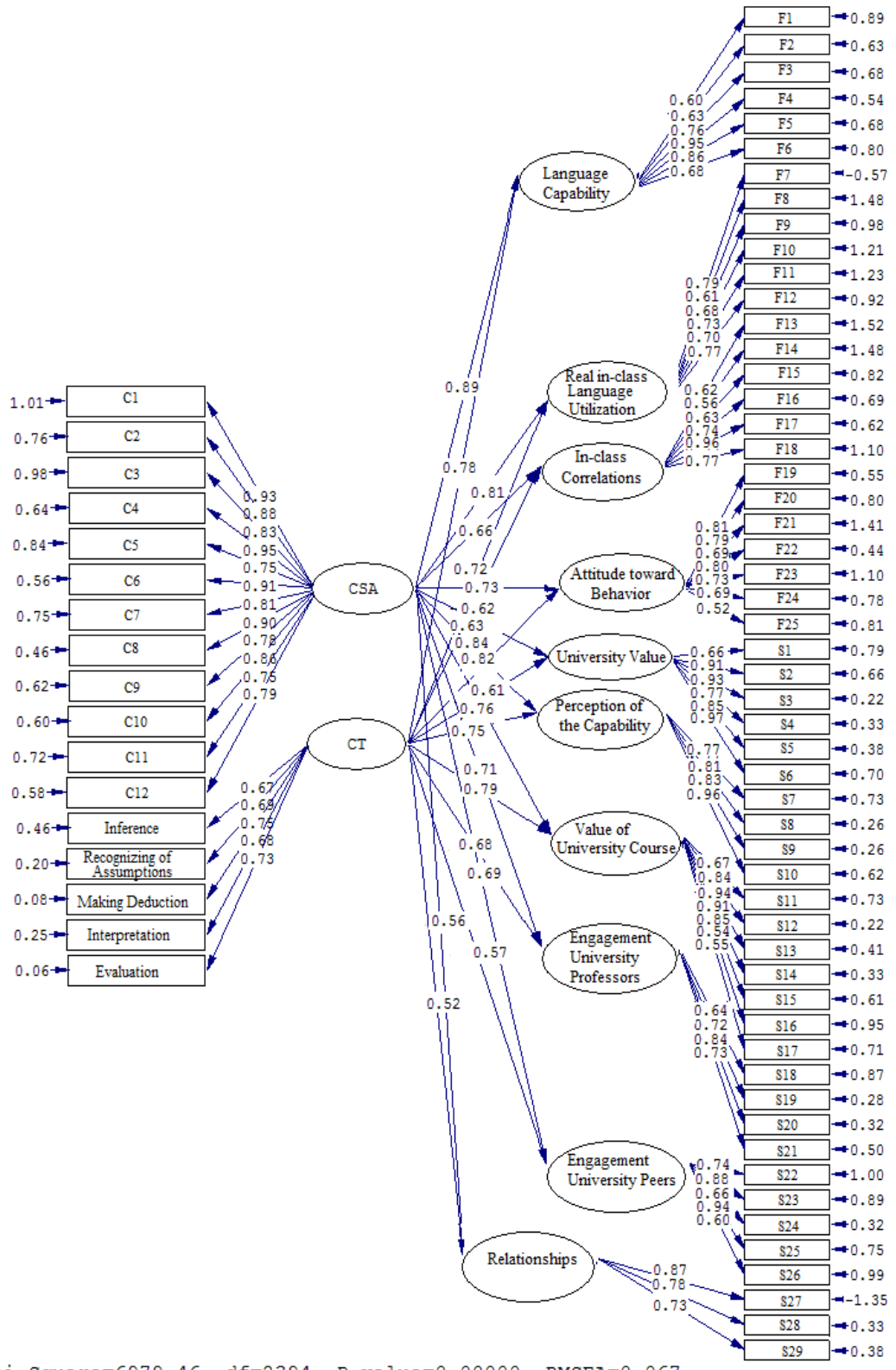
Fitting indexes	χ^2	df	χ^2/df	RMSEA	GFI	NFI	CFI
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Cut value			<3	<0.1	>0.9	>0.9	>0.9
The Second Model	6979.46	2394	2.915	0.067	0.916	0.913	0.932

Figure 4

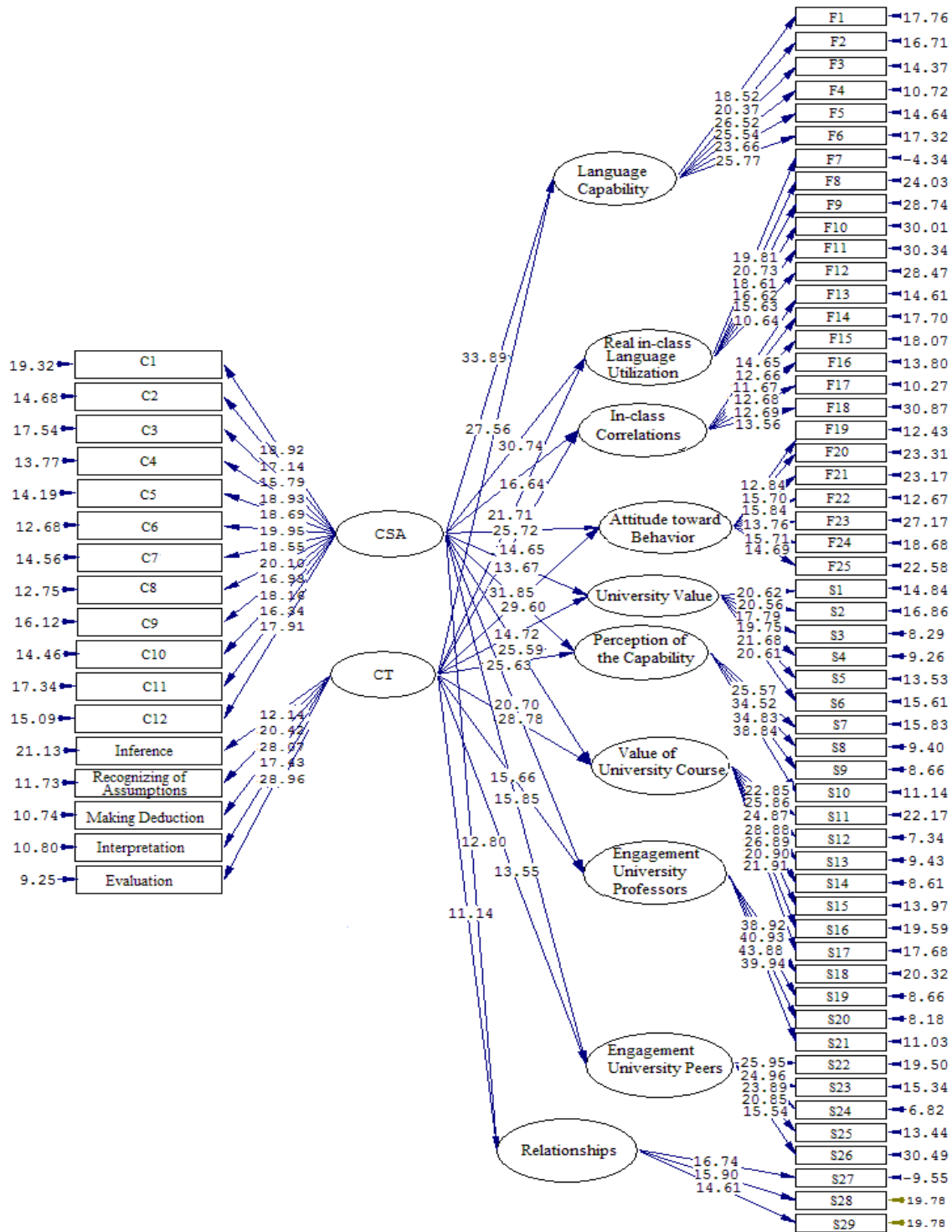
Schematic Representation of Path Coefficient Values for The Relationships between CSA, CT, FLLSE subscales, and SAE subscales (Model 2)



Chi-Square=6979.46, df=2394, P-value=0.00000, RMSEA=0.067

Figure 5

T Values for Path Coefficient Significance (Model 2)



Chi-Square=6979.46, df=2394, P-value=0.00000, RMSEA=0.067

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The contributions of CSA and CT to FLLSE and SAE subscales are shown in Figure 4 and Figure 5 (Model 2). Based on Figure 4 and Figure 5, CSA significantly and in a positive direction influenced Language Capability ($\beta = 0.89, t = 33.89$), Real in-class Language Utilization ($\beta = 0.81, t = 30.74$), In-class Correlations ($\beta = 0.73, t = 25.72$), Attitude toward Behavior ($\beta = 0.66, t = 16.64$), University Value ($\beta = 0.62, t = 13.67$), Perception of the Capability ($\beta = 0.84, t = 29.60$), Value of University Course ($\beta = 0.76, t = 25.59$), Engagement University Professors ($\beta = 0.71, t = 20.70$), Engagement University Peers ($\beta = 0.69, t = 15.85$), and Relationships ($\beta = 0.56, t = 12.80$). Moreover, the effects of CT on FLLSE and SAE subscales were as follows: Language Capability ($\beta = 0.78, t = 27.56$), Real in-class Language Utilization ($\beta = 0.72, t = 21.71$), In-class Correlations ($\beta = 0.63, t = 14.65$), Attitude toward Behavior ($\beta = 0.82, t = 31.85$), University Value ($\beta = 0.61, t = 14.72$), Perception of the Capability ($\beta = 0.75, t = 25.63$), Value of University Course ($\beta = 0.79, t = 28.78$), Engagement University Professors ($\beta = 0.68, t = 15.66$), Engagement University Peers ($\beta = 0.57, t = 13.55$), and Relationships ($\beta = 0.52, t = 11.14$).

As the next step, a Pearson product-moment correlation was applied to explore the correlation between CSA, CT, FLLSE subscales, and SAE subscales.

Table 5
The Correlation Coefficients between CSA, CT, FLLSE subscales, and SAE subscales

	CSA	CT	Language Capability	Real in-class Language Utilization	In-class Correlations	Attitude toward Behavior	University Value	Perception of the Capability	Value of University Course	Engagement University Professors	Engagement University Peers	Relationships
CSA	1											
CT	0.556*	1										
Language Capability	0.912*	0.804*	1									

Real in-class Language Utilization	0.853*	0.744*	0.553*	1								
In-class Correlations	0.708*	0.689*	0.476*	0.611*	1							
Attitude toward Behavior	0.752*	0.881*	0.482*	0.722*	0.544*	1						
University Value	0.684*	0.683*	0.712*	0.709*	0.674*	0.703*	1					
Perception of the Capability	0.891*	0.789*	0.677*	0.841*	0.691*	0.663*	0.689*	1				
Value of University Course	0.802*	0.812*	0.732*	0.832*	0.604*	0.642*	0.733*	0.558*	1			
Engagement University Professors	0.733*	0.716*	0.800*	0.756*	0.732*	0.723*	0.838*	0.571*	0.745*	1		
Engagement University Peers	0.712*	0.603*	0.531*	0.717*	0.733*	0.593*	0.694*	0.764*	0.833*	0.609*	1	
Relationships	0.612*	0.573*	0.699*	0.689*	0.704*	0.742*	0.815*	0.735*	0.559*	0.725*	0.726*	1

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

Based on Table 5, CSA and CT correlated significantly and positively with FLLSE subscales and SAE subscales. The correlation between CSA and FLLSE subscales as well as SAE subscales was as follows: Language Capability ($r=0.912$, $p<0.01$), Real in-class Language Utilization ($r=0.853$, $p<0.01$), In-class Correlations ($r=0.708$, $p<0.01$), Attitude toward Behavior ($r=0.752$, $p<0.01$), University Value ($r=0.684$, $p<0.01$), Perception of the Capability ($r=0.891$, $p<0.01$), Value of University Course ($r=0.802$, $p<0.01$), Engagement University Professors ($r=0.733$, $p<0.01$), Engagement University Peers ($r=0.712$, $p<0.01$), and Relationships ($r=0.612$, $p<0.01$).

Additionally, the correlation between CT and FLLSE subscales as well as SAE subscales were as follows: Language Capability ($r=0.804$, $p<0.01$), Real in-class Language Utilization ($r=0.744$, $p<0.01$), In-class Correlations ($r=0.689$, $p<0.01$), Attitude toward Behavior ($r=0.881$, $p<0.01$), University Value ($r=0.683$, $p<0.01$), Perception of the Capability ($r=0.789$, $p<0.01$),

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4 Value of University Course ($r=0.812$, $p<0.01$), Engagement University Professors ($r=0.716$,
5 $p<0.01$), Engagement University Peers ($r=0.603$, $p<0.01$), and Relationships ($r=0.573$, $p<0.01$).

8 Discussion

9
10 The current research intended to investigate the association between CSA, CT, AE, and SE in the
11 Iranian EFL context. In so doing, the researchers of this study proposed a model to display the
12 association between these constructs and it was tested via SEM. The outcomes of the survey
13 reflected that CSA and CT could predict AE and SE significantly. Model 1 and Model 2 portray
14 their relationships and highlight the mediator roles of CSA and CT in fostering learner-oriented
15 assessment in the classroom. Thereby, the first null hypothesis (EFL university learners' CSA does
16 not influence their AE.), the second null hypothesis (EFL university learners' CSA does not affect
17 their SE.), the third null hypothesis (EFL university learners' CT does not influence their AE.),
18 and the fourth one (EFL university learners' CT does not affect their SE.) were rejected.

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20 Based on the findings relevant to the first research question (To what extent does EFL
21 university learners' CSA influence their AE?), the role of CSA on AE was statistically significant.
22 It means that high levels of CSA enable EFL university learners to be more active in all class
23 activities. In such a situation, university learners feel more responsible for their tasks and
24 assessments. They invest more time in their evaluation, social interaction, and group works. They
25 can cope with difficulties and feel less anxious. The class activities and learning-oriented
26 assessment engage university learners. According to the second model, CSA influenced the
27 subcomponents of AE positively. That is, CSA influenced university value and sense of belonging,
28 perception of the capability to persist in the university choice, the value of university courses,
29 engagement with university professors, engagement with university peers, and relationships
30 between the university and relational net.

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32 This outcome can be discussed theoretically. The idea of CSA is theoretically supported
33 by self-determination and self-identity theories (Bourke & Mentis, 2007, 2013). It can be inferred
34 that learner-oriented assessment explicitly and implicitly helps EFL university learners to achieve
35 positive self-identity, which provides positive attitudes toward learning and educational values. It
36 also affects the students' social relationships. Furthermore, this finding is in accord with Huang's
37 findings (2022), who concluded that self-assessment contributes to self-regulation and self-
38 efficacy. Up to now, no empirical studies have ever been conducted to inspect the relationships
39 between CSA and AE and the current research is the first attempt.

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4 Considering the second research question (To what extent does EFL university learners'
5 CSA influence their SE?), the results indicated that CSA directs university learners' SE. It means
6 that learners' attitudes toward self-assessment and self-monitoring affect how they perceive
7 themselves. The more university students practice self-assessment, the higher they find their
8 personal worth and values. It was also concluded and illustrated in the second model that CSA
9 affected the subcomponents of SE (language capability, real in-class language utilization, in-class
10 correlations, and attitude toward behavior in the class of foreign language).

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17 Regarding the third research question (To what extent does EFL university learners' CT
18 influence their AE?), it was also found that EFL university learners' CT influenced their AE. It
19 means that higher levels of cognitive and metacognitive skills would guarantee learners' AE. This
20 outcome can be investigated from the lens of CSA. According to the results of the first research
21 question, CSA and learner-oriented assessment provide the situation for the learners to be involved
22 directly in their assessment and learning procedure. University students, who are armed with
23 higher-order thinking skills are more successful in evaluation, monitoring, and metacognition
24 (Davoudi & Heydarnejad, 2020). Thus, it can be inferred that more investment in CSA increases
25 students' engagement, especially in higher education. As Deng et al. (2022) concluded, self-
26 monitoring makes individuals aware of the positive and negative aspects of their educational lives
27 and increases self-efficacy and engagement. In the same line of inquiry, Namaziandost et al.
28 (2022b) evidenced that higher-order thinking skills influence individuals' well-being to a great
29 extent.

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41 As the second model indicated, the effect of CT on the subcomponents of AE was great
42 and in a positive direction. To put it another way, CT gives direction to learners' university value
43 and sense of belonging, perception of the capability to persist in the university choice, the value
44 of university courses, engagement with the university professors, engagement with university
45 peers, and relationships between the university and relational net. This outcome seems logical
46 considering the fact that CT skills open the minds of the learners. The findings of the study also
47 displayed that CT could play a mediator role in university learners' SE (To what extent does EFL
48 university learners' CT influence their SE?). It means CT skills give a better understanding of self.
49 In other words, CT sets the tone of EFL university learners' self-image and SE. The more they
50 practice CT strategies, the better they adjust their thoughts and beliefs. That is, CT enables learners
51 to improve their SE. Additionally, the second model presented that CT influenced the subscales of
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4 SE (language capability, real in-class language utilization, in-class correlations, and attitude
5 toward behavior in the class of foreign language). This result corroborates with those of Amirian
6 et al. (2022), Heydarnead et al. (2021b), and Xiyun et al. (2022). They evinced that higher-order
7 thinking skills, self-regulatory strategies, SE, as well as self-efficacy beliefs are closely related.
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10 11 **Conclusion and Implications**

12
13 In a nutshell, this research documented the contribution of CSA and CT to AE and SE in EFL
14 higher education. The findings pictured that CSA and CT facilitate learning-oriented assessment
15 in the classroom. They promote learners' AE and SE. In other words, CSA and CT act like a
16 compass for EFL learners and help them to focus on every step taken on the educational road. CSA
17 and CT could have a significant impact on the personal growth and development of their SE.
18 Moreover, CSA opens the eyes of learners in general and EFL learners in partiture. Learning-
19 oriented assessment taps the actual use of language in language learning and deserves more
20 attention from testing specialists. Actually, research on the relationship between CSA, CT, AE,
21 and SE in the educational context, particularly in the EFL context, is quite rare and calls for more
22 attention. The present research was the first attempt to portray the relationship between CSA, CT,
23 AE, and SE. Therefore, the findings can open a new window in educational research and foster the
24 implementation of learning-oriented assessment in the classroom, especially in the EFL domain.
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35 Some pedagogical implications for educators, particularly in higher education are
36 suggested. The provision of learning-oriented assessment in the classroom has received great
37 emphasis. Thus, language learners need to develop and practice CSA and CT while at the same
38 time respecting learners' attempts in making their own statements and conceptualization. This
39 golden opportunity boost AE and encourage SE. Thus, language teachers need to acquire the
40 related knowledge to implement CSA and CT in classes. In this regard, pre-service and in-service
41 teacher training programs are strongly recommended. Teacher training courses can be developed
42 to teach effective strategies for practicing learning-oriented assessment in the classroom This
43 awareness is also crucial for language teachers, language testers, as well as learners, especially
44 those in higher education should become alert about the advantages of practicing CSA and CT.
45 They also need to learn efficient strategies to practice CSA and CT. The investment in higher-
46 order thinking skills can be achieved through designing and developing appropriate educational
47 materials and tasks as well as functional practice and assessment. Language learners should also
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4 learn that they play a crucial role in their process of AE and SE. Thus, they need to practice useful
5
6 strategies to improve AE and SE.

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8 Similar to other research in the realm of education, this study was limited in some aspects.
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10 Firstly, the current investigation is quantitative in nature, thus getting a deeper understanding of
11 the causal links between CSA, CT, AE, and SE. Future studies can apply mixed-method
12 approaches to cocomplete the related outcomes. Secondly, demographic variables and their
13 possible effects on CSA, CT, AE, and SE were not the targets of this study; therefore, they can be
14 a recommendation for future research. Additionally, as a further research avenue, it is suggested
15 to explore the influence of CSA, CT, AE, and SE on other learner-related constructs (i.e., academic
16 buoyancy, self-efficacy, self-regulation, and evaluation apprehension).
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22 **List of Abbreviations:**

23
24 EFL: English as a Foreign Language

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26 CSA: Core of Self-assessment

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28 CSAQ: Core of Self- Assessment Questionnaire

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30 CT: Critical Thinking

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32 WGCTA: Watson–Glaser Critical Thinking Appraisal-form A

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34 AE: Academic Engagement

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36 SAES: The SInAPSi Academic Engagement Scale

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38 SE: Self-esteem

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40 FLLSES: The Foreign Language Learning Self-esteem Scale

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42 GFI: Good Fit Index

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44 LISREL: Linear structural relations

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46 NFI: Normed Fit Index

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48 RMSEA: Root-mean-squared error of approximation

49
50 CFA: Confirmatory Factor Analysis

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52 SEM: Structural Equation Modeling

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