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# Probing into the influence of EFL learners' self-assessment and evaluation apprehension in predicting their personal best goals and self-efficacy skills: a structural equation modeling

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## Abstract

Effective instruction and assessment are greatly affected by many factors. The ever-growing literature on assessment outlined some cognitive, social, and emotional factors that directly or indirectly influence the learners' academic achievement. In spite of the rosy literature on assessment, the possible interplay among the Core of Self-assessment (CSA), the Student Evaluation Apprehension (SEA), the Personal Best Goal (PBG), and Self-efficacy (SE) were untouched. To this end, this study intended to propose a model to disclose the association between CSA, SEA, PBG, and SE in higher education. Therefore, the Core of Self-assessment Questionnaire (CSAQ), the Student Evaluation Apprehension Scale (SEAS), the Personal Best Goal Scale (PBGS), and the Self-efficacy Scale (SES) were administered to 467 Iranian EFL university students at MA level. The results of confirmatory factor analysis (CFA) and structural equation modelling (SEM) indicated that CSA and SEA can contribute to PBG and SE. It means that learners' investment in CSA and positive SEA can flourish and upgrade goal-settings and sense of efficacy beliefs among EFL university students. The implications and suggestions for future avenues are also discussed.

**Keywords:** Self-assessment, Evaluation apprehension, Personal best goals, Self-efficacy skills, EFL university students, Structural equation modeling

## Introduction

Teaching and assessment are intertwined. Numerous considerations influence the kinds of choices teachers and test designers may make if they want to develop and implement an efficient instruction and testing program. Effective language testing is associated with both affective and cognitive considerations of the learners. From a practical point of view, learning-oriented assessment in the classroom work fairly well to evaluate learners' language development as well as notice the psychological health of the learners (Bachman, 2015; Heydarnejad et al., 2022; Zhuoyuan, 2021). CSA assumes involves learners directly in

the processes of their evaluations, thus it provides a clearer picture of how the students perform and where is their possible problem (Bachman, 2015; GuoJie, 2021). In CSA, language learners as asked to assess their own knowledge, skills, or performances (Tavousi & Pour Sales, 2018); it helps the language instructors to view the students' language abilities and development (Wongdaeng, 2022).

SEA is the other learner-attributed construct that is under the focus of the present study. SEA literary refers touneasiness or worry about being judged by others. In other words, SEA gives insights into how learners may feel and consequently act while performing a task in front of others. The state and the depth of SEA depend on many positive and/or negative factors and learners should do their best to maximize positive influences and minimize the effect of negative influences. Furthermore, language teachers are critical in the creation and maintenance of a positive classroom climate to produce optimum learning. It is also important to consider that the perceptions that learners have of themselves, their teachers, social communications, and classroom environment would influence their self-concept, self-awareness, self-assessment, and SEA. Language learners' goals and objectives are also important and specify the direction and depth of their activities. The target of PBG is to define students' perspective about their academic lives and their persistence to achieve them. In this regard, Ramshe et al. (2019) argue that learners may set different goals and objectives and to this end, they may apply various strategies. Learners need to learn how to set their own goals in life and in their learning, and plan how to they can achieve them. The notion of goal-setting is linked to learners' self-efficacy beliefs.

SE is of central importance in the learners' well-being that grantee their academic achievement. Bandura (1997) highlighted that SE acts as a lens to evaluate students' abilities and set their potentials in order to achieve their goals. It was found that SE correlates with important teacher and learner related constructs, leading to the suggestion that investment in SE is vital in successful education. This point also calls for a broadening research base to incorporate SE strategies in education. As Namaziandost, Heydarnejad, Rahmani Doqaruni, and Aziai (2022) marked, efficacious teachers are more engaged; they can skillfully manage their learners' inconsistencies and misbehavior. Whereas, teachers with a low sense of self-efficacy might be inclined to avoid engaging in productive and reflective activities. It is worth highlighting that language learners' SE interact with how likely they judge what value is placed on a successful outcome. In the domain of language learning, SE is associated with the learners' educational success (Ma, 2022), higher order thinking skills (Zheng et al., 2022), academic engagement (Olivier et al., 2018), and social communications (Martin & Mulvihill, 2019).

In trying to make sense of the literature on CSA, SEA, PBG, and SE, no identical study was found to capture their possible associations. Having this stands point in the mind, the researchers of this study intended to portray the possible interplay among these learner-associated constructs in an EFL context. In the following, the related literature is reviewed and the objectives of the study is noted, accordingly.

## Literature review

### The Core of Self-assessment (CSA)

The notion of assessment refers to different procedures used to evaluate and make inferences about the students' learning progress (Bachman, 2015). To clearly and completely

assess learners' progress and make plans for future activities, different strategies were suggested. Self- assessment, which is different from teacher- and peer-assessment, literary refers learners' direct involvement in their own assessment. Bachman et al. (2010) illustrated CSA as the "assessment or evaluation of oneself or one's actions, attitudes, or performance. That is why each learner should be encouraged and trained to go through a process of self-assessment", (p. 12). More specifically, self-assessment is stipulated as a kind of higher-order trait, which entails generalized self-efficacy, self-esteem, neuroticism, and locus of control (Judge et al., 1997). Likewise, Andrade (2019) defined CSA as a kind of assessment in which higher order thinking skills, metacognition, monitoring, and self-regulated learning are highlighted.

Strategies involved in CSA open the eyes of the learners to monitor their own learning development. The consequences of practicing CSA are not only affected learners' cognition, but also their emotional well-being is also influenced by their strategies. In this regard, Hu (2022) noted that learners can modify their emotional progress through the lens of CSA. It was also highlighted that EFL students with high levels of CSA can better manage their emotional experiences and are more successful in their language learning (Punpromthada et al., 2022). In self-assessment processes, students learn to think deeply and decide thoughtfully; they can also better manage educational drawbacks (Al-Mamoory & Abathar Witwit, 2021). External and internal values can influence the state of CSA. Grades and feedback from teachers are among influential external values; goal setting and self-determination are considered as internal values with great effect on CSA (Bourke & Mentis, 2007, 2013).

The existing literature on CSA indicated that the depth of CSA is great. It means that implementing and practicing self-assessment influence cognitive, metacognitive, and affective phases of learners' academic lives (Nemati et al., 2021; Wei, 2020). It was also found that different factors may set the tone of CSA among the learners. That is, academic emotion regulation (Pekrun et al., 2017), metacognition (Wei, 2020), and higher order thinking skills (Zhang, 2021), and self-efficacy skills (Zheng et al., 2022) are among factors that foster learners' involvement in their self-assessment. In a recent study via structural equating modeling, Heydarnejad et al. (2022) concluded that grittier students are more active in self-assessment and managing their language learning anxiety. In the same line of inquiry, Jahara et al. (2022) evidenced that students' coping style positively affect their CSA as well as stress management.

#### The Student Evaluation Apprehension (SEA)

The concept of SEA is originated from evaluation apprehension theory introduced by Cottrell (1972). SEA captures the idea that individuals' concerns about other people evaluations, while they are acting in group. More precisely, SEA is an active, anxiety-toned fear that each person may experience in group activities (Rosenberg, 1965). In every group encountering, individuals are anxious about presenting themselves in a favorable way (Jaheidzadeh & Ghanizadeh, 2021). Moreover, evaluation apprehension can be defined as the anxiety or fear that something undesirable may happen (Tzounopoulos, 2016). In her study, Tzounopoulos (2016) investigated the causes of university students' fear and anxiety concerning negative SEA. She concluded that fear of tests,

class participation, teachers' questions, and peers' evaluations are the main sources of students' SEA.

Regarding SEA, previous studies confirmed that fear of negative evaluation led to communication anxiety (Koch & Terrell, 1991; Young, 1991). In the same vein, Shanahan (2012) believed that students' anxiety about their assessment, classroom performance, and teachers' and peers' judgements are main sources of SEA. In another study by Joo and Damron (2015), it was found that reading anxiety and performance are negatively correlated and reading anxiety could trigger SEA. It was also found that males and females are different in SEA. Rafeka et al. (2014) conducted a study among university students and pinpointed that female university learners faced more anxiety and fear than males and this state led to negative evaluation apprehension among them. In was also highlighted that learners' fulfilment, commitment, academic enjoyment would trigger positive SEA (Carter et al., 2017). To investigate the concept of SEA, Jaheidzadeh and Ghanizadeh (2021) developed an instrument with three dimensions of commotion, presentation in the classroom, and participation in classroom discussions/question and answer exchanges. In another attempt, this instrument was utilized by Jahedizadeh et al. (2021) to explore the relationships between sustained flow, personal best, buoyancy, evaluation apprehension, and academic achievement in EFL context. Their findings display that sustained flow, personal best, and academic buoyancy predict positive SEA and language learning achievement.

#### The Personal Best Goals (PBG)

The metaphor of personal best goals (PBG) or Personal Bests (PBs) in education was borrowed from sports contexts (Ali et al., 2022; Bandura, 1997; Martin, 2006). The main idea of PBG rooted in self-evaluation, self-awareness, self-actualization, self-determination, and individuals' persistence to achieve a personalized standard (Ramshe et al., 2019). Theoretically, PBG is in close relationship with intrinsic motivation (Bandura, 1997; Deci & Ryan, 2008), self-efficacy skills (Martin, 2006), academic engagement (Martin & Elliot, 2015), self-esteem (Martin, 2011), and academic well-being (Martin, 2014; Xu et al., 2022). According to Jahedizadeh et al. (2021), PBG specifies students' short-term and long-term objectives. When the students' goals are defined clearly and related to educational perspectives, learners' well-being is warranted.

To capture the idea of PBG, various theories were developed (i.e., Achievement Goal Theory, Goal-setting Theory, Self-determination Theory, and Self-concordance Model). Achievement Goal Theory (Martin & Liem, 2010) defines mastery and performance goals as the main sources of individuals' goal orientation. Additionally, Self-Concordance Model (Sheldon & Elliot, 1999) highlighted the self-referenced nature of growth goals. In this model, the balance between goals, individuals' values, and interests is emphasized. Goal-setting Theory is based on the growth approach and concentrates on the students' endeavor to accomplish their academic tasks (Locke & Latham, 2002). The other relevant theory is Self-determination Theory proposed by Deci and Ryan (2008) thar considers autonomy, relatedness, and competence as the sources of autonomous and intrinsic motivation. The proposed model by Martin (2006) aimed at determining the major constituents of PBG in the educational context. This model with four aspects

of educational aspirations, persistence, academic enjoyment, and class participation was used in the present research.

The prevailing literature on students' PBG has found that academic engagement (Martin & Elliot, 2017), self-esteem and self-esteem (Martin, 2011), and academic achievement (Wu & Mok, 2017) are closely intertwined with PBG. Ramshe et al. (2019) also provide evidence that PBG plays a mediator role in cognitive state and emotional engagement of EFL learners. In the same line of inquiry, Burns et al. (2018) conducted a longitudinal study to uncover the interplay among PBG, adaptability, and learners' academic well-being. Based on their outcomes, that teacher social support fostered adaptability and PBG setting. In addition, they discovered that PBG was closely related to learners' engagement and achievement. Likewise, Benlahcene et al. (2020) approved that PBG is critical in the state of student engagement and autonomy. Their findings highlighted that self-determination theory enhance PBG and teacher autonomy support in higher education.

#### Self-efficacy (SE)

SE beliefs are defined as individuals' perceptions about their potentials to present appropriate behaviors to achieve a worthwhile objective (Bandura, 2012). SE is supported by Bandura's social-cognitive theory of behavioral change, which focused on individuals' confidence in their capabilities to implement the basis for developing a given task (Bandura, 1997, 1986). Thus, learners with healthy level od self-confidence ae more likely to be successful because their purpose, abilities, and objectives were clarified. According to Bandura (1997), SE is a metacognitive attribute that involves self-monitoring, self-assessment, self-guidance, and corrective self-reactions. In other words, SE beliefs give direction to how individuals' think, decide, and act in every situation (Bong & Clark, 1999).

SE is not only a personal construct, but it was also a social construct. Individuals are part of the society, they ways they treat will affect their collective efficacy (Schunk & Mullen, 2012). As the review of the literature on SE reflected, it is associate with positive constructs in the realm of language learning and teaching. For instance, the findings of Olivier et al. (2018) suggested that SB and academic engagement could contribute to their educational success. In the domain of language teaching, Namaziandost, Heydarnejad, Rahmani Doqaruni, and Aziai (2022); Namaziandost, Heydarnejad, and Azizi (2022) witnessed that emotion regulation influence on teachers' work engagement, self-efficacy, as well as control of anger. It was also confirmed that S-E predicted cognitive activation and supportive climate in EFL settings (Buric & Kim, 2020). In the same vein, Alkhatib (2021) discussed that psychological well-being, S-E and positive thinking are correlated. Put it in other words, high levels of S-E and positive thinking will guarantee the learners' psychological well-being.

#### Objectives of the study

There are undoubtedly many factors affecting language instruction and assessment. Different attempts show that if learners are enabled to reconstruct their practices and be involved to critically assess their own learning progress, their journey would be well worthwhile. Although, CSA, SEA, PBG, and SE are crucial factors in the well-being of

the students, in particular EFL learners, to the best of the researchers' knowledge, no studies have ever investigated their relationships. To fill this research lacuna, this study was set forth to gauge the interplay among the above-mentioned constructs (i.e., CSA, SEA, PBG, and SE). Based on the existing theories and the relevant empirical studies, the researchers of this study proposed a model to illustrate the possible associations between CSA, SEA, PBG, and SE (see Fig. 1). Consequently, this model was tested and the outcomes were elaborated. It is hoped that the implications of this study can translate profound inferences in language instruction and assessment. In this regard, the following research questions were raised:

RQ1: To what extent does EFL university students' CSA predict their PBG?
RQ2: To what extent does EFL university students' CSA predict their SE?
RQ3: To what extent does EFL university students' SEA predict their PBG?
RQ4: To what extent does EFL university students' SEA predict their SE?

Related to the above-mentioned objectives, the following null hypotheses were developed:

H01. EFL university students' CSA does not predict their PBG.
H02. EFL university students' CSA does not predict their SE.
H03. EFL university students' SEA does not predict their PBG.
H04. EFL university students' SEA does not predict their SE.

## Method

In this section, a detailed account of the methodological steps involved in conducting this study are presented.

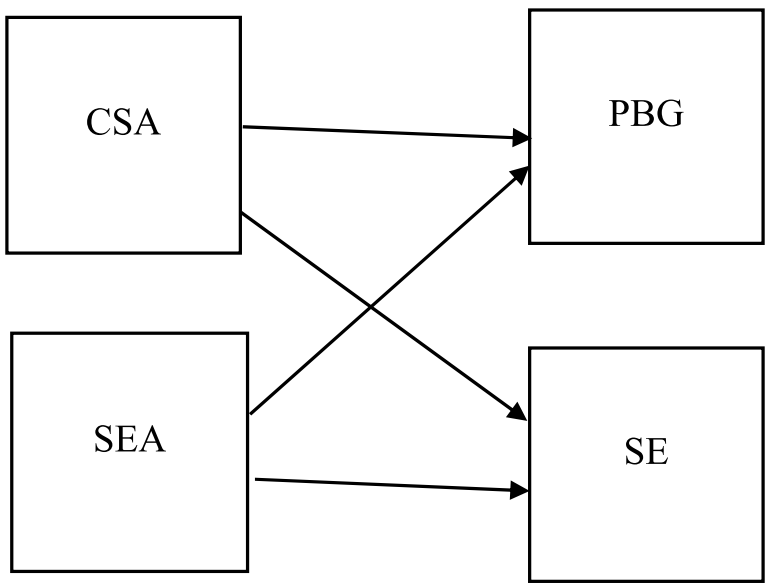


**Fig. 1** Theoretical structural equation model

### Settings and participants

The participants of this study were 467 university students, who were studying in different branches of English at the BA level in different state-run universities of Iran: English Teaching ($N = 232$), English Literature ($N = 87$), and English Translation ($N = 148$). They were chosen based on convenience or opportunity sampling procedures. Among 467 EFL university students, there were 165 males and 303 females and their age range was between 18 and 26.

### Instruments

#### *The Core of Self-assessment Questionnaire (CSAQ)*

CSAQ designed and validated by Judge et al. (2003) was applied to assess the participants fundamental self-assessment in 12 items (i.e., There are times when things look pretty bleak and hopeless to me) on a 5-point Likert response format: i.e., strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The range of scores on the CSAQ is between 12 and 60. High scores imply high levels of self-assessment, but low scores represent low levels of self-assessment. To check the internal reliability of the CSAQ, Cronbach's alpha was applied and the result was satisfactory ($\alpha = 0.881$).

#### *The Student Evaluation Apprehension Scale (SEAS)*

SEAS was employed to gauge the participants' state of evaluation apprehension. This scale was developed and validated by Jaheidzadeh and Ghanizadeh (2021). SEA includes twenty items on a five-point Likert type: 1 ("definitely disagree") to 5 ("definitely agree"). The three dimensions of SEA are reading commotion (i.e., I have no problem reading an English text for myself, but if I'm going to read the same text aloud for the whole class, I get really apprehended), presentation in the classroom (i.e., If I pause while reading an English text in class or lose the line and others help me, I get very anxious because I couldn't handle it alone), and participation in classroom discussions/ question and answer exchanges (i.e., I prefer that the teacher gives the exams in black and white rather than ask questions verbally because in writing I answer the questions without any concern or bad feeling). In the present research, the internal consistency of SEA measured via Cronbach's alpha was acceptable (ranging from 0.852 to 0.911).

#### *The Personal Best Goal Scale (PBGS)*

PBGS by Martin (2006) was utilized to investigate the participants' level of PBG. This instrument comprises of 16 items on a five-point Likert type response format. The four dimensions of PBGS were as following: specific goals (4 items; e.g., I get a clear idea about specific things I'm trying to achieve in my schoolwork), challenging goals (4 items; e.g., I like to work towards challenging goals in my schoolwork), competitively self-referenced goals (4 items; e.g., I compete with my own previous marks more than I compete with other students' marks), and self-improvement goals (4

items; e.g., When I do my schoolwork I try to get a better result than I've got before). According to the report of Cronbach's alpha, the reliability of this scale was acceptable (ranging from 0.849 to 0.0887).

#### *The Self-efficacy Scale (SES)*

SES introduced by Greene et al. (2004) was used to evaluate the participants' beliefs about their successful accomplishments. SE involves seven statements (i.e., The tests in this class match what we learned in class) ranging from strongly disagree (1) to strongly agree (4). Based on the report of Cronbach's alpha, the internal reliability of this scale in the present survey was acceptable.

### Data collection procedures

The data collection was started in June and finished in September 2022. A web-based platform (i.e., Google Forms) was applied to collect the data. This electronic survey form subdivided into four sections, including the CSAQ, the SEAS, the PBGS, and the SES. The participants were asked to consider similar situations and rate the statements in the light of their employed strategies. The electronic survey was designed in a way that each part should be necessarily linked, thus no data was missed. This form of data collection enables the researchers to collect data from different regions with varying age groups and sociocultural backgrounds.

### Data analysis procedures

At first, Kolmogorov-Smirnov test was applied to check the data distribution of the data. The data screening showed that the data was normally distributed, there parametric methods were reliable to analyze the data. Considering the normality of the data, confirmatory factor analysis (CFA) and SEM using linear structural relations (LISREL) 8.80 were administered. CFA is used to validate the latent variables (Hair et al., 1998) and SEM is intended to take a confirmatory hypothesis-testing approach for the proposed structural theory.

## Results

In this section, the reports of the data analysis are provided and each part is elaborated. The first step (Table 1) deals with descriptive statistics for the components of each instrument.

As Table 1 presents, the mean score of CSAQ was $M = 40.064$ (SD = 9.803). Among the components of SEAS, presentation in the classroom got the higher mean score ($M = 23.208$, SD = 6.433). Considering the subscales of PBGS, self-improvement goals received the highest mean score ($M = 15.343$, SD = 3.730). Furthermore, the total mean score of SES was $M = 22.486$ (SD = 4.925).

Then, the Kolmogorov-Smirnov test was used to explore the normal descriptions of the data. In Table 2, the result of the Kolmogorov-Smirnov test is reported.

Based on Table 2, the sig values for all the instruments and their components were higher than 0.05. Thus, it can be concluded that the data was normally distributed and the parametric methods can be used for data analysis. To complete the data analysis, CFA and SEM were applied to investigate the structural relationships between CSA,

**Table 1** Descriptive statistics

| Instruments | Components | *N* | Minimum | Maximum | Mean | Std. deviation |
|---|---|---|---|---|---|---|
| Core of Self-assessment Questionnaire (CSAQ) | | 467 | 13 | 60 | 40.064 | 9.803 |
| Student Evaluation Apprehension Scale (SEAS) | Reading commotion | 467 | 6 | 30 | 18.882 | 6.378 |
| | Presentation in the classroom | 467 | 7 | 35 | 23.208 | 6.433 |
| | Participation in classroom discussions/question and answer exchanges | 467 | 7 | 35 | 23.163 | 6.033 |
| Personal Best Scale (PBGS) | Specific goals | 467 | 4 | 20 | 13.469 | 3.517 |
| | Challenging goals | 467 | 4 | 20 | 13.368 | 3.894 |
| | Competitively self-referenced goals | 467 | 4 | 20 | 13.702 | 4.118 |
| | Self-improvement goals | 467 | 4 | 20 | 15.343 | 3.730 |
| Self-efficacy Scale (SES) | | 467 | 7 | 28 | 22.486 | 4.925 |

**Table 2** The results of Kolmogorov-Smirnov test

| Instruments | Components | Kolmogorov-Smirnov *Z* | Asymp. Sig. (2-tailed) |
|---|---|---|---|
| Core of Self-Evaluations Questionnaire (CSAQ) | | 0.919 | 0.366 |
| Student Evaluation Apprehension Scale (SEAS) | Reading commotion | 1.135 | 0.152 |
| | Presentation in the classroom | 0.703 | 0.706 |
| | Participation in classroom discussions/question and answer exchanges | 1.256 | 0.085 |
| Personal Best Goal Scale (PBGS) | Specific goals | 1.119 | 0.163 |
| | Challenging goals | 0.931 | 0.352 |
| | Competitively self-referenced goals | 0.780 | 0.578 |
| | Self-improvement goals | 1.488 | 0.054 |
| Self-efficacy Scale (SES) | | 1.304 | 0.067 |

**Table 3** Model fit indices (model 1)

| Fitting indexes | χ2 | df | χ2/df | RMSEA | GFI | NFI | CFI |
|---|---|---|---|---|---|---|---|
| Cut value | | | < 3 | < 0.1 | > 0.9 | > 0.9 | > 0.9 |
| Model 1 | 788.56 | 294 | 2.682 | 0.060 | 0.922 | 0.941 | 0.930 |

SEA, PBG, and SE via the LISREL 8.80 statistical package. In addition, the chi-square magnitude, the root mean squared error of approximation (RMSEA), the comparative fit index (CFI), and the normed fit index (NFI) were used to evaluate the model fit. The chi-square/df ratio should be lower than three and the chi-square should be non-significant (Jöreskog, 1990). The range of the root mean square error of approximation (RMSEA) is considered to be lower than 0.1 (Jöreskog, 1990). Moreover, the cut values for the NFI, GFI, and CFI are suggested to be greater than 0.90 (Jöreskog, 1990).

As Table 3 summarizes, the chi-square/df ratio (2.682), the RMSEA (0.060), GFI (0.922), NFI (0.941), and CFI (0.930) reached the acceptable fit thresholds.

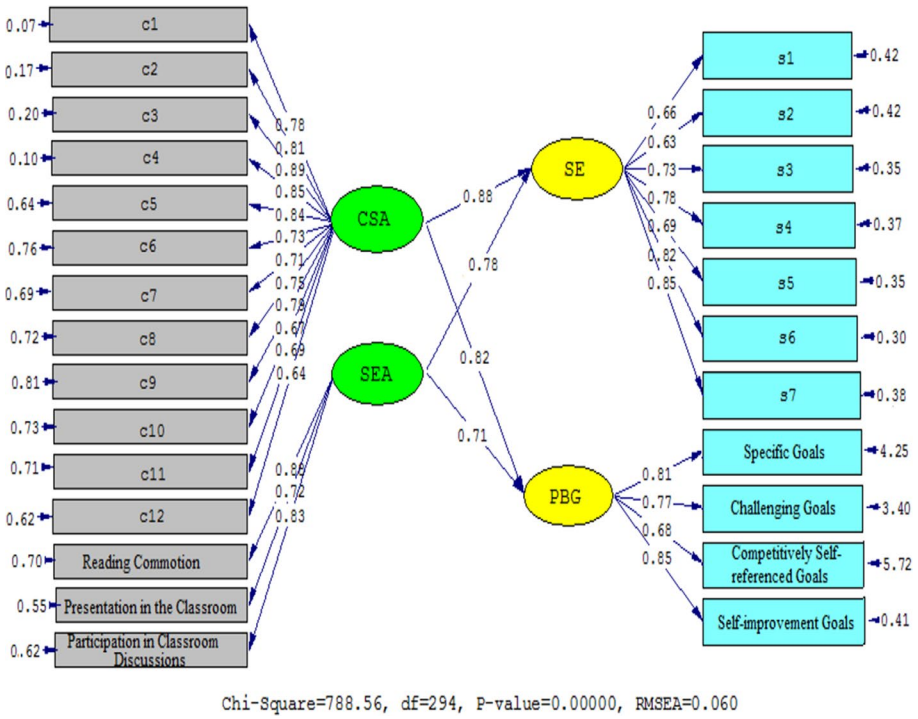


**Fig. 2** Schematic representation of path coefficient values for the relationships between CSA, SEA, PBG, and SE (model 1)

Figures 2 and 3 illustrate the strengths of the causal relationships among the variables. The reports of standardized estimates and *t* values approved the impact of CSA and SEA on SE and PBG. The effects of CSA on SE (β = 0.88, *t* = 35.40) and PBG (β = 0.82, *t* = 32.51) were significant and in positive direction. In addition, the influence of SEA on SE (β = 0.78, *t* = 27.56) and PBG (β = 0.71, *t* = 23.34) was significantly positive.

Moreover, Table 4 shows the fit indices of the second model. As it reports, the chi-square/df ratio (2.740) and the RMSEA (0.061) got the acceptable fit thresholds. Moreover, GFI (0.928), NFI (0.944), and CFI (0.937) were acceptable.

In Figs. 4 and 5 (model 2), the schematic representation of path coefficient values for the relationships between CSA, SEA, PBG components, and SE is represented. Figures 4 and 5 show that CSA influenced PBG components significantly: specific goals (β = 0.87, *t* = 32.24), challenging goals (β = 0.74, *t* = 25.87), competitively self-referenced goals (β = 0.81, *t* = 30.91), and self-improvement goal (β = 0.91, *t* = 38.46). The relationship between CSA and SE was also positive and significant (β = 0.88, *t* = 34.61). Moreover, the impact of SEA on PBG components was significant: specific goals (β = 0.86, *t* = 31.52), challenging goals (β = 0.73, *t* = 24.69), competitively self-referenced goals (β =

**Table 4** Model fit indices (model 2)

| Fitting indexes | χ2 | df | χ2/df | RMSEA | GFI | NFI | CFI |
|---|---|---|---|---|---|---|---|
| Cut value | | | < 3 | < 0.1 | > 0.9 | > 0.9 | > 0.9 |
| Model 2 | 1792.04 | 654 | 2.740 | 0.061 | 0.928 | 0.944 | 0.937 |

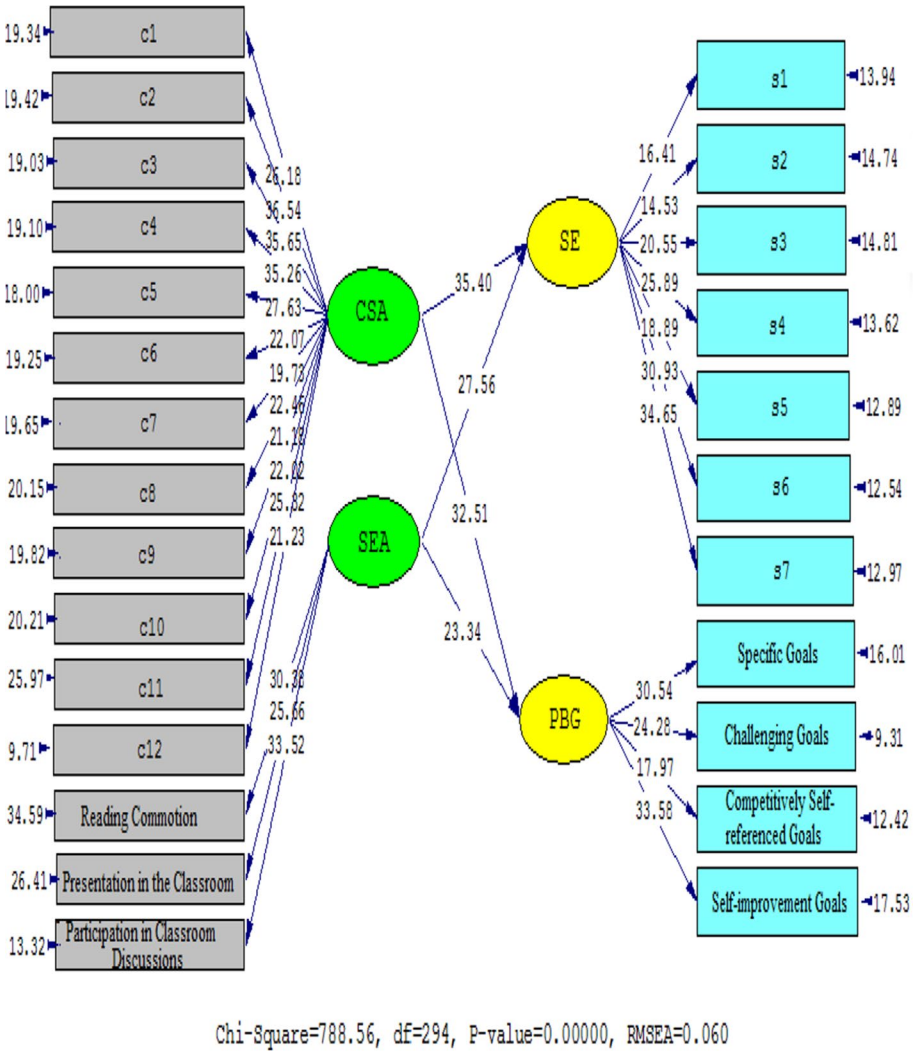


**Fig. 3** *T* values for path coefficient significance (model 1)

0.62, $t = 18.72$), and self-improvement goal ($\beta = 0.79$, $t = 29.32$). In addition, the relationship between SEA and SE was also positive and significant ($\beta = 0.78$, $t = 28.16$).

To complete the findings, a Pearson product-moment correlation was used to explore the correlation between CSA, SEA, PBG components, and SE.

Table 5 displays that CSA and PBG are correlated positively and significantly. It is also reported that the relationships between CSA and PBG components are statistically significant: CSA and specific goals ($r = 0.897$, $p < 0.01$), challenging goals ($r = 0.786$, $p < 0.01$), Competitively Self-referenced Goals ($r = 0.843$, $p < 0.01$), self-improvement goal ($r = 0.948$, $p < 0.01$). The relationship between CSA and SE are positive and significant: ($r = 0.901$, $p < 0.01$). Moreover, the relationship between SEA and PBG were inspected. The results show that SEA and specific goals ($r = 0.886$, $p < 0.01$), challenging goals ($r = 0.754$, $p < 0.01$), competitively self-referenced goals ($r = 0.644$, $p < 0.01$), and self-improvement goal ($r = 0.813$, $p < 0.01$) are significantly correlated. The same positive relationship is confirmed about the association between SEA and SE: ($r = 0.803$, $p < 0.01$).

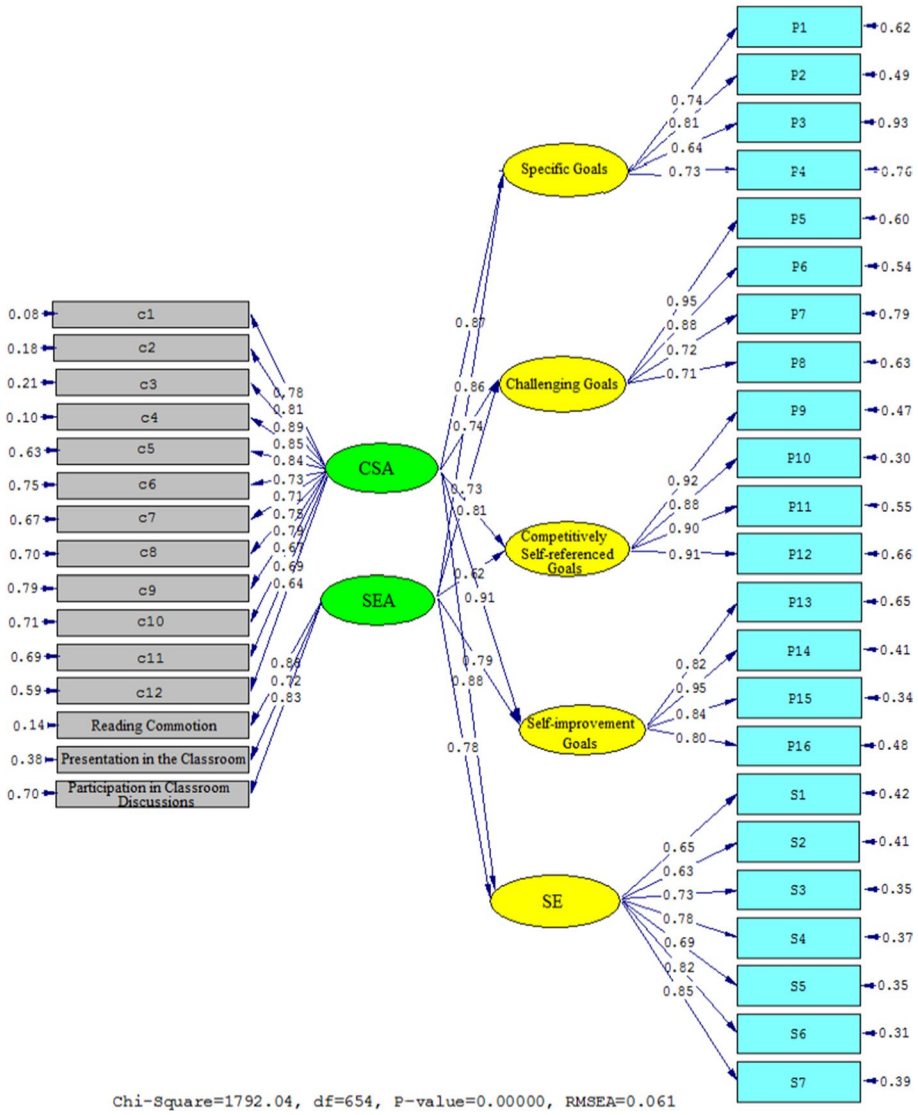


**Fig. 4** Schematic representation of path coefficient values for the relationships between CSA, SEA, PBG components, and SE (model 2)

**Table 5** The correlation coefficients between the CSA, SEA, PBG components, and SE

| | CSA | SEA | Specific goals | Challenging goals | Competitively self-referenced goals | Self-improvement goal | SE |
|---|---|---|---|---|---|---|---|
| CSA | 1 | | | | | | |
| SEA | 0.598[a] | 1 | | | | | |
| Specific goals | 0.897[a] | 0.886[a] | 1 | | | | |
| Challenging goals | 0.786[a] | 0.754[a] | 0.678[a] | 1 | | | |
| Competitively self-referenced goals | 0.843[a] | 0.644[a] | 0.715[a] | 0.533[a] | 1 | | |
| Self-improvement goal | 0.948[a] | 0.813[a] | 0.704[a] | 0.618[a] | 0.609[a] | 1 | |
| SE | 0.901[a] | 0.803[a] | 0.602[a] | 0.578[a] | 0.708[a] | 0.702[a] | 1 |

[a] Correlation is significant at the 0.01 level (2-tailed)

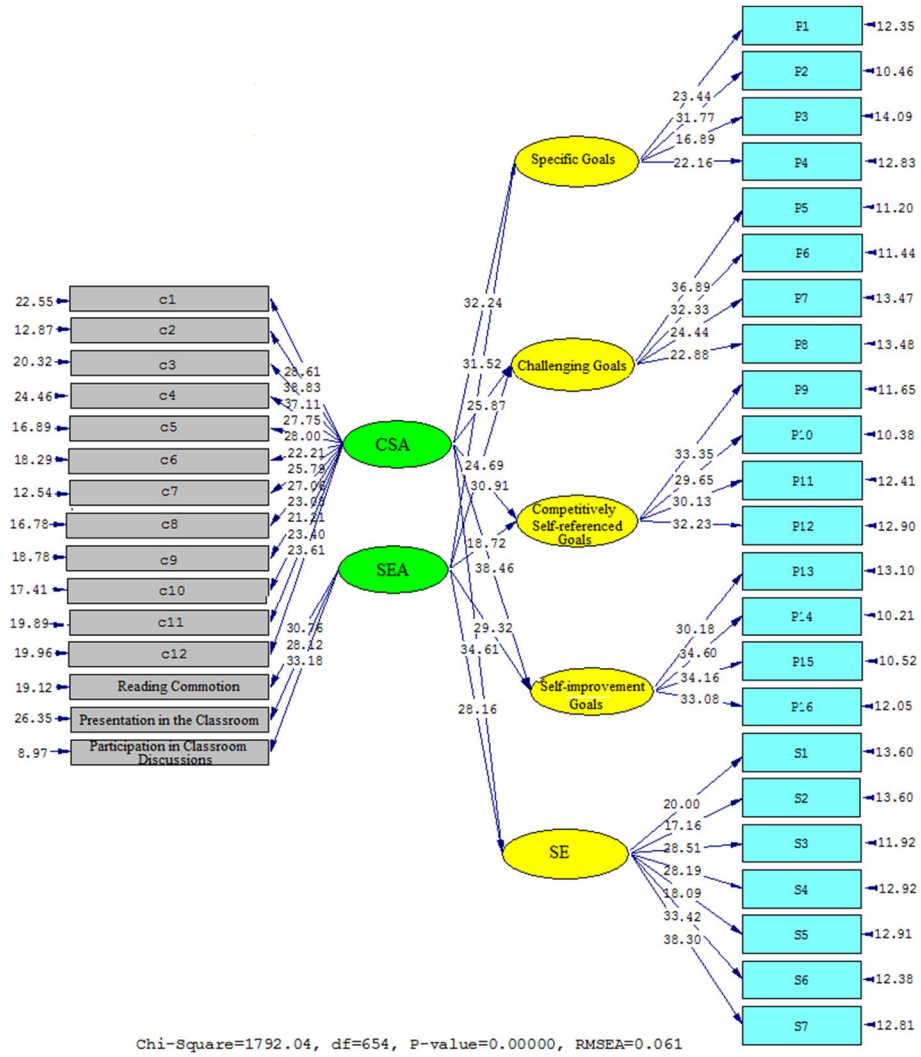


**Fig. 5** *T* values for path coefficient significance (model 2)

## Discussion

This study was an attempt to unveil the interplay among CSA, SEA, PBG, and SE in educational context. To do so, an empirical study was conducted among EFL learners in higher education. The findings of the study provide evidence that CSA, SEA, PBG, and SE are positively correlated (model 1). More specifically, it was found that CSA and SEA could predict PBG and SE. Therefore, the first null hypothesis (H01. EFL university students' CSA does not predict their PBG.) and the second null hypothesis (H02. EFL university students' CSA does not predict their SE.) were not confirmed. Moreover, the third null hypothesis (H03. EFL university students' SEA does not predict their PBG.) and the fourth null hypothesis (H04. EFL university students' SEA does not predict their SE.) were rejected.

Considering the first research question (RQ1: To what extent does EFL university students' CSA predict their PBG?), the outcomes of this investigation display that CSA can play a mediator role in EFL university students' PBG specifications. It can be implied

that learners' orientations to self-assessment aid constructing and reconstruction of positive self-concept and self-identity, which consequently reinforce positive goal-settings. Such situations help EFL learners to develop an internal sense of control and a perception of effectiveness in their abilities to carry out tasks successfully.

In addition, model 2 depicted that CSA predicts EFL university students' specific goals, challenging goals, competitively self-referenced goals, and self-improvement goals significantly. Model 2 pinpointed the importance of involving students in self-assessment, which in turn encourage learners to specify reasons and objectives for their successful outcomes in terms of effort and increasing ability. The various theoretical perspectives and empirical studies on CSA and PBG have discussed the prominent effects of these constructs in language learning (e.g., Heydarnejad et al., 2022; Jahedizadeh et al., 2021; Ramshe et al., 2019). Based on Self-determination theory (Martin, 2006), self-awareness increases educational aspirations, persistence, academic enjoyment, and class participation. However, a clear view about the relationship between CSA and PBG does not exist and the results of this research is the first attempt in this regard.

With regard to the second research question (RQ2: To what extent does EFL university students' CSA predict their SE?), the study findings reflect that CSA plays an effective role in shaping and practicing efficacy beliefs among EFL university students (model 2). Self-assessment provides a particularly positive massage about how to help language learners to tackle the problems. The nature of language learning invited different challenges for the learners and students in higher education may find these challenges more troublesome. Positive self-concept, which is the offspring of CSA (Heydarnejad et al., 2022) helps university students to develop efficient cognitive, metacognitive, and problem-solving strategies. This outcome is supported by the underpinning principles of social-cognitive theory (Bandura, 2012), which highlighted the critical role of students to be involved in their self-monitoring and self-assessment and their improvement in efficacy beliefs.

With the help of self-efficacy beliefs, language learners in higher education can better discover and manage their potentials. The applications of CSA to students' SE skills have been discussed surprisingly little. What emerged from the review of the existing literature, the interplay between CSA and SE has not yet been taped by researchers in the realm of language learning. This outcome indirectly lend support to the results of the previous investigations uncovering the relationship between self-assessment and self-efficacy (AlKhateeb, 2018; Heydarnejad et al., 2022; Villarta et al., 2021). In their study, Yang et al. (2022) confirmed that instructional intervention in CSA activates learners' efficacy beliefs.

The gained results about the third research question (RQ3: To what extent does EFL university students' SEA predict their PBG?) indicate that positive SEA lead to positive PBG (model 1). Following this, model 2 displays that the state of SEA is crucial in EFL university learners' specific goals, challenging goals, competitively self-referenced goals, and self-improvement goals. This finding implies that creating a relaxed and trusting atmosphere in group working encourage language learners to participate in group activities with less fear and anxiety. The attainment of self-actualization to foster SEA requires nurturing environment in which language learners are can express themselves. Thus, teachers should help language learners build up a sense of belonging, minimalize criticism, encourage self-esteem and self-initiation, involve self-awareness and self-assessment, and maintain self-confidence. Learners with high levels of SEA rely on their talents and abilities to fulfill their goals.

The findings related to the last research question (RQ4: To what extent does EFL university students' SEA predict their SE?) suggest that university learners' deep-rooted beliefs will pervade their classroom actions and boost their SE skills. Previous research showed that female students are more sensitive and feel more anxiety in group working than their male peers (Rafeka et al., 2014). Additionally. It was also found that learner with different educational levels experience different state of SEA. That is, learners at MA level are more experienced and can better cope with educational challenges (Jahedizadeh et al., 2021). It can also imply that learners should identify their attitudes toward language learning, and they should find their weaknesses both cognitively and emotionally. They should take responsivity for carrying out their own plans and assess realistically their progress. Self-efficacy beliefs empower language learners to find reasons for their successes and failures. They are also able to set realistic personal learning goals.

## Conclusion and implications

In brief, this investigation set forth to disclose the correlation between CSA, SEA, PBG, and SE in higher education. In this regard, the researchers of this study postulated a model, which was tested via CFA and SEM, accordingly. The findings evidenced that EFL university students' PBG and SE is greatly affected by CSA and their perceptions of their CEA. The gained findings mirrored the predictive power of CSA and SEA in PBG and SE and support the suggested model. The extent to which these constructs interact with each other will affect the level and the extent learners' persistence to complete a task or maintain an activity.

The role of teachers and university professors in initiating and sustaining an effective atmosphere for implementing CSA, SEA, PBG, and SE is significant. They need to learn how to cultivate CSA and SEA in their classrooms. Furthermore, useful strategies to develop and practice CSA, SEA, PBG, and SE in higher education should be introduced. Through in-service and pre-service training courses the related knowledge cab be provided for teachers and university professors. It is worth emphasizing that cognitive and metacognitive awareness are necessary steps in self-assessment, SEA, PBG, and SE. It is hoped that in the classroom via different tasks, learners move towards a situation where the use of appropriate strategies becomes unconscious, where the skills of learning become intuitive. Curriculum designers, policy-makers, and material developers are suggested to consider the critical impacts of CSA, SEA, PBG, and SE in designing and developing materials and tasks. Relevant strategies to boost CSA, SEA, PBG, and SE can be practiced in schools as well as universities among other academic tasks. In the light of the findings of the present study, teachers, and university professors are recommended to revise the existing programs and develop learner-oriented assessments. The direct involvement of the students in their own education aside directing and improving self-aid constructs will improve the quality of instruction and assessment in any educational setting.

Similar to other research, there are some deficiencies in the present research: (1) the sociocultural background and demographic information of the learners were untouched in this study. Future studies may address these aspects and investigate to what extent differences in sociocultural background and demographic information may affect on the

relationship between CSA, SEA, PBG, and SE. (2) For generalization, it would be useful to include students from other faculties and universities. Future research may carry out this study in other educational settings, such as schools and private language institutes. (3) To carry out this research, quantitative methods were utilized. A deeper look can be achieved via applying mixed-method approaches, which can be considered for further studies in future. (4) As it was discussed, EFL teachers are important is developing CSA, SEA, PBG, and SE among their learners. This point was not considered in the current research. Future research can investigate the role of teachers' SE and PBG in enhancing their students' CSA, SEA, PBG, and SE. (5) In future, prospective researchers can focus on the association between CSA and SEA with other learner attributed constructs, such as self-regulation, academic engagement, academic demotivation, and learning styles.

**Abbreviations**

| | |
|---|---|
| EFL | English as a foreign language |
| CSA | Core of self-assessment |
| SEA | Student evaluation apprehension |
| PBG | Personal best goal |
| SE | Self-efficacy |
| CSAQ | Core of self-assessment questionnaire |
| SEAS | Student evaluation apprehension scale |
| PBGS | Personal best goal scale |
| SES | Self-efficacy Scale |
| SEM | Structural equation modeling |
| CFA | Confirmatory factor analysis |
| LISREL | Linear structural relations |

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**Authors' contributions**
All authors have made substantial contributions to conception and design, acquisition of data, analysis and interpretation of data, and writing the manuscript. All authors read and approved the final manuscript.

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**Availability of data and materials**
The authors state that the data supporting the findings of this study are available within the article.

## Declarations

**Competing interests**
The authors state that there is no conflict of interest.

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## Publisher's Note