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Engagement in On-line Language Assessment: are test-taking skills, self-assessment, resilience, and autonomy critical?

Mahyudin Ritonga[1], Ahmad Abdulkareem Shaban[2], Anwar Hammad Al-Rashidi[3*] and Noam Chilani[4]

*Correspondence:
a.alrashidi@psau.edu.sa

[1] Muhammadiyah University of West Sumatra, Padang, Indonesia
[2] Department of General Education, Cihan University - Duhok, Kurdistan Region, Iraq
[3] Department of Psychology, College of Education, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia
[4] Department of Language and Literature, Badakhshan University, Feyzabad, Afghanistan

Abstract

Every decision made in the classroom has the potential to either help or hurt a student's development as a learner. When students' mental and emotional well-being are taken into account, effective instruction and assessment are possible, despite the importance of learners' engagement in assessment (LEA), test-taking skills (TTS), self-assessment (SA), learner resilience (LR), and learner autonomy (LA). As a result, this study attempted to illustrate the dynamic between LEA, TTS, SA, LR, and LA. To this end, 435 English as a foreign language (EFL) students at intermediate levels in Afghanistan were given copies of the Test-taking Skills Scale (TTSS), the core of self-assessments questionnaire (CSAQ), The Academic Resilience Scale (ARS), the learner autonomy questionnaire (LAQ), and the learner engagement in on-line assessment (LEOA). Confirmatory factor analysis (CFA) and structural equation modeling (SEM) screening of the data revealed that resilient EFL students feel better at on-line assessment and in pursuing their objectives. The mediating effects of TTS and SA on LR and LA and consequently Engagement in On-line Assessment were specifically identified. The survey's ramifications, which may improve language learning and assessment, are reviewed at length.

Keywords: Engagement in on-line Assessment, Test-taking skills, Self-assessment, Learner resilience, Learner autonomy, EFL learners

Overview

The swift progress and widespread use of technologies for communication and information have had a significant influence on many aspects of human existence, not the least of which is the educational system. Because of these breakthroughs in technology, our daily lives, our activities, and the societal norms, we adhere to have all undergone substantial transformations. In a similar vein, the advancement of technology has resulted in a major and beneficial influence on education in general and the learning and assessment of second/foreign languages in particular (Kamasak et al., 2021). Because of this shift away from the assertive use of technology toward the social and integrative

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use of such affordances, computer-assisted language learning (CALL) as well as mobile-assisted language learning (MALL) has emerged as a result, demonstrating the Internet's potential for use in language instruction (Barrot, 2021). Along with this change, MALL established itself as a well-liked communication technology that has provided EFL/ESL teachers and students with access to native speakers, the capacity to generate and start sharing a countless quantity of knowledge and subject matter, and the independence to interact in an online world without being restricted by space or time (Erarslan, 2019).

It is worth highlighting that as a consequence of the growth and development of the Internet, there has been a revolution in the digital technologies that are utilized for worldwide communication and the dissemination of information (Muftah, 2022). CALL has been ingrained in society, which has led to the development of novel modes of communication such as social media. This is because individuals have been searching for less costly, portable, and easily controllable methods of communication and information exchange. The use of CALL as well as MALL in education provides an opportunity for teachers and students to connect immediately with one another and to get information about the curriculum, its components, and its requirements at any moment (Zheng et al., 2018). Innumerable research investigations into the impact of social media on English language teaching and learning have been undertaken, and the findings have shown that CALL and MALL offer EFL/ESL teachers and students the opportunity to access significant and genuine language use, language learning input, unlimited inter-relations, input, course content, and applications to practice and evaluate language skills electronically (Teng et al., 2022).

The idea of "student academic engagement" literary refers to the extent to which and the length of time during which students participate in the tasks and activities that are given in the classroom (Sharma & Bhaumik, 2013). Academic engagement is best understood as a manifestation of student motivation that offers energy and inspiration for academic pursuit and accomplishment (Fredricks et al., 2004). Participation in the acquisition of a language leads to the development of numerous competences, which should be the end objective (Teng et al., 2022). It is generally accepted that the concept of academic engagement is fluid, ever evolving, and subject to the impact of a wide range of both internal and external influences (Shu, 2022). In order to be more explicit, it has been recognized that a variety of phenomenological, personal, and instructional characteristics are crucial in finding out how academically engaged EFL students are (Sharma & Bhaumik, 2013). According to the findings of this research, social media and technology may have an effect on the amount of involvement that students have in L2 classrooms.

In addition, the academic aspect of engagement refers to the behavioral and psychological efforts that students put in to master the information and skills that are associated with an academic activity (Shu, 2022). The other dimension of student participation, known as agentic engagement, places an emphasis on the role that students play in improving the quality of their own education. Additionally, social engagement places an emphasis on students' involvement in nonacademic tasks, exercises, and activities aimed to enhance their social connection and improve their problem-solving ability (Schaufeli et al., 2002). Students are able to actively participate in lessons, use complex learning strategies that are distinct from offline education, become emotionally invested in the learning process in a new mode of instruction, put forth more effort to gain skills,

act as independent learners, and develop social skills that may facilitate their success if they use social media. Given these factors, it is arguable that social media can affect all of these aspects of students' engagement in learning. The usage of online assessments has become more significant in the field of education not only due to the fact that they are more applicable in virtual classes but also because they enable teachers to evaluate the progress of their students in real time. The use of online evaluation tools in the classroom contributes to the development of a digitalized learning environment. In addition, online assessment tools assist instructors in tracking student growth and providing feedback on those measurements. Exams of this kind that are taken online allow teachers to keep a closer eye on their students' level of interest and the progress they make. However, the concept of learner engagement in assessment (LEA), which is the focus of the current study, was not thoroughly defined and addressed in the research that came before it, and there is a clear need for more investigation into this topic.

SA is defined as a higher-order attribute that encompasses self-efficacy, consciousness, emotional stability, and locus of control, among other constructs (Judge et al., 1997). In other words, SA means examination or evaluation of oneself or one's behaviors, attitudes, or performance (Bachman et al., 2010); that is why it is important to teach students how to evaluate their own progress. Andrade (2019) provided a similar explanation of SA, stipulating that it is a kind of evaluation that places an emphasis on such competencies as meta-cognitive knowledge, supervision, and self-regulated learning. Students gain the ability to think critically and make well-considered decisions by participation in self-evaluation activities. These activities also help students become more adept at overcoming educational challenges (Heydarnejad et al., 2022a). Both the external and the internal values may have an effect on the condition of SA. There are a number of important external values, such as grades and comments from instructors; important internal values include consciousness and goal planning, both of which have a significant impact on SA (Bourke & Mentis, 2013).

This indicates that the stages of learners' academic life that are cognitive, metacognitive, and emotional may be influenced by the implementation and practice of self-assessment (Aldosari et al., 2023; Wei, 2020). According to the findings of a recent research that used structural equating modeling, SA and reflection can predict the tone of learners' enjoyment and immunity in EFL context. That is, productive immunity and engagement are the offspring of SA and higher-order thinking skills (Aldosari et al., 2023). In the same vein of research, Jahara et al., (2022) provided evidence that the coping style of students had a favorable influence on both their SA and their ability to handle stress. Following a similar line of inquiry, Heydarnejad et al., (2022b) did research on academic emotion control, SA, and academic buoyancy among EFL university students in order to investigate the possibility of a connection between these three constructs. These findings suggest that sustaining an appropriate level of emotional control is one factor that contributes to the academic buoyancy and SA of EFL university students.

Autonomy refers to the capacity of an individual to act independently by way of decision-making that is informed by their perceptions of the external context. Learners may exercise control over their conduct when they are autonomous because they are able to explain their actions by referring to an internal authority source (Reeve, 2016). Students need to be able to build and execute their competences in everyday life and be creative

in their continual engagement with the social context if they are going to be successful in their educational endeavors. Evaluation on a person's talents or competency, as well as motivation to improve in those areas, may be obtained via the use of external factors (Ryan & Deci, 2000). Learners who have a sense of confidence in their role as members of a community are more likely to participate in activities that foster relatedness, which paves the way for the development of their capacity for independent learning (Gustavsson et al., 2016). The support for autonomy that is provided by teachers is related to the effort that is made to provide instruction in a classroom setting that satisfies the autonomy needs of the learners and encourages interaction between the educator and the learner (Teng, 2018). To clarify, the behaviors and attitudes of educators are critical components that may be utilized to detect, strengthen, and develop the natural motivating capabilities of learners.

Increased motivation, involvement in the class, improvement, and educational accomplishment are the outcomes that come about as a direct consequence of students having autonomy that is reinforced by the instructor (Reeve, 2016). By catering to individual requirements, their level of motivation and participation in the classroom will increase. As a consequence of this, individuals have a higher chance of having better mental and physical health, as well as improved academic performance (Rezai et al., 2022; Skaalvik, & Skaalvik, 2014). According to the findings of a research carried out by Pan et al., (2013), the act of blogging helped students develop a greater feeling of autonomy. In addition, Gustavsson et al., (2016) suggested that the use of technology had an effect on the participants of the research's level of autonomy in their learning, especially when it came to facilities designed for independent study. They went on to say that the inclusion of components of the project that allowed for informal learning helped to the accomplishment of this objective.

The capacity to maintain normal growth and generate beneficial changes despite considerable hardship is one definition of the idea of resilience (Fletcher & Sarkar, 2003). Campbell Sills et al., (2006) argued that learner resilience (LR) is a multidimensional construct, and a number of elements play a significant role in both its development and expansion. These aspects include temperament and personality in addition to unique abilities such as active problem-solving and personality features (Campbell Sills et al., 2006). Students have less anxiety about dropping out of school and doing poorly academically as a result of the LR program because it provides them the confidence to take risks (Azizi et al., 2022; Rojas, 2015). In addition, LR assists pupils in coping with the stress and depression brought on by language classes (Khadem et al., 2017). Taking a similar path, Rudd et al., (2021) found that LR is a dynamic and supportive construct that shapes supportive adaptation in order to overcome hurdles to positive growth. In addition, Karabıyık, (2020) provided evidence that both reflecting on one's experiences and seeking assistance play an important role in the development of LR.

There has never been research done to analyze the connections between TTS, SA, LR, LA, and LEA, despite the fact that each has been independently validated to help students better manage their assessment, leading to improved academic performance for learners. The current amount of academic work on the topic of the contributions that the on-line classes provide contributes to language learning likewise reveals this gaping hole in our understanding. In view of the gaps in the literature, as well as the importance

of the learners' ascribed constructs (particularly, TTS, SA, LR, and LA) in terms of their on-line assessment, the current study sets out to investigate the role that TTS, SA, LR, and LA play in LEA. In seeking to understand their possible relationships in EFL context, the researchers of this study propose a model (Fig. 1), which was then tested, and the related findings were discussed, accordingly. With these perspectives in mind, the following study questions are proposed:

1. Can students' TTS provide light on LEA in on-line language learning classes?
2. Can students' SA provide light on LEA in on-line language learning classes?
3. Can students LR provide light on LEA in on-line language learning classes?
4. Can students' LA provide light on LEA in on-line language learning classes?

Methodology

This survey was taken by a total of 397 students who were enrolled in private English language institution, Afghanistan. Participants in this research ranged in age from 24 to 30 and studied English at intermediate levels via the use of on-line classes. Their assessment (quizzes, midterm, as well as final exams) was carried out via Google Forms. There were 263 male students and 134 female students who participated. The selection of the participants was accomplished via the use of methods which may have included sampling based on convenience or random sampling. This investigation started in June of 2022 and lasted all the way through December of the same year. It was carried out using a platform that was based on the Internet. It was required of the participants that they fill out a questionnaire using online questionnaires. The questionnaire included the Test-taking Skills Scale, the core of self-assessments questionnaire, the Academic Resilience Scale, the learner autonomy questionnaire, and the learner engagement in on-line
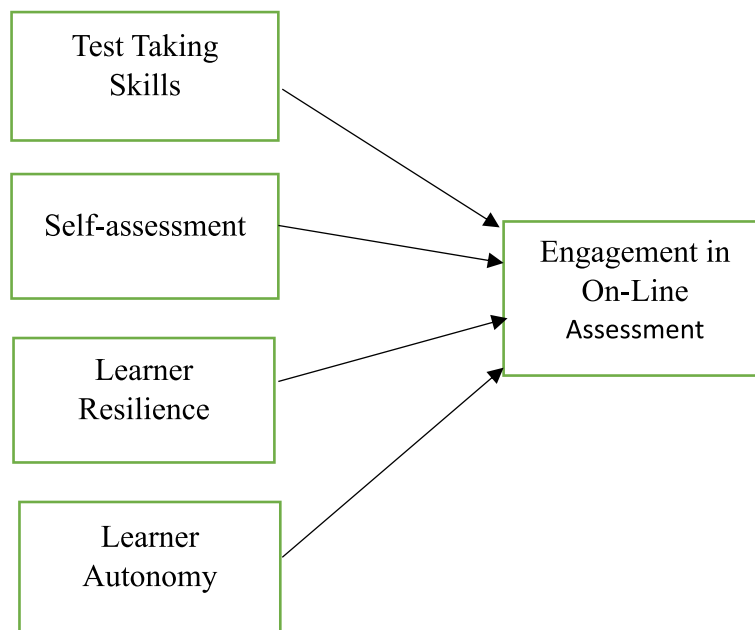
Fig. 1 The conceptual framework

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assessment. The design of the online questionnaire necessitated that every element of the electronic survey form be intimately connected to one another. This was done so that no data would be missed as a result of the design of the survey. Hence, there should be an essential connection between each component. The return rate was 87.9%, with 512 forms that were completely filled out being received. In order to determine whether or not the data follow a normal distribution, the Kolmogorov-Smirnov test was carried out. CFA and SEM using LISREL 8.80 were applied to analyze the data since the data followed a normal distribution.

Materials

The Test-taking Skills Scale (TTSS)

Test-taking skills of participants were evaluated utilizing Dodeen's TTSS, which was created to measure those abilities (Dodeen, 2008). Before-test, time management, during-test, and after-test are the subscales that are comprised of a total of 31 items that make up this scale. If a student has a high score on the TSS, it shows that they have acceptable test-taking skills. The internal consistency of this scale was acceptable, ranging from 0.858 to 0.901 Table 1.

The core of self-assessments questionnaire (CSAQ)

The SA of the students at the institution was evaluated with the use of CSAQ by Judge et al., (2003). There are 12 distinct items, and each one has a rating on the Likert scale ranging from 1 to 5: strongly disagree (1) to strongly agree (5). On this scale, the

Table 1 Results of the Kolmogorov–Smirnov test

Scales	Kolmogorov-Smirnov Z	Asymp. sig. (2-tailed)
Before-test	0.685	0.736
Time management	0.615	0.844
During-test	0.675	0.753
After-test	0.824	0.505
Test-taking Skills Scale (TTSS)	0.729	0.663
The core of self-assessments questionnaire (CSAQ)	0.461	0.984
Perceived happiness	0.578	0.892
Empathy	0.669	0.762
Sociability	1.305	0.066
Persistence	0.721	0.677
Self-regulation	1.342	0.054
Learner resilience (LR)	0.741	0.642
Learner autonomy questionnaire (LAQ)	1.055	0.215
Value and Sense of Belonging	0.689	0.729
Perception of the Capability	0.949	0.329
Value Course	1.186	0.074
Engagement with Professors	0.648	0.795
Engagement with Peers	0.537	0.936
Social Relationship	0.970	0.303
Engagement in On-line Assessment	1.308	0.063
Learner engagement in assessment (LEA)	0.908	0.382

students' scores fell anywhere from 12 to 60. A high score on this scale indicated that the respondent had a positive opinion of themselves. According to the findings of this inquiry, the coefficient of reliability of the CSEQ is 0.869, which indicates that it has a satisfactory level of dependability.

The Academic Resilience Scale (ARS)

To evaluate the AR, the ASR was utilized that Kim & Kim (2016) developed. In this scale, there are a total of 26 items, each with a Likert value ranging from 1 to 5. These items are categorized as follows: subjective happiness (9 items), empathy (7 items), sociability (3 items), perseverance (4 items), and self-regulation (2 items). The results displayed that the SRS has an acceptable reliability that ranges from 0.856 to 0.874.

The learner autonomy questionnaire (LAQ)

LAQ by Zhang & Li (2004) was employed to ascertain the degree of autonomy by the participants in their pursuit of English as a foreign language. This questionnaire has a response structure of a 5-point Likert scale, and it consists of eleven items. After evaluating the instrument's internal consistency, the researchers found that the findings were satisfactory ($a = 0.854$).

The learner engagement in on-line assessment (LEOA)

The modified version of the SInAPSi (services for active participation and inclusion of university students) Academic Engagement Scale (SAES) developed by Freda et al., (2021) was applied in this research. The purpose of this instrument is to evaluate the LAE in online classes. On a scale that ranges from 1 to 5 points, this instrument consists of the following six dimensions: (1) Perception of the capability to persist in the university choice (four items), (2) university Value and Sense of Belonging (six items), (3) value of university course (seven items), (4) engagement with university professors (four items), (5) engagement with university peers (five items), and (6) Engagement in On-line Assessment (3 items). According to the findings of this inquiry, the Cronbach alpha was 0.891, which suggested that the dependability was satisfactory.

Findings

To begin, the Kolmogorov-Smirnov test was run to find out which statistical technique would be most practical.

Parametric statistical methods may be used because, as shown in Table 2, significance values greater than 0.05 indicate that the data adhere to the assumption of normality. Hence, the structural link between TTS, SA, LR, LA, and LEA was investigated with CAF and SEM in conjunction with the statistical package LISREL 8.80. This analysis' findings are detailed below. Finally, the fit of the model was analyzed by computing the chi-square magnitude, the root-mean-squared error of approximation (RMSEA), the normed fit index (NFI), the good fit index (GFI), and the comparative fit index. These indicators are quantitative assessments of the model's closeness to the data.

Descriptive information for the participants' TTS, SA, LR, LA, and LEA is provided in Table 2 of the accompanying report.

Table 2 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
Before-test	397	8	40	25.625	8.276
Time management	397	8	40	26.902	7.335
During-test	397	8	40	27.239	6.789
After-test	397	7	35	23.708	6.435
Test-taking Skills Scale (TTSS)	397	35	155	103.474	25.394
The core of self-assessments questionnaire (CSAQ)	397	13	60	40.665	9.140
Perceived happiness	397	9	45	30.438	7.673
Empathy	397	13	34	25.262	4.063
Sociability	397	3	15	10.957	2.626
Persistence	397	9	20	14.856	3.149
Self-regulation	397	2	10	7.365	2.199
Learner resilience (LR)	397	50	118	88.879	12.832
Learner autonomy questionnaire (LAQ)	397	11	55	39.683	10.659
Value and Sense of Belonging	397	6	30	21.668	5.709
Perception of the Capability	397	7	20	14.264	3.921
Value Course	397	12	35	26.642	4.445
Engagement with Professors	397	6	20	14.940	2.795
Engagement with Peers	397	6	30	3.365	1.130
Social Relationship	397	3	15	10.675	2.967
Engagement in On-line Assessment	397	5	25	17.050	4.710
Learner engagement in assessment (LEA)	397	64	148	108.605	15.179

Among the components of TTS, during-test obtained the highest mean score ($M = 27.239$, $SD = 6.789$). For the second instrument, the SA, the mean score was 40.665 with a standard deviation of 9.140. Considering LR, perceived happiness was the dominant subscale ($M = 30.438$, $SD = 7.673$). With regard to LA, the received mean score was 39.683 (SD: 10.659). In addition, among the subcomponent of LEA, the dominant approach was Value Course ($M = 26.642$, $SD = 4.445$).

According to Table 3, the relationship between SA and LEA subcomponents was extremely significant and positive. Value and Sense of Belonging ($r = 0.932$), Perception of the Capability ($r = 0.882$), Value Course ($r = 0.904$), Engagement with Professors ($r = 0.804$), Engagement with Peers ($r = 0.804$), Social Relationship ($r = 0.715$), and Engagement in On-line Assessment ($r = 0.804$) exhibited this relationship. In addition, the following positive correlations between LA and LEA subfactors were shown to be statistically significant: Value and Sense of Belonging ($r = 0.486$), Perception of the Capability ($r = 0.452$), Value Course ($r = 0.534$), Engagement with Professors ($r = 0.517$), Engagement with Peers ($r = 0.451$), Social Relationship ($r = 0.432$), and Engagement in On-line Assessment ($r = 0.498$). Moreover, the connection between TTS and LEA subcomponents was positive and statistically significant: Value and Sense of Belonging ($r = 0.927$), Perception of the Capability ($r = 0.908$), Value Course ($r = 0.964$), Engagement with Professors ($r = 0.955$), Engagement with Peers ($r = 0.886$), Social Relationship ($r = 0.851$), and Engagement in On-line Assessment ($r = 0.933$). Considering the relationships between LR and LEA subcomponents, the correlation was positive and significant: Value and Sense of Belonging ($r = 0.639$), Perception of the Capability ($r = 0.591$), Value Course ($r = 0.699$), Engagement with Professors ($r = 0.684$), Engagement with Peers (r

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Table 3 Measures of correlation between the TTS, SA, LR, LA, and LEA factors

	SA	LA	TTS	LR	Value and Sense of Belonging	Perception of the Capability	Value Course	Engagement with Professors	Engagement with Peers	Social Relationship	Engagement in On-line Assessment
SA	1.000										
LA	0.625[a]	1.000									
TTS	0.681[a]	0.598[a]	1.000								
LR	0.712[a]	0.632[a]	0.781[a]	1.000							
Value and Sense of Belonging	0.784[a]	0.486[a]	0.927[a]	0.639[a]	1.000						
Perception of the Capability	0.753[a]	0.452[a]	0.908[a]	0.591[a]	0.608[a]	1.000					
Value Course	0.841[a]	0.534[a]	0.964[a]	0.699[a]	0.541[a]	0.611[a]	1.000				
Engagement with Professors	0.827[a]	0.517[a]	0.955[a]	0.684[a]	0.596[a]	0.633[a]	0.558[a]	1.000			
Engagement with Peers	0.734[a]	0.451[a]	0.886[a]	0.573[a]	0.621[a]	0.576[a]	0.647[a]	0.689[a]	1.000		
Social Relationship	0.715[a]	0.432[a]	0.851[a]	0.552[a]	0.625[a]	0.554[a]	0.598[a]	0.632[a]	0.548[a]	1.000	
Engagement in On-line Assessment	0.804[a]	0.498[a]	0.933[a]	0.651[a]	0.542[a]	0.641[a]	0.612[a]	0.609[a]	0.6136[a]	0.688[a]	1.000

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

= 0.621), Social Relationship ($r = 0.625$), and Engagement in On-line Assessment ($r = 0.542$).

The statistical correlations between the variables are shown in Figs. 2 and 3. They demonstrate that SA, LA, TTS, LR, and LEA have positive relationships. SA had a beneficial effect on LEA ($\beta = 0.76$, $t = 16.41$) as well as LA on LEA ($\beta = 0.48$, $t = 7.93$). TTS had a substantial impact on LEA ($\beta = 0.89$, $t = 19.32$). The effect of LR on LEA ($\beta = 0.62$, t = 14.55) was the same.

In model 2, which is shown in Figs. 4 and 5, the values of the path coefficients for the relationships between the SA, LA, TTS, LR, and LEA subfactors are presented graphically.

With respect to SA and LEA subfactors, the following conclusions may be drawn: Value and Sense of Belonging ($\beta = 0.75$, $t = 17.45$), Perception of the Capability ($\beta = 0.72$, t = 17.08), Value Course ($\beta = 0.82$, $t = 20.91$), Engagement with Professors ($\beta = 0.80$, $t = 20.25$), Engagement with Peers ($\beta = 0.71$, $t = 16.55$), Social Relationship ($\beta = 0.69$, $t = 16.32$), and Engagement in On-line Assessment ($\beta = 0.78$, $t = 18.66$).
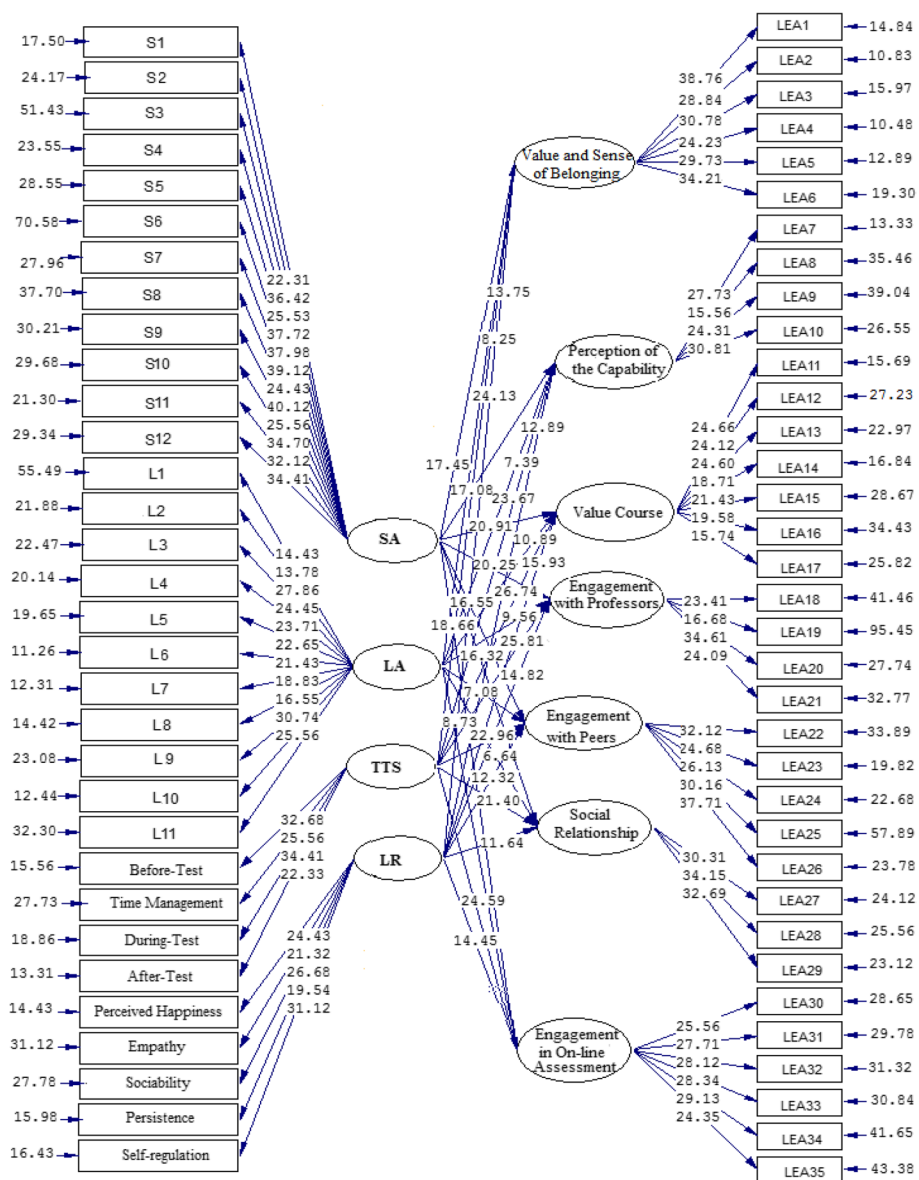

Chi-Square=1923.26, df=654, P-value=0.00000, RMSEA=0.07
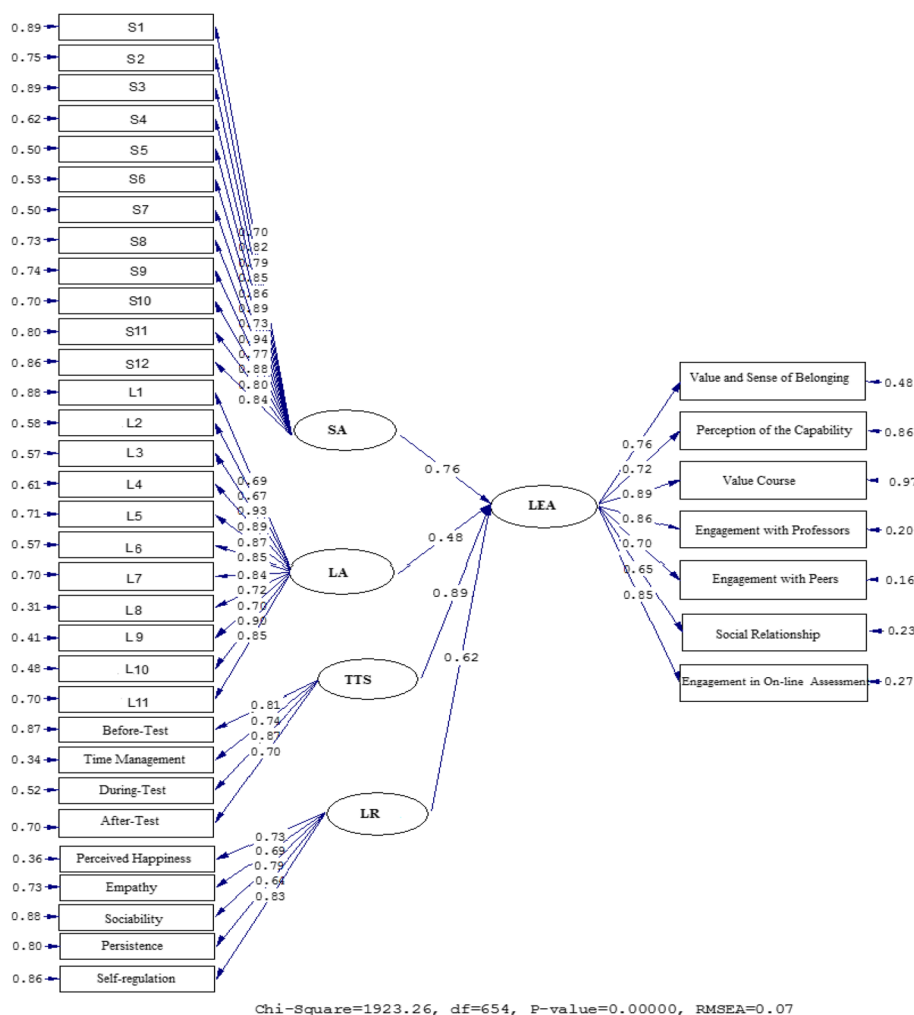
Fig. 2 A symbolic representation of the path coefficient values for the relationship between TTS, SA, LR, LA, and LEA (model 1)
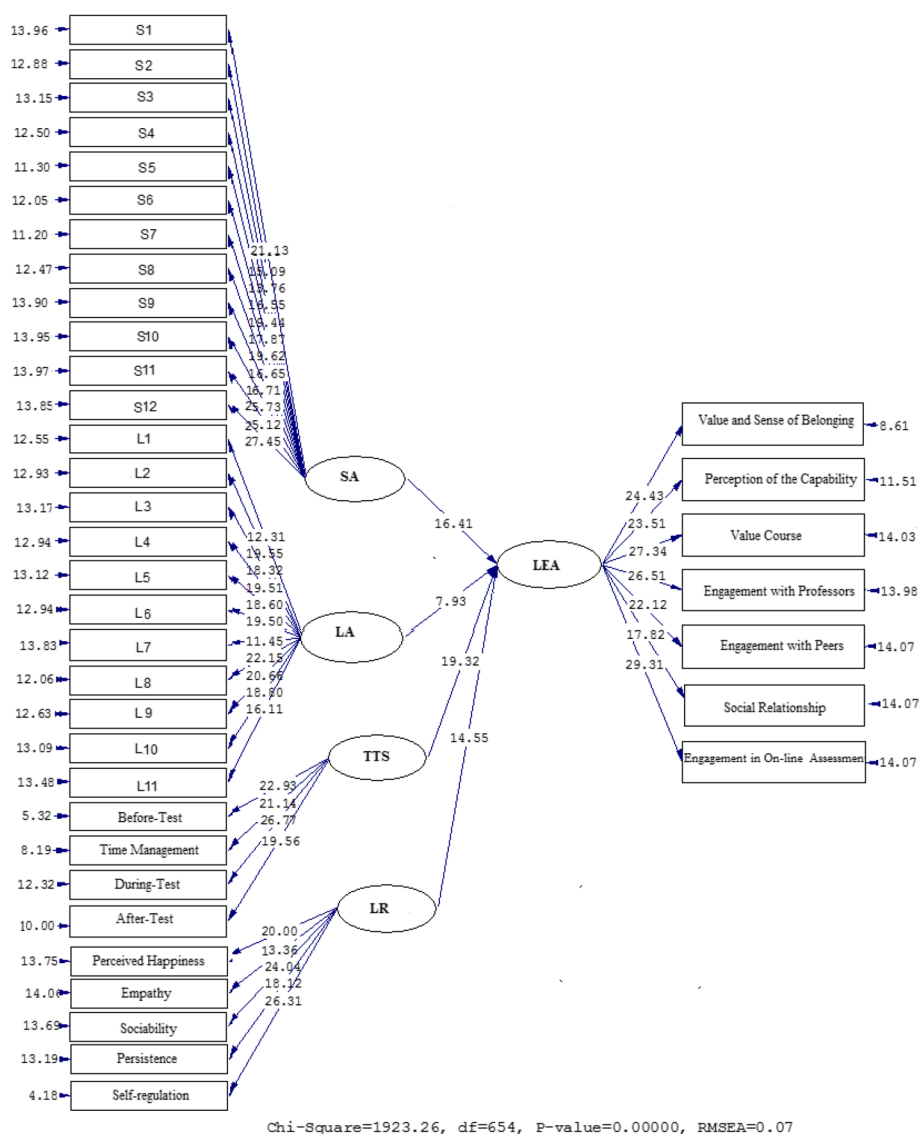
Fig. 3 T significance values for path coefficients (model 1)

LA is associated with LEA subfactors: Value and Sense of Belonging ($\beta = 0.45$, $t = 8.25$), Perception of the Capability ($\beta = 0.43$, $t = 7.39$), Value Course ($\beta = 0.51$, $t = 10.89$), Engagement with Professors ($\beta = 0.49$, $t = 9.56$), Engagement with Peers ($\beta = 0.42$, $t = 7.08$), Social Relationship ($\beta = 0.40$, $t = 6.64$), and Engagement in On-line Assessment ($\beta = 0.46$, $t = 8.73$). In addition, TTS is associated with the following LEA subfactors: Value and Sense of Belonging ($\beta = 0.90$, $t = 24.13$), Perception of the Capability ($\beta = 0.88$, $t = 23.67$), Value Course ($\beta = 0.95$, $t = 26.74$), Engagement with Professors ($\beta = 0.93$, $t = 25.81$), Engagement with Peers ($\beta = 0.85$, $t = 22.96$), Social Relationship ($\beta = 0.84$, $t = 21.40$), and Engagement in On-line Assessment ($\beta = 0.91$, $t = 24.59$). About the correlation between LR and LEA subfactors, the result is as follows: Value and Sense of Belonging ($\beta = 0.60$, $t = 13.75$), Perception of the Capability ($\beta = 0.57$, $t = 12.89$), Value Course ($\beta = 0.67$, $t = 15.93$), Engagement
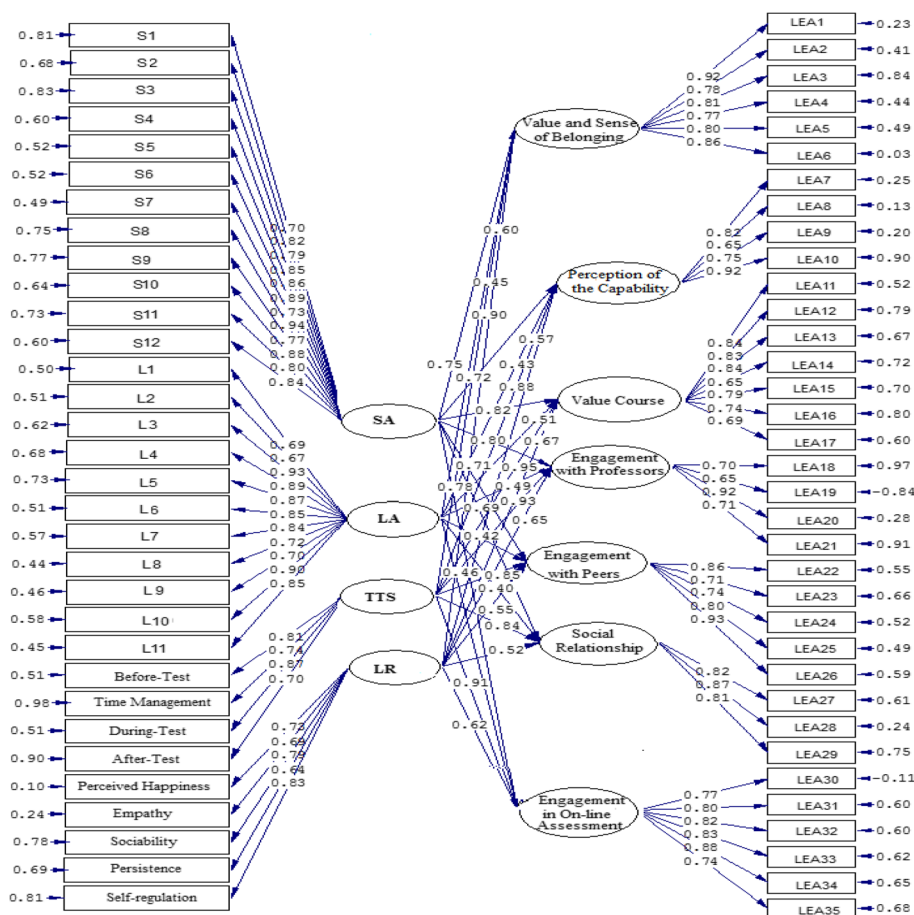
Chi-Square=6298.04, df=2110, P-value=0.00000, RMSEA=0.071

Fig. 4 A symbolic representation of the path coefficient values for the relationship between TTS, SA, LR, LA, and LEA subcomponents (model 2)

with Professors ($\beta = 0.65$, $t = 14.82$), Engagement with Peers ($\beta = 0.55$, $t = 12.32$), Social Relationship ($\beta = 0.52$, $t = 11.64$), and Engagement in On-line Assessment ($\beta = 0.62$, $t = 14.45$).

According to the information shown in Table 4, the chi-square/df ratio of 2.941, the RMSEA of 0.070, the GFI of 0.942, the NFI of 0.961, and the CFI of 0.974 all satisfied the criteria for an acceptable fit for model 1. In addition, Table 4 provides a concise summary of the fact that all of the model fit indices that are associated with model 2 are satisfactory. These include the chi-square/df ratio (2.947), the RMSEA (0.071), the GFI (0.936), the NFI (0.941), and the CFI (0.948).

Discussion

The purpose of this study was to examine how the TTS, SA, LR, LA, and LEA affect administration of on-line assessment in educational institutions. To this end, empirical research was conducted with EFL students enrolled in English-language institutions who were applying on-line classes to improve their English skills. According to the findings, students who practice TTS, SA, LR, and LA improve their exam scores and overcome

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Chi-Square=6298.04, df=2110, P-value=0.00000, RMSEA=0.071

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

Table 4 Model fit indices

Fitting indexes	χ2	df	χ2/df	RMSEA	GFI	NFI	CFI
Cut value			< 3	< 0.1	> 0.9	> 0.9	> 0.9
Model 1	1923.26	654	2.941	0.070	0.942	0.961	0.974
Model 2	6298.04	2110	2.947	0.071	0.936	0.941	0.948

test anxiety. These results highlighted the significant role of on-line classes in enhancing students' psychological well-being and academic engagement. A more in-depth explanation of the study's findings is discussed below.

Considering the primary research question "RQ1: Can students' TTS provide light on LEA in on-line language learning classes?", the findings reflected that EFL learners' improvement in TTS leads to their LEA. It means when EFL learners practice effective techniques for handling their assessment and demonstrate their actual competency, they feel more engaged and less anxious during on-line assessment. In order to accomplish this, it is necessary to acquire the information necessary to effectively manage the time leading up to, during, and following a test. To achieve this point, helpful strategies should be introduced for the learners. By practice, they can learn how to control their anxiety, manage time, and skillfully complete the assessment.

The findings related to the second research question "RQ2. Can students' SA provide light on LEA in on-line language learning classes?" witnessed that those EFL learners who are more active in their SA experience more engagement. More specifically, SA was reflected in LEA' subfactors (model 2): Value and Sense of Belonging, Perception of the Capability, Value Course, Engagement with Professors, Engagement with Peers, Social Relationship, and Engagement in On-line Assessment. This result is consistent with the conclusions reached by Riswanto et al., (2022), who found that SA and critical thinking play a significant influence in engaging EFL students. This result is consistent with the research conducted by Huang (2022), who determined that self-evaluation helps self-control and confidence leading to learners' enjoyment. This result is theoretically debatable. SA is based on the principles of self-determination and the concept of individual autonomy (Bourke & Mentis, 2013). EFL learners can benefit from a more learner-centered approach to assessment in both overt and covert ways. It has a ripple effect on the students' interpersonal relationships as well. SA opens the mind of students; they become aware of these positive and negative aspects. Thus, they can take remedial steps much easily to improve themselves. In that way, a great part of anxiety, especially in anxiety in language classes and assessment, will decrease, and enjoyment will decrease.

Regarding the third research question (Can students LR provide light on LEA in on-line language learning classes?), it was also found that the state of LR is detriment in LEA. More specifically, resilient students are more powerful in Value and Sense of Belonging, Perception of the Capability, Value Course, Engagement with Professors, Engagement with Peers, Social Relationship, and Engagement in On-line Assessment (model 2). This finding is in line with discussions about the motivation/demotivation theory as well as the concept of resilience (Ryan & Deci, 2000). EFL students may benefit from LR since it encourages them to reflect on their emotional states and think of novel ways to manage stress associated with upcoming assessments. The self-determination hypothesis (Martin & Marsh, 2009) argues that raising one's level of self-awareness improves motivation, satisfaction, resilience, and class participation. LR is an important step toward, cognitive balance, emotion regulation, and engagement (Namaziandost et al., 2023). Thus, EFL with a high LR are more likely to react positively to challenges by establishing realistic goals and making concerted efforts to adopt the cultural norms and social norms of their new communities.

The last research question focused on the possible influence of LA on LEA in on-line language learning classes. The findings displayed that autonomous learners are more successful and feel more involved in on-line assessment. That is, autonomy is critical in Value and Sense of Belonging, Perception of the Capability, Value Course, Engagement

with Professors, Engagement with Peers, Social Relationship, and Engagement in On-line Assessment. It seems logical to claim that allowing students to improve their autonomy via the use of on-line language learning classes helps them enhance their language talents. The direct relationships between self-efficacy, LA, and personal best goals were also concluded by the findings of Ismail & Heydarnejad (2023). Independence and autonomy may be encouraged in students by ensuring that they have access to the resources they will need to be successful in their future academic endeavors.

Conclusion and implication

In a nutshell, the purpose of this study was to shed light on how TTS, SA, LR, LA, and LEA all relate to one another in the context of EFL language learning. Based on the outcomes, investment in improving TTS, SA, LR, and LA can enhance EFL learners' Engagement in On-line Assessment. It is important to note that TTS, SA, LR, and LA all need a level of intellectual and metacognitive awareness. Through practice on a variety of classroom activities, students should eventually reach a point when effective learning techniques are deployed automatically. Educators and language teachers play a crucial role in creating and maintaining a favorable environment for adopting TTS, SA, LR, and LA. As such, it is essential that they acquire the appropriate instructional methods to implement in the classrooms.

Both language teachers and students need to have an understanding of the self-help constructs and digital literacies and the values these concepts embody in order to succeed. The necessary expertise may be made available to educators and academics via in-service and pre-service training programs. It is strongly recommended that those in positions of policymaking, curriculum design, material production, test development, and language teaching give some attention to language instruction and assessment that is based on online learning and teaching self-aid techniques. This will assure the academic success of the learners, learner-oriented assessment, LEA, and, more crucially, the well-being of society as a whole.

This study has certain flaws that need to be addressed, but it does give some intriguing insights on the problem at hand. The generalizability of the results may be doubted since all of the data for this research came from the students' self-reporting on questionnaires. It is possible that future studies may benefit from combining qualitative and quantitative approaches. Moreover, a future survey is recommended to triangulate the study's results and to conduct a thorough investigation into the extent to which student demographic parameters may influence the dynamic among TTS, SA, LR, LA, and LEA. Additionally, Afghan intermediate-level EFL students participated in this research. In order to compare and contrast the present results, similar research may be conducted in other educational contexts in the future. Lastly, this study was carried out among language learners. The possible effects of TTS, LR, and LA on LEA on online assessment in other fields of study are recommended to be addressed in the future studies.

Abbreviations

EFL	English as a foreign language
LEA	Learner engagement in assessment
TTS	Test-taking skills
SA	Self-assessment
LR	Learner resilience

LA	Learner autonomy
TTSS	The Test-taking Skills Scale
LAQ	The learner autonomy questionnaire
LEOA	The learner engagement in on-line assessment
SInAPSi	Services for active participation and inclusion of university students
CSAQ	The core of self-assessments questionnaire
ARS	The Academic Resilience Scale
SEM	Structural equation modeling
CFA	Confirmatory factor analysis
LISREL	Linear structural relations
RMSEA	The root-mean-squared error of approximation
CFI	The comparative fit index
NFI	The normed fit index

Declarations

Competing interests
The authors declare that they have no competing interests.

References

Aldosari, M., Heydarnejad, T., Hashemifardnia, A., & Abdalgane, M. (2023). The interplay among self-assessment, using reflection for assessment, classroom enjoyment, and immunity: Into prospects of effective language learning. *Language Testing in Asia, 13*(1). https://doi.org/10.1186/s40468-022-00213-1.

Andrade, H. L. (2019). A critical review of research on student self-assessment. *Frontiers in Education*, 4, 87. https://doi.org/10.3389/feduc.2019.00087.

Azizi, Z., Namaziandost, E., & Rezai, A. (2022). Potential of podcasting and blogging in cultivating Iranian advanced EFL learners' reading comprehension. *Heliyon*, *8*(5), e09473. https://doi.org/10.1016/j.heliyon.2022.e09473.

Bachman, L. F., Palmer, A. S., & Palmer, A. S. (2010). *Language assessment in practice: Developing language assessments and justifying their use in the real world*. Oxford University Press.

Barrot, J. S. (2021). Social media as a language learning environment: A systematic review of the literature (2008-2019). Computer Assisted Language. 1–29. (In press). https://doi.org/10.1080/09588221.2021.1883673

Bourke, R., & Mentis, M. (2013). Self-assessment as a process for inclusion. *International Journal of Inclusive Education, 17*(8), 854–867. https://doi.org/10.1080/13603116.2011.602288

Campbell Sills, L., Cohan, S. L., & Stein, M. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy, 44*(4), 585–99. https://doi.org/10.1016/j.brat.2005.05.001

Dodeen, H. (2008). Assessing test-taking strategies of university students: Developing a scale and estimating its psychometric indices. *Assessment & Evaluation in Higher Education, 33*(4), 409–419. https://doi.org/10.1080/0260293070 1562874

Erarslan, A. (2019). Instagram as an education platform for EFL learners. *Turkish Online Journal of Educational Technology-TOJET, 18*, 54–69.

Fletcher, D., & Sarkar, M. (2003). A review and critique of definitions, concepts, and theory. *European Psychologist, 18*(1), 12–23. https://doi.org/10.1027/1016-9040/a000124

Freda, M. F., Raffaele, D. L. P., Esposito, G., et al. (2021). A new measure for the assessment of the university engagement: The SInAPSi academic engagement scale (SAES). *Current Psychology*. https://doi.org/10.1007/s12144-021-02189-2

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Gustavsson, P., Jirwe, M., Aurell, J., Miller, E., & Rudman, A. (2016). Autonomy-supportive interventions in schools: A review. *Report number* B2016: B3. Karolinska Institute.

Heydarnejad, T., Abdel-Al Ibrahim, K. A., Abdelrasheed, N. S. G., & Rezvani, E. (2022). The effect of academic emotion regulation on EFL learners' core of self-assessment and academic buoyancy: a structural equation modeling. *Language Testing in Asia, 12*, 57. https://doi.org/10.1186/s40468-022-00207-z

Heydarnejad, T., Ismail, S. M., Shakibaei, G., & Saeedian, A. (2022a). Modeling the impact of L2 grit on EFL learners' core of self-assessment and foreign language anxiety. *Language Testing in Asia, 12*, 50. https://doi.org/10.1186/s40468-022-00200-6. https://doi.org/10.1186/s40468-023-00219-3

Ismail, S. M., & Heydarnejad, T. (2023). 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. *Language Testing in Asia, 13*, 8.

Jahara, S. F., Hussain, M., Kumar, T., Goodarzi, A., & Assefa, Y. (2022). The core of self-assessment and academic stress among EFL learners: The mediating role of coping styles. *Language Testing in Asia, 12*, 21. https://doi.org/10.1186/s40468-022-00170-9.

Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behavior, 19*, 151–188.

Judge, T. A., Ereza, A., Bono, J. E., & Thoreson, C. J. (2003). The core self-evaluation scale (CSAs): Development of a measure. *Personnel Psychology, 56*, 303–331.

Kamasak, R., Özbilgin, M., Atay, D., & Kar, A. (2021). "The effectiveness of mobile-assisted language learning (MALL): A review of the extant literature," in Handbook of Research on Determining the Reliability of Online Assessment and Distance Learning, eds A. S. Moura, M. N. D. S. Cordeiro, P. Reis (Istanbul: IG Gobal), 194–212.

Karabıyık, C. (2020). Interaction between academic resilience and academic achievement of teacher trainees. *International Online Journal of Education and Teaching, 7*(4) 1585–1601. http://iojet.org/index.php/IOJET/article/view/1032.

Khadem, H., Motevalli Haghi, S. A., Ranjbari, T., & Mohammadi, A. (2017). The moderating role of resilience in the relationship between early maladaptive schemas and anxiety and depression symptoms among firefighters. *Journal of Practice in Clinical Psychology, 5*(2) 133-40, https://doi.org/10.29252/nirp.jpcp.5.4.271.

Kim, T.-Y., & Kim, Y.-K. (2016). The impact of resilience on L2 learners' motivated behaviour and proficiency in L2 learning. *Educational Studies, 43*(1), 1–15. https://doi.org/10.1080/03055698.2016.12378

Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: Multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education, 35*, 353–370. https://doi.org/10.1080/03054980902934639

Muftah, M. (2022). Impact of social media on learning English language during the COVID-19 pandemic. PSU Res. Rev. ahead-of-print. https://doi.org/10.1108/PRR-10- 2021-0060

Namaziandost, E., Heydarnejad, T., Azizi, Z. (2023). The impacts of reflective teaching and emotion regulation on work engagement: Into prospect of effective teaching in higher education. *Teaching English Language, 17*(1), 139-170. https://doi.org/10.22132/TEL.2022.164264.

Pan, Y., Gauvain, M., & Schwartz, S. J. (2013). Do parents' collectivistic tendency and attitudes toward filial piety facilitate autonomous motivation among young Chinese adolescents? *Motivation and Emotion, 37*(4), 701–711. https://doi.org/10.1007/s11031-012-9337-y

Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it, In J. C. K. Wang, W. C. Liu, & R. M. Ryan's (Eds.). *Motivation in educational research: Translating theory into classroom practice* (Chpt. 7, 129–152), Springer.

Rezai, A., Namaziandost, E., Miri, M., & Kumar, T. (2022). Demographic biases and assessment fairness in classroom: Insights from Iranian university teachers. *Language Testing in Asia, 12*(1). https://doi.org/10.1186/s40468-022-00157-6

Riswanto, Heydarnejad, T., Saberi Dehkordi, E., & Parmadi, B. (2022). Learning-oriented assessment in the classroom: The contribution of self-assessment and critical thinking to EFL learners' academic engagement and self-esteem. *Language Testing in Asia, 12*(1). https://doi.org/10.1186/s40468-022- 00210-4.

Rojas, L. F. (2015). Factors affecting academic resilience in middle school students: a case study. *Gist Education and Learning Research Journal, 11*, 63–78.

Rudd, G., Meissel, K., & Meyer, F. (2021). Measuring academic resilience in quantitative research: A systematic review of the literature. *Educational Research Review*, 34, 100402. https://doi.org/10.1016/j.edurev.2021.100402

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71–92.

Sharma, B. R., & Bhaumik, P. K. (2013). Student engagement and its predictors: an exploratory study in an Indian Business School. *Global Business Review, 14*(1), 25–42. https://doi.org/10.1177/0972150912466364

Shu, K. (2022). Teachers' commitment and self-efficacy as predictors of work engagement and well-being. *Frontiers in Psychology*, 13, 850204. https://doi.org/10.3389/fpsyg.2022.850204.

Skaalvik, E. M., & Skaalvik, S. (2014). Teacher self-efficacy and perceived autonomy: Relations with teacher engagement, job satisfaction, and emotional exhaustion. *Psychological Reports: Employment Psychology & Marketing, 114*(1), 68–77.

Teng, M. F. (2018). Teacher autonomy: A buzzword in teaching English as a foreign language. In M. F. Teng (Ed.), *Autonomy, agency, and identity in teaching and learning English as a foreign language* (pp. 21–36). Springer.

Teng, C., Heydarnejad, T., Hasan, M. K., Omar, A., & Sarabani, L. (2022). Mobile assisted language learning in learning English through social networking tools: an account of Instagram feed-based tasks on learning grammar and attitude among English as a foreign language learners. *Front. Psychol., 13*, 1012004. https://doi.org/10.3389/fpsyg.2022.1012004

Thavenius, C. (1999). Teacher autonomy for learner autonomy. In S. Cotterall & D. Crabbe (Eds.), *Learner autonomy in language learning: Defining the field and effecting change* (pp. 159–163). Peter Lang.

Wei, X. (2020). Assessing the metacognitive awareness relevant to L1-to-L2 rhetorical transfer in L2 writing: The cases of Chinese EFL writers across proficiency levels. *Assessing Writing, 44*, 100452.

Zhang, L. X., & Li, X. X. (2004). A comparative study on learner autonomy between Chinese students and West European students. *Foreign Language World, 4*, 15–23.

Zheng, C., Liang, J. C., Li, M., & Tsai, C. C. (2018). The relationship between English language learners' motivation and online self-regulation: a structural equation modelling approach. *System, 76*, 144–157. https://doi.org/10.1016/j.system.2018.05.003

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