



Unveiling the interplay between EFL teachers' cognitive flexibility, emotion regulation, and foreign language teaching anxiety: A structural equation modeling approach

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ABSTRACT

The current study explored the association between EFL instructors' cognitive flexibility (CF) and foreign language teaching anxiety (FLTA), with the mediating impact of emotion regulation strategies. In doing so, 330 participants (196 males and 134 females) voluntarily filled in a battery of scales. Results of a structural equation modeling analysis indicated that all facets of FLTA were negatively correlated with CF. Furthermore, the first component of emotion regulation, i.e., cognitive reappraisal, had a strong negative association with all facets of FLTA except time management challenges. The other component of emotion regulation, expressive suppression, exhibited significant positive correlations with all components of FLTA, except difficulties with time management. Next, we investigated how two components of emotion regulation strategies could potentially mediate the association between CF and L2 teaching anxiety. Results indicated that cognitive reappraisal mediates the relationship between CF and four sub-components of FLTA, viz., fear of negative evaluation, lack of student interest, teaching inexperience, and self-perception of language proficiency. Additionally, expressive suppression mediated the relationship between CF and the four components of FLTA. The findings are discussed in the context of educational theories, and implications are provided to enhance EFL instructors' flexible cognition.

1. Introduction

Within the realm of second or foreign language (L2) psychology, research has predominantly concentrated on the learner, with relatively minimal emphasis on comprehending L2 teacher psychology and the factors that contribute to professional wellbeing (Dumančić et al., 2022; Mercer et al., 2016; Solhi & Elahi Shirvan, 2023). However, initiated by the influential studies of L2 researchers (e.g., Gkonou et al., 2020; MacIntyre & Gregersen, 2012; Mercer & Gregersen, 2020), a recent research direction in the field of L2 education has emerged, exploring the psychological aspects of L2 teachers. More specifically, researchers have recently focused on comprehending both the factors that encourage L2 teachers' professional wellbeing as well as the negative orientations which

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influence their psychological wellness (e.g., Derakhshan, Dewaele, et al., 2022; Wang et al., 2022; Yüce, Kruk, et al., 2023).

Given that L2 teaching is among the professions characterized by various adverse emotional orientations such as stress and anxiety (Mercer & Gregersen, 2020), English as a foreign language (EFL) teachers may find themselves on a continual emotional rollercoaster as they cognitively, behaviorally, and affectively manage their L2 teaching profession (Gkonou et al., 2020). In other words, L2 teaching not only requires cognitive and behavioral endeavors in the class, but it is also inherently an emotional profession (Mercer & Gregersen, 2020; Pawlak et al., 2023). The interplay between cognitive, behavioral, and emotional facets of L2 teaching enhances the socio-emotional effectiveness of L2 teachers in the class (Derakhshan, 2022; Gkonou & Mercer, 2018).

A cognitive trait of L2 teachers which has recently gained an increasing attention in L2 research is cognitive flexibility (CF) (e.g., Li, 2023; Erarslan, 2023; Öztürk et al., 2022). Being identified as a personality trait (Erarslan, 2023), CF is conceptualized as the ability to smoothly transition between various thoughts and actions within a specific situation (Yeniad et al., 2014). Consistent with Martin and Rubin's (1995) understanding of CF, this psychological characteristic of L2 teachers is characterized as the ability, willingness, and self-efficacy to adapt thoughts and consequently actions in various L2 teaching situations.

As a profession which demands intricate cognitive commitment, teaching necessitates a high level of CF (Stein et al., 2018) and teachers should possess the ability to monitor and regulate not only their teaching practices but also their own thoughts within the classroom setting (Li, 2023). Thus, CF is the core element of any teaching endeavor (Crabtree & Green, 2016) as teachers seek to effectively respond to challenges in the constantly evolving teaching contexts (Erarslan, 2023). Based on Spiro et al.'s (1988) CF theory, teachers with lower CF levels draw on rigid and inflexible strategies or "recipes" which dictate actions in different situations. Incorporating cognitive strategies can assist teachers in cultivating an effective teacher-student relationship (Lee, 2021), and teacher CF has been confirmed to be closely associated with student engagement (Stein et al., 2018) and attitudes towards L2 learning (Saffarin & Fatemi, 2015). While this teacher characteristic can directly impact effective teaching, there is a paucity of investigation on L2 teachers' CF in the class (Li, 2023), and the examination of L2 teachers' CF has recently gained attention in L2 research (Erarslan, 2023). A strand of L2 research has indicated associations between L2 teacher CF and other professional and psychological variables. For example, Öztürk et al.'s (2022) research revealed a positive association between prospective EFL teachers' CF and self-efficacy. In Li's (2023) study with a cohort of EFL teachers, CF was directly and significantly correlated with professional success, and workplace buoyancy. Erarslan's (2023) study exhibited a close relationship between L2 teacher CF and grit, highlighting that both facets of perseverance and passion work in tandem with L2 teachers' cognitive strategies for overcoming professional challenges and fostering effective teaching in L2 classes. Overall, the studies emphasize the prominence of L2 teachers' CF in fostering various aspects such as personality traits, professional achievement, and confidence in their own capacity to effectively implement professional commitments.

Considering the prevalence of emotions in L2 teaching contexts (Azari Noughabi et al., 2024; Solhi et al., 2024; Yüce, 2023), L2 teachers are highly susceptible to various emotional experiences, including anxiety in the class (Horwitz, 1996; Mercer et al., 2016). As a prevalent negative emotional orientation in L2 settings (Liu & Wu, 2021), foreign language teaching anxiety (FLTA) is characterized as L2 teachers' subjective experience of apprehension and tension associated with L2 teaching and use. In general, L2 teachers face numerous sources of anxiety, including disobedient students, dissatisfaction, challenges to their authority, feeling of inadequacy in the target language, apprehension of potential classroom management issues, and various other stressors (Horwitz, 1996). In Liu and Wu's (2021) investigation, apprehension of speaking English, concern about negative outcomes, lack of confidence in English proficiency were identified as the major sources of FLTA. Research indicates that L2 teachers may experience this domain specific adverse affective orientation because of "personal, perceptual, motivational and technical concerns before, during and after teaching activities" (Aydin, 2016, p. 639). Thus, the assumption that competent and proficient L2 teachers are immune to anxiety in classes conflicts with the findings in educational research. More specifically, the studies consistently establish a connection between L2 teacher anxiety and affective, sociocultural, socio-cognitive, and sociocultural factors which are not directly associated with the use of L2 language (Goetze, 2023). Thus, EFL teachers' L2 teaching anxiety is likely to be influenced by cognitive as well as affective factors (Aydin & Ustuk, 2020; Horwitz, 1996; Ozdemir & Papi, 2022). Aydin and Ustuk (2022) identified five facets of FLTA, all of which are apparently associated with cognitive as well as affective dispositions of L2 teachers. The components encompass self-perceived proficiency, limited teaching experience, insufficient student interest, apprehension about negative evaluation, and challenges in time management (see Instruments). Although early research into the emotions of L2 teachers is relatively connected to investigations conducted on teacher anxiety (Dumančić et al., 2022), this affective orientation has not been thoroughly explored in association with different cognitive as well as affective dispositions in the context of L2 teaching.

A factor closely intertwined with L2 teaching anxiety is the way teachers exert strategies to regulate emotion in different situations (Shen, 2022). Indeed, troubles in managing emotions serve as a significant vulnerability factor for anxiety (Preece et al., 2021). Emotion regulation is generally characterized as situationally bound behavioral and cognitive processes which an individual experiences or uses to manage and control their emotions. More specifically, it involves attempts and strategies to influence emotions or modulate the intensity and expression of emotions in response to internal or external stimuli (Gross, 2002, 2015; McRae & Gross, 2020). While emotion regulation is conventionally depicted as a process that is entirely conscious and intentional, it is not always deliberate and a growing body of evidence suggests that it functions on more subconscious or implicit levels (Braunstein et al., 2017; Koole et al., 2015). Expressive suppression and cognitive reappraisal constitute the two commonly used aspects of regulating emotions (McRae & Gross, 2020). While the former is characterized as a maladaptive attempt to inhibit the outward display of emotions rather than showing genuine feelings, the latter is an adaptive strategy which entails changing how someone thinks in a situation to impact emotional responses.

Although studies on L2 teachers' strategies to regulate emotions is in its nascent state (Wu et al., 2023), the strategic navigation of these emotional experiences by L2 teachers has been confirmed to significantly influence the various facets of their negative and positive affective orientations such as anger (Deng et al., 2022), L2 teaching anxiety (Shen, 2022), and L2 teaching enjoyment (Azari

Noughabi, Fekri, et al., 2022). Research findings also suggest that L2 teachers commonly employ emotion regulation strategies for various educational purposes such as building rapport with students and alleviating negative thoughts in classes (Akbari et al., 2017; Wijaya, 2021). Lee et al.'s (2016) study with secondary school teachers revealed associations between teacher emotion regulation strategies and distinct emotional experiences. In their study, while cognitive reappraisal exhibited a positive correlation with enjoyment, expressive suppression demonstrated a positive association with anxiety. The findings highlight the nuanced relationships between teachers' emotion regulation strategies to manage emotions and specific affective orientations in L2 teaching practices. Particularly in L2 teaching, the role of regulating emotions becomes prominent in addressing L2 teachers' anxiety experiences, which is recognized as a prevalent negative emotion for teachers in educational settings (Lee et al., 2016; Taxer & Frenzel, 2015). Individuals' emotion regulation is also closely associated with CF (Ghosh & Halder, 2020, Yang et al., 2021). Specifically, individuals with greater cognitive flexibility have been found to encounter fewer challenges in adjusting strategies to regulate their emotions (Arici-Ozcan et al., 2019), and higher levels of cognitive control have been linked with effective emotion regulation strategies (Pruessner et al., 2020). Hence, not only does CF involve the ability to cognitively adjust and behaviorally respond to specific conditions, but it is also closely associated with managing emotional responses to different situations.

The intricate interplay between EFL teachers' cognitive flexibility, emotion regulation, and L2 teaching anxiety can be unraveled through the lens of several learning theories. Firstly, the association is aligned with Deci and Ryan's (2000, 2012) self-determination theory (SDT) and the individuals' psychological need for autonomy, competence, and relatedness to foster psychological well-being and personal growth. Specifically, considering the close association between CF and autonomy (Kılıç et al., 2023), EFL teachers with higher levels of flexible cognition are more likely to enhance their perceptions of autonomy in the class. This sense of autonomy can eventually lead to a higher levels of competence and teaching efficacy as they feel more capable of managing L2 class challenges effectively. Furthermore, given the close association between CF and a sense relatedness (Ateş-Ös & Bulut-Serin, 2024), EFL instructors with higher levels of flexible cognition can substantially impact their sense of relatedness, allowing them to connect better with their students in the class. Another learning theory pertinent to the current research is Fredrickson's (1998) broaden-and-build theory of positive emotions, which suggests that positive orientations can expand individuals' thought-action repertoire. Specifically, through fostering adaptive thinking abilities, EFL teachers can broaden their cognitive repertoire, which will enable them to employ more creative as well as effective problem-solving and action strategies in anxiety provoking situations. Thirdly, the negative link between L2 teaching anxiety and flexible cognition is consistent with Bandura's (1986, 2001) social cognitive theory (SCT) and the concept of self-efficacy. In SCT, self-efficacy is characterized as the belief in one's capability to effectively perform behaviors (Bandura, 1977). In the present study, it is theorized that individuals with higher levels of self-efficacy are more likely to exhibit flexible cognitive responses to professional challenges including L2 teaching anxiety. In other words, EFL teachers' belief in their own capabilities (self-efficacy) can significantly impact their flexible cognition and thereby play a major influence on their behavioral capacities in coping with L2 teaching anxiety.

While growing evidence suggests that teacher emotion possesses a major impact on teacher cognition and professional performance (Xu, 2018; Yüce, Seitova, et al., 2023), there is still limited exploration into how the cognitive skill of L2 teachers may influence their emotional adjustments and affective orientations. Specifically, although anxiety is closely linked with CF and emotion regulation strategies (e.g., Shen, Fathi, et al., 2022; Şahin & Yiğman, 2022; Wen et al., 2021; Yu et al., 2020), the relationship between anxiety, CF, and the mediating impact of emotion regulation in L2 teaching has not been thoroughly examined. Moreover, while the influence of both adaptive and maladaptive emotion regulation strategies of teacher on discrete affective experiences such as anxiety has been acknowledged in studies on educational psychology (Lee et al., 2016), the way L2 teachers strategically regulate emotions to cope with L2 teaching anxiety remains a subject that warrants further investigation. Additionally, research has acknowledged the negative association between anxiety and cognitive flexibility (Yu et al., 2020). However, the potential influence of EFL teachers' flexible cognition on their teaching anxiety remains largely unexplored within the domain of L2 studies. Furthermore, given emotion regulation strategies are closely associated with CF (Ghosh & Halder, 2020, Yang et al., 2021), exploring the (in)direct contribution of flexible cognition and regulation of emotions by EFL teachers on their anxiety experiences in L2 teaching would give insights into understanding the intricate interplay between their adaptability in cognitive tasks, management of emotional responses, and anxiety experiences in L2 classes.

Aligned with research findings and aiming to contribute to the expansion of literature on the impacts of L2 teachers' CF on their emotional orientations, the present study endeavored to scrutinize how cognitive flexibility (a behavioral-cognitive skill) alongside the mediating impact of emotion regulation strategies (affective-cognitive adjustments) influences EFL instructors' FLTA (an affective orientation) in the context of L2 teaching. In doing so, the following research questions (RQs) were addressed:

RQ1. What is the association between L2 teachers' cognitive flexibility, emotion regulation strategies, and foreign language teaching anxiety?

RQ2. Does L2 teachers' cognitive flexibility predict foreign language teaching anxiety, with the mediating impact of emotion regulation strategies?

2. Method

2.1. Participants and context

The research involved 330 EFL university instructors (196 male and 134 female), employed in English preparatory departments across multiple universities in Istanbul, Turkey. English preparatory schools in Turkish universities offer compulsory general English courses for students enrolled in various majors, particularly those requiring English as the medium of instruction. Out of the 330

participants, a significant majority, constituting 80 % (N = 264), were aged between 24 and 44 years old, while the remaining participants (N = 66) fell within the age range of 44 to 60 years old. In terms of teaching experience, approximately half of the participants (N = 161) possessed 5 to 10 years of English teaching experience. Additionally, about 30 % (N = 99) of the instructors reported less than 5 years of teaching experiences, while a smaller cohort of instructors (N = 70) reported having over 10 years of teaching experience. Most instructors possessed postgraduate qualifications in English language teaching or English language education. During the data collection period, these instructors were actively involved in teaching general English courses around 24–26 hours per week across five days. Their teaching curriculum covered a diverse range of subjects such as basic English, language skills, and English for specific purposes.

2.2. Data collection procedures

Initially, a database of email addresses belonging to EFL instructors employed in English preparatory departments of universities was compiled. These email addresses were collected from the respective university websites. Subsequently, an online questionnaire assessing cognitive flexibility, emotion regulation strategies, and L2 teaching anxiety was administered to the cohort of EFL university instructors to participate voluntarily. Additionally, a snowball sampling method was employed to expand the data collection process, whereby our colleagues were directly contacted via email, and they were requested to share the study link with their fellow instructors at their respective workplaces. The participants who opted to participate were instructed to complete a consent form, and they were also informed about the objective of the study prior to commencing the questionnaire. The data collection continued for an entire month during the Fall semester of 2023–2024 academic year, resulting in a total of 330 completed responses.

2.3. Instruments

2.3.1. L2 cognitive flexibility

L2 teachers' flexible cognition in different cognitively challenging or intellectually stimulating instructional situations in the context of L2 classes was measured by [Martin and Rubin's \(1995\)](#) validated 12-item Cognitive Flexibility Scale. This self-report measure assesses individuals' cognitive flexibility in interpersonal communication using a 5-point Likert-type scale. The scale has a single component, and the sample items include 'I can find workable solutions to seemingly unsolvable problems' and 'In any given situation, I am able to act appropriately'. In [Martin and Rubin's \(1995\)](#) study, the reliability coefficient (α) was reported .83. and the internal consistency coefficient was high ($\alpha = .80$). Several studies have similarly indicated the suitability and high internal consistency of the scale (e.g., [Çelikkaleli, 2014](#); [Johnco et al., 2014](#); [Maltby et al., 2004](#)).

2.3.2. L2 emotion regulation strategies

L2 instructors' emotion regulation was assessed through [Gross and John's \(2003\)](#) developed and validated 10-item Emotion Regulation Questionnaire. The scale encompasses two primary emotion regulation strategies: cognitive reappraisal (6 items; e.g., *When I want to feel less negative emotion, I change the way I am thinking about the situation*) and expressive suppression (4 items; e.g., *I control my emotions by not expressing them*). Responses to all items were obtained using a 7-point Likert scale. Studies have acknowledged the strong internal consistency of the scale (e.g., [Donker et al., 2020](#)).

2.3.3. L2 foreign language teaching anxiety

L2 teachers' teaching anxiety was assessed using [Aydın and Ustuk's \(2020\)](#) 27-item Foreign Language Teaching Anxiety Scale. The questionnaire includes 5 components, namely self-perception of language proficiency (12 items; e.g., *Making mistakes while I am speaking makes me feel embarrassed*), teaching inexperience (5 items; e.g., *I think my lack of teaching experience makes me nervous*), lack of student interest (items; e.g., *I feel tense when students are not interested in the activities*), fear of negative evaluation (3 items; e.g., *Students' negative comments about me make me nervous*), and difficulties with time management (3 items; e.g., *I am nervous when I finish the activities before the class ends*). The internal consistency of the entire scale was high ($\alpha = .95$), with reliability coefficients of .93, .87, .81, .85, and .76 for the five factors, respectively.

2.4. Data analysis

Following the data collection, an initial assessment was undertaken to assess the model assumptions. Subsequently, structural equation modeling (SEM) analysis was executed on Mplus 8.4 to explore the relationships among CF, emotion regulation strategies, and L2 teaching anxiety among EFL instructors. The decision to employ SEM for data analysis was made due to its capability for latent variable modeling while addressing measurement error ([Ullman & Bentler, 2012](#)).

3. Results

3.1. Validity and reliability of the scales

First, confirmatory factor analysis was conducted to measure the construct validity of the scales. A CFA model with emotion regulation strategies, CF, and L2 teaching anxiety was developed to achieve this goal. In accordance with the CFA analysis, all factor loadings were more than .40. [Table 1](#) shows the goodness-of-fit indices for the CFA model. As shown in [Table 1](#), goodness-of-fit

demonstrated a very good fit to the data. As a result, the variables' construct validity was supported. To assess the convergent and discriminant validity of the constructs, the recommendations outlined by Hiver and Al-Hoorie (2019) were followed.

In our investigation, all factor loadings and CRs were greater than .50. All structures have AVEs greater than .50. As a result, the constructs exhibited convergent validity. For discriminant validity, we examined whether the square root of AVE for each construct exceeded its correlation with other constructs (see Hiver & Al-Hoorie, 2019). As seen in Table 2,3, all constructs demonstrated discriminant validity. Furthermore, we used Cronbach's alpha to assess the scales' reliability (see Table 2).

3.2. Descriptive overview and inter-variable correlations

Table 2 displays descriptive statistics such as mean and standard deviation, alongside latent bivariate associations among the variables.

At the outset, we evaluated a model to examine how CF relates to five components of teaching anxiety. Then, as mediators of the association between CF and L2 teaching anxiety, we examined another model in which two components of emotion regulation were included. Table 1 shows the goodness of fit indices for all models, indicating that our models fit well. In the first model, CF was modeled as a negative predictor of five components of L2 teaching anxiety. 5.11 % of the variance in L2 teaching anxiety was explained by the model (Cohen's $f^2 = .05$, small effect).

We included emotion regulation components in the second model as mediators between L2 teaching anxiety. The model accounted for 27.14 % of the variance in cognitive reappraisal (Cohen's $f^2 = .28$, medium effect), 27.18 % of the variance in expressive suppression (Cohen's $f^2 = .22$, medium effect), 28.67 % of the variance in self-perception of language proficiency teaching (Cohen's $f^2 = .24$, medium effect), 17.34 % of the variance in teaching inexperience (Cohen's $f^2 = .16$, small effect), 19.6 % of the variance in lack of student interest (Cohen's $f^2 = .17$, small effect), 36.12 % of the variance in fear of negative evaluation (Cohen's $f^2 = .40$, large effect), and 12.15 % of the variance in difficulties with time management (Cohen's $f^2 = .11$, large effect).

CF could negatively predict self-perception of language proficiency ($\beta = -.42$, $SE = .09$, $p < .001$), teaching inexperience ($\beta = -.43$, $SE = .09$, $p < .001$), lack of student interest ($\beta = -.32$, $SE = .08$, $p < .001$), fear of negative evaluation ($\beta = -.41$, $SE = .08$, $p < .001$), and difficulties with time management ($\beta = -.38$, $SE = .08$, $p < .001$).

Consequently, we examined how two components of emotion regulation could potentially mediate the association between CF and L2 teaching anxiety. Results of mediation analysis revealed that cognitive reappraisal mediates the relationship between CF and self-perception of language proficiency ($\beta = -.16$, $SE = .11$, $p = .011$), between cognitive flexibility and teaching inexperience ($\beta = -.17$, $SE = .07$, $p = .013$), between cognitive flexibility and lack of student interest ($\beta = -.21$, $SE = .07$, $p = .012$), and finally between cognitive flexibility and fear of negative evaluation ($\beta = -.23$, $SE = .07$, $p = .011$).

Additionally, expressive suppression mediates the relationship between CF and self-perception of language proficiency ($\beta = .14$, $SE = .11$, $p = .017$), between cognitive flexibility and teaching inexperience ($\beta = .14$, $SE = .07$, $p = .014$), between cognitive flexibility and lack of student interest ($\beta = .16$, $SE = .07$, $p = .015$), and between cognitive flexibility and fear of negative evaluation ($\beta = .15$, $SE = .07$, $p = .016$).

4. Discussion

The purpose of the current study was twofold: We initially probed the association between EFL teachers' CF, emotion regulation strategies, and L2 teaching anxiety, and then investigated whether flexible cognition, along with the mediating impact of emotion regulation strategies, predicts L2 teaching anxiety. Results indicated negative associations between CF and all facets of L2 teaching anxiety (i.e., fear of negative evaluation, lack of student interest, teaching inexperience, difficulties with time management, and self-perception of language proficiency). Additionally, the first dimension of emotion regulation, cognitive reappraisal, demonstrated a negative correlation with all aspects of L2 teaching anxiety, excluding time management. The second facet of emotion regulation, expressive suppression, showed positive associations with all dimensions of L2 teaching anxiety, except for challenges related to time management. The findings can be discussed in alignment with Deci and Ryan's (2000, 2012) SDT and the individuals' psychological need to foster motivation. EFL teachers with higher levels of flexible cognition are more likely to possess a higher levels of competence and teaching efficacy given they feel more capable of managing L2 classes challenges effectively. On the other hand, although expressive suppression is generally less beneficial than cognitive appraisal to regulate emotions, EFL teachers' emotional inhibition can be discerned as an effort to maintain social relatedness and classroom management, albeit at the cost of higher L2 teaching anxiety levels in the class. As a result, EFL teachers' flexible cognition and constructive strategies to regulate emotion can significantly reduce their L2 teaching anxiety by specifically empowering them to feel more in control, capable, and connected in their profession. Another significant theory relevant to the model of the current study is Fredrickson's (1998) broaden-and-build theory of positive emotions, which suggests that positive dispositions can broaden individuals' thought as well as action-based strategies. Consistent with the

Table 1
Fit indices for SEM and CFA models.

Models	χ^2	Df	CFI	TLI	RMSEA	SRMR
CFA model	667.84	184	.98	.97	.05	.06
Cognitive flexibility → L2 teaching anxiety	52.32	33	.92	.91	.06	.06
Cognitive flexibility → Emotion regulation → L2 teaching anxiety	667.84	184	.97	.97	.05	.06

Table 2
Descriptive statistics.

	α	CR	AVE	M	SD
Cognitive Flexibility	.76	.72	.54	52.21	7.01
L2 proficiency self-perception	.93	.90	.55	2.33	1.34
Inexperience in teaching	.87	.85	.53	2.91	1.32
Student disinterest	.81	.79	.51	3.01	1.12
Apprehension of negative evaluation	.85	.83	.56	2.81	1.23
Troubles in managing time	.76	.74	.50	2.77	1.17
Cognitive reappraisal	.79	.77	.53	27.61	7.11
Expressive suppression	.77	.75	.51	15.49	5.13

Table 3
Latent correlations among variables.

	1	2	3	4	5	6	7	8
1. Cognitive flexibility	-							
2. L2 proficiency self-perception	-.42***	-						
3. Inexperience in teaching	-.43***	.54***	-					
4. Student disinterest	-.32***	.58***	.52***	-				
5. Apprehension of negative evaluation	-.41***	.49**	.55***	.49***	-			
6. Troubles in managing time	-.38***	.48**	.48**	.52***	.56***	-		
7. Cognitive reappraisal	-.25***	-.22**	-.19*	-.23**	-.27***	-.14	-	
8. Expressive suppression	.27***	.21***	.28*	.31*	.34**	.13	-.41***	-

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

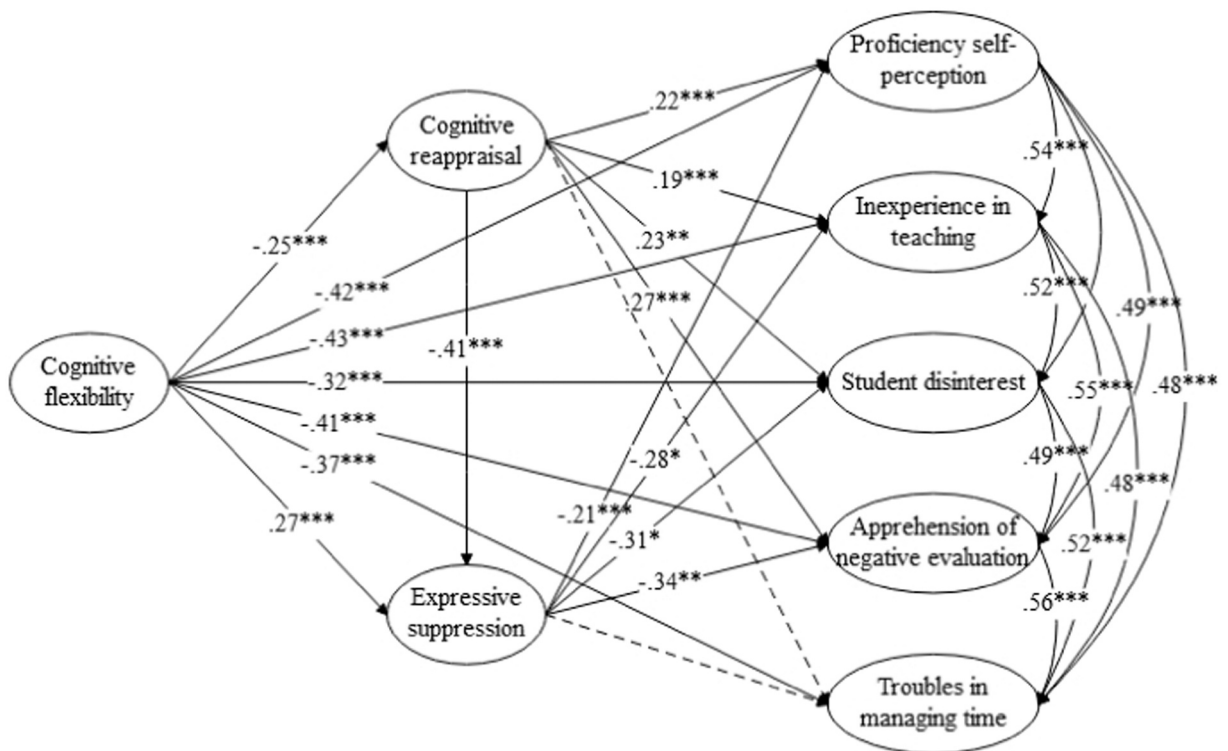


Fig. 1. The corrected model with standardized estimates Note. Gray lines show non-significant paths. * $p < .05$, ** $p < .01$, *** $p < .001$.

results of the present study, L2 teachers' effective cognitive flexibility significantly contributes to their strategies to regulate emotions and consequently mitigates L2 teaching anxiety in the class. More specifically, through employing flexible thinking abilities, EFL teachers can broaden their cognitive repertoire, which will pay the way for employing more creative and effective problem-solving and classroom management strategies. This, in turn, will enable them to build adaptive capacity and flexible thinking for coping with stress and reducing anxiety in the context of L2 teaching. Thirdly, the negative association observed between all facets of FLTA and CF aligns

with the tenets of Bandura's (1977, 1986) SCT. Given self-efficacious learners are more likely to demonstrate cognitively flexible reactions to challenging situations (Liu et al., 2018), L2 teachers' cognitive flexibility in their profession can play a major influence on their behavioral capacities in coping with L2 teaching anxiety. Indeed, this aligns with the behavioral change concept as perceived by Bandura et al. (1977).

Congruent with the self-efficacy belief, the negative link between cognitive flexibility and L2 teaching anxiety can also be unraveled through the lens of Dweck and Leggett's (1988) mindset theory. A growth mindset entails the belief that language teaching abilities, akin to language learning abilities, can grow and improve over time. Therefore, L2 teachers with a growth mindset may be more adaptable and flexible in their teaching practices, which could lead to lower levels of L2 teaching anxiety. This is echoed by the findings of Ozdemir and Papi (2022), who demonstrated that the fixed L2 mindset, which views L2 teaching abilities as unchangeable, is positively predictive of L2 teachers' foreign language speaking anxiety. In their study, the growth L2 mindset (the perception that L2 learning ability can improve) was positively associated with L2 speaking self-confidence, verifying the hypothesized links between the theoretical underpinning of the mindset theory, and the characteristics of L2 anxiety and self-efficacy. This suggests that L2 teachers who perceive their teaching abilities as fixed may be less willing to adjust their strategies in response to professional challenges, and this can potentially exacerbate their L2 teaching anxiety in the class. The negative association between cognitive flexibility and anxiety in educational contexts has similarly been acknowledged by Wen et al.'s (2021) study, where CF mediated the relationship between mindfulness and anxiety. In their study, cognitive flexibility operated as an efficient mechanism for mitigating anxiety. The result is also reflected in Yu et al.'s (2020) research, where higher levels of anxiety experiences correlated with lower levels of cognitive flexibility.

Additionally, in the present study, the first dimension of emotion regulation, cognitive reappraisal, demonstrated a negative correlation with all aspects of FLTA, excluding time management. The second facet of emotion regulation, expressive suppression, showed positive associations with all dimensions of FLTA, except for challenges related to time management. The positive influence of cognitive reappraisal on alleviating L2 teaching anxiety highlights the prominence of this protective factor into reframing emotions through cognitive processes, while the negative contribution of expressive suppression to L2 teaching anxiety reflects the maladaptive nature of inhibiting the outward expression of emotions and its adverse impact on L2 teachers' emotional wellbeing. The findings are consistent with Preece et al.'s (2021) study, where cognitive reappraisal exhibited a negative correlation with anxiety symptoms, whereas expressive suppression showed a positive correlation with anxiety disorders. Dryman and Heimberg's (2018) systematic review of studies on cognitive reappraisal and expressive suppression also indicated that the ineffective utilization of the former is closely associated with social anxiety, whereas an overreliance on the latter can stimulate social anxiety. Given L2 teaching profession is inevitably social (Richards & Rodgers, 2014), understanding and implementing adaptive emotion regulation strategies appears fundamentally essential for ensuring L2 teacher wellbeing (Greenier et al., 2021; Xie, 2021) and consequently fostering a conducive L2 learning environment (Dumančić et al., 2022).

In the present investigation, we also examined how two components of emotion regulation could mediate the relationship between CF and L2 teaching anxiety. Results revealed that cognitive reappraisal mediates the relationship between CF and four sub-components of FLTA (i.e., fear of negative evaluation, lack of student interest, teaching inexperience, and self-perception of language proficiency). Additionally, expressive suppression mediates the relationship between CF and these facets of FLTA. In other words, the findings highlight the impact of cognitive reappraisal and expressive suppression in mediating the relationship between the behavioral-cognitive ability and affective orientation of EFL teachers. This model posits that EFL teachers' ability, willingness, and self-efficacy to adapt their thoughts and actions during teaching practices through differently implementing strategies within various L2 teaching contexts (cognitive flexibility), coupled with their adaptive and maladaptive emotion coping mechanisms (emotion regulation strategies) can determine their emotional responses (L2 teaching anxiety). The findings are consistent with Garavand's (2023) study, which suggested that the impact of cognitive flexibility on anxiety is mediated by cognitive emotion regulation strategies. In a different study, Çutuk (2021) similarly indicated that emotion regulation can play a mediating role between cognitive flexibility and a negative personality trait, viz., intolerance to uncertainty. In this study, low cognitive flexibility negatively impacted emotion regulation processes, leading to reduced tolerance for uncertain situations. In congruent with a strand of research indicating the close link between CF and emotion regulation strategies (e.g., Ghosh & Halder, 2020) as well as the intricate association between emotion regulation strategies and anxiety (e.g., Yu et al., 2020), the findings of the current study shed light on the potential role of CF in mitigating L2 teaching anxiety among EFL teachers and highlight the importance of cultivating adaptive emotion regulation strategies in educational contexts.

5. Pedagogical implications

There are several implications to consider based on the findings of this study. Firstly, given the positive impact of CF on alleviating individuals' emotional experiences in anxiety-provoking situations (Wen et al., 2021), enhancing EFL teachers' flexible cognition can be instrumental in reducing adverse emotional reactions in the class. This can be accomplished through prioritizing behavioral-cognitive as well as affective-cognitive competencies such as cognitive flexibility and emotion regulation strategies in more relevant courses of L2 teacher education programs. More specifically, in L2 teacher training courses such as classroom management and microteaching, teacher educators can develop brainstorming tasks or role-playing scenarios to encourage flexible thinking and adaptive responses to various situations in L2 classes. During observation-based practicum classes, prospective L2 teachers can also benefit greatly from actively observing their mentors' teaching practices. Teacher trainers may encourage prospective EFL teachers to imagine themselves in the same teaching situations, where they cognitively adapt alternatives and options to effectively respond to challenges in a given situation. By mentally rehearsing how they would handle similar situations, they can develop their cognitive

skills and enhance their ability to make effective decisions in L2 classes. This can foster reflection and critical thinking, allowing prospective teachers to anticipate challenges, consider alternative approaches, and refine their teaching strategies in the class. This approach can ultimately empower them to become more confident and adaptable L2 teachers as they transition from student to practitioner, and consequently alleviate their L2 teaching anxiety. Secondly, given the close association between growth mindset and L2 teaching anxiety (Ozdemir & Papi, 2022), cultivating EFL teachers' growth mindset can be beneficial for encouraging adaptive teaching practices and consequently reducing anxiety within L2 teaching contexts. This can be achieved through teacher training, professional development programs and reflective teaching approaches so as to foster L2 teachers' self-efficacy and the perception that their L2 teaching abilities can improve over time. The findings also highlight the impact of adaptive emotion regulation strategies on decreasing L2 teaching anxiety levels among EFL instructors, underscoring potential avenues for intervention and support in L2 teacher training programs. Specifically, this can be achieved through fostering a collaborative teaching environment, where L2 teachers can exchange ideas, share perspectives, and learn from each other's experiences. Engaging in collaborative discussions and seeking feedback from fellow colleagues can not only encourage their cognitive appraisal, but also stimulate cognitive flexibility by exposing EFL teachers to diverse viewpoints and alternative approaches to L2 teaching. Such supportive environments can encourage EFL teachers to strategically reflect on their emotional experiences in response to internal or external stimuli, rather than suppress their emotional responses in anxiety-provoking situations.

6. Limitations and suggestions for future research

The present study needs to be considered with some limitations. Firstly, the participants were university EFL instructors. Testing the model of the study with K12 teachers would provide valuable insights into the generalizability of the findings across different educational settings. Additionally, we relied on self-report scales to measure the three main constructs of the study. Given the dynamic nature of the affective orientations, future research could incorporate different longitudinal or experimental designs to complement the self-report data. It is also crucial to consider the limitations of relying solely on self-perceived responses to measure the nuanced and multifaceted nature of cognitive processing in the context of L2 teaching. To overcome this limitation, future research endeavors could explore the incorporation of observational methods coupled various data elicitation techniques such as introspective measures and stimulated recall (see Mackey & Gass, 2022) to tap participants' reflections on mental processes and thereby provide a more comprehensive understanding of cognitive flexibility in L2 teaching contexts. Thirdly, incorporating teacher demographic variables into the model of the study could provide further insights into the relationship between EFL teachers' cognitive, behavioral, and affective characteristics and other potentially relevant factors. For example, the effect of bilingualism on cognitive flexibility has been confirmed by studies (e.g., Lehtonen et al., 2018). Thus, incorporating and discussing the role of bilingual EFL teachers on their flexible cognition would shed light on the potential association between EFL teachers' language proficiency and cognitive flexibility. Future research can also explore the interplay between CF and various personality traits such as L2-teacher grit, along with positive affective orientations like L2 teaching enjoyment. Investigating the associations between L2 teachers' flexible cognition with language teacher immunity factors also presents a promising avenue for research in the field of L2 studies. Such inquiries could offer valuable insights into how L2 teachers cognitively and behaviorally manage their teaching anxiety when confronting professional obstacles.

7. Conclusion

The present investigation examined the association between EFL instructors' CF, emotion regulation strategies, and L2 teaching anxiety. In conclusion, the findings contribute to our understanding of the complex interplay between cognitive flexibility (a behavioral-cognitive skill), emotion regulation (affective-cognitive adjustments), and L2 teaching anxiety of EFL teachers within a tertiary educational context. The study suggests that heightened cognitive flexibility is one of the proximal mechanisms which can alleviate L2 teaching anxiety among EFL instructors, which can eventually promote their psychological wellbeing as well as teaching effectiveness. Additionally, EFL instructors' flexible cognition, when coupled with their adaptive and maladaptive emotion coping mechanisms can determine their emotional responses in L2 teaching.

Informed Consent

Participants provided consent by completing a consent form before participating in the study.

Research Involving Human Participants

All procedures involving human participants in this research complied with the ethical standards outlined in the 1964 Helsinki Declaration and its subsequent amendments.

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CRediT authorship contribution statement

Aynur Kesen Mutlu: Conceptualization, Methodology, Writing - reviewing and editing. **Mehdi Solhi:** Investigation, Data curation, Writing - original draft preparation, Writing - reviewing and editing.

Declaration of Competing Interest

The authors confirm that there are no financial or personal relationships that could have influenced the work reported in this paper.

Data availability

Data will be made available on request.

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