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The associations between EFL learners' L2 class belongingness, emotion regulation strategies, and perceived L2 proficiency in an online learning context

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ABSTRACT

Although the sense of belongingness plays a major influence in fostering intrinsic motivation and psychological well-being, scant research attention has been given to English as a foreign language (EFL) learners' belongingness in relation to peers and teachers and its outcomes in L2 learning contexts. Additionally, despite the importance of emotion regulation in L2 education, little is known about its role in mediating the impact of L2 belongingness on self-assessment of L2 proficiency in online L2 learning environments. Therefore, the present study used survey data to examine the associations between learners' sense of class belongingness, their preferred emotional regulation strategies (reappraisal vs. suppression) and self-perceived English proficiency, in a sample of 191 Turkish EFL university students. Path analysis results indicated significant direct paths between social belongingness with peers and academic belongingness with teachers, respectively, and the emotional regulation strategy of reappraisal. Further analysis indicated a significant indirect association between social belongingness with peers and perceived L2 proficiency through the measure of reappraisal emotional regulation. There was also a significant indirect relationship via reappraisal between academic belongingness with teachers and perceived L2 proficiency. The results are discussed in connection with self-determination theory and social identity theory, and implications are drawn for teaching.

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Introduction

According to Deci and Ryan's (2012) Self-determination Theory (SDT), the psychological factors of relatedness, competence, and autonomy are essential for the development and well-being of individuals. Students' sense of relatedness in educational contexts is closely associated with the social dynamics of the class fostered by academic as well as social support of peers and teachers (Wentzel 2022; Wentzel et al. 2019). For example, research on student-perceived support provided by teachers and peers suggests that this has a prominent impact on forming students' sense of relatedness and consequently belonging in the class (e.g. Van Ryzin, Gravely, and Roseth 2009; Wentzel et al. 2019). Conceptualised and validated to explain learners' relatedness to school (Johnson et al. 1985; Thibodeaux and Li 2019; Wentzel et al. 2017; Wentzel et al. 2019), academic belongingness and social belongingness have four facets: academic belongingness in relation to teachers (AB-teacher),

academic belongingness in relation to peers (AB-peers), social belongingness in relation to teachers (SB-teacher), and social belongingness in relation to peers (SB-peers).

A factor closely intertwined with learners' sense of belonging and perceived social support is their ability to regulate emotions in the classroom (Davis 2017). Specifically, the way they exhibit adaptive and maladaptive strategies to regulate their emotions is linked with the perceived social support that they receive from their emotional counterparts in the class (Furrer and Skinner 2003). This association highlights the importance of considering how learners modulate their emotions in class, using a range of emotion regulation (ER) strategies in different emotion-inducing situations. A stronger feeling of belongingness to the class, for example, might potentially influence the way learners perceive a situation in class (i.e. it might bring about 'cognitive reappraisal') as well as how they suppress emotions in response to classroom events (i.e. what is referred to as 'expressive suppression'). Cognitive reappraisal can be seen as a positive ER strategy in that learners reinterpret a situation that induces negative emotion in order to find positive meaning in it. In the case of expressive suppression, however, learners may try to hide or control negative emotional reactions to classroom events even though the emotions themselves may still be experienced internally (Gross and Levenson 1993). Expressive suppression is posited to result in heightened levels of negative emotions since it restricts the outward expression of emotions without addressing the underlying emotional experience. This can lead to an accumulation of unresolved emotions and increased stress, potentially impacting psychological well-being (Gross 2002). The correlation between learners' sense of belonging and effective ER strategies (cognitive appraisal) is well-established in the literature. For example, research has indicated that in second or foreign language (L2) classes where bonds of solidarity with peers and teachers are fostered by a sense of belonging, L2 learners are more likely to implement constructive ER strategies such as cognitive appraisal to cope with negative emotions (Osterman 2010; Reis et al. 2022; Strayhorn 2018).

Along with the close association between learners' sense of belongingness and ER strategies, individuals' psychological needs for relatedness and competence are interconnected and they impact on their intrinsic motivation and effective functioning in educational contexts (see Deci and Ryan 2000; 2012). When learners feel a strong sense of belonging and their needs for relatedness and competence are fulfilled, they are more likely to engage in adaptive ER strategies, such as cognitive reappraisal, which enhances their emotional well-being and academic performance. Conversely, the failure to meet these psychological needs can lead to the reliance on maladaptive ER strategies, like expressive suppression, which can hinder their motivation and effectiveness in L2 learning contexts. Thus, understanding the interplay between belongingness and ER strategies is crucial for fostering a supportive and motivating L2 learning environment. This also suggests that in the specific case of L2 learning, learners' sense of belonging, fostered by teachers and peers, is likely to impact their perception of their own proficiency in target language skills (self-perceived proficiency).

Thus, consistent with the principles of SDT theory, in this study, we firstly hypothesise that the need for relatedness (L2 belongingness), fostered through different facets of academic and social support provided by L2 teachers and peers in the class, will influence learners' sense of competency (self-perceived proficiency level). This is particularly significant in the context of online education, where traditional face-to-face interactions are limited. In online L2 learning settings, learners might face challenges in forming meaningful connections with their instructors and peers (Resnik and Dewaele 2023), which can negatively impact their perceived L2 competence. Indeed, the absence of learners in physical classrooms diminishes emotional connectivity and disrupts their relationships with L2 peers and teachers (Resnik and Dewaele 2023). Therefore, the influence of academic and social support provided by L2 teachers and peers becomes even more critical in online education. By examining this in the context of online education, the study aims to highlight the prominence of fostering belongingness to enhance L2 learners' self-efficacy beliefs and perceived L2 proficiency.

Furthermore, building on the strong correlation between affective dispositions in L2 learning and self-perceived English proficiency (Botes, Dewaele, and Greiff 2022), and the adverse effect of

expressive suppression on self-perception (Cutuli 2014), the present study suggests that the use of expressive suppression as a strategy for regulating emotions in online English as a foreign language (EFL) classes may lead to lower levels of self-perceived English proficiency. In general, the present study postulates that the capacity to regulate emotions, whether through adaptive or maladaptive, is likely to have an impact on learners' their confidence in learning and therefore perceived levels of English proficiency. Aligned with the tenets of SDT (see Deci and Ryan 2012), this is particularly significant because L2 learners with lower perceived proficiency levels (self-efficacy) are more likely to experience reduced motivation and engagement in L2 learning activities, potentially resulting in lower academic achievements. Additionally, in congruence with Bandura's (1991) social cognitive theory, L2 learners' higher levels of self-efficacy is a key factor influencing their motivation and behaviour to exert greater efforts and produce desired outcome (Bandura 1991). In situations where L2 learners' self-perceived proficiency is low, their motivation to engage in L2 learning activities in online classes is likely to diminish, and thereby result in disengagement in L2 learning. Therefore, understanding and enhancing L2 learners' self-perceived proficiency is crucial for fostering sustained motivation and academic achievement in L2 learning. Furthermore, the results study would shed light on the critical impact of ER strategies in L2 learning, highlighting its relevance for improving learners' self-efficacy beliefs.

In online learning contexts, in particular, EFL learners might perceive lower levels of social and academic presence, which may adversely influence their emotional dispositions (Li and Dewaele 2020; Solhi 2024). Indeed, EFL learners engaged in online classes during the COVID-19 pandemic reported increased emotions of isolation, disengagement, distraction, and a desire to have contact with peers and teachers (Dewaele, Albakistani, and Ahmed 2024). Various studies have pointed to the critical role of social and academic support from both L2 teachers and peers in mitigating negative emotional experiences and thereby fostering L2 belongingness in online EFL education (e.g. Luan et al. 2023; Solhi 2023). Given that the online environment is likely to be experienced as less supportive than traditional classroom settings, the ER strategies employed by L2 learners are hypothesised to differ from those typically used in face-to-face learning contexts. In an online setting, as aforementioned, L2 learners might feel more disconnected from their peers and instructors, which can impact their emotional experiences and the ways they manage emotions. Consequently, they may rely on maladaptive strategies like suppression due to the lack of immediate social support and feedback. Several studies have investigated the influence of interpersonal factors (e.g. peers and teacher) on L2 learners' emotional dispositions (e.g. Banerjee and Halder 2021; Karimi and Fallah 2021). However, the impacts of social and academic support of L2 teachers and peers on EFL learners' ER strategies and consequently their self-rated proficiency level have not yet been fully scrutinised. Furthermore, most of the research on L2 belongingness has been undertaken in face-to-face classroom settings.

The purpose of the current investigation was thus to investigate how the four belonging orientations predict the self-perceived proficiency level of EFL learners in remote classes, with the mediating impact of ER strategies. The results would offer valuable insights for establishing online L2 classes that are academically and emotionally supportive, enhancing the sense of belonging for L2 learners. Additionally, by highlighting the importance of fostering emotional literacy, specifically identifying, comprehending, and articulating emotions, among EFL learners, the current study would enable L2 learners to understand the intricate association between effective ER strategies and self-efficacy in English language proficiency.

Literature review

L2 belongingness

Wentzel (2022: 1931) defines belongingness as 'a sense of membership in and acceptance by a group'. She has argued that learners' feeling of belonging in class is strongly influenced by

interpersonal relations with teachers and other students. According to Wentzel et al. (2019), academic and social support provided by teachers are the two key factors that influence learners' social and academic belongingness. For the current study, L2 belongingness can be conceptualised as L2 learners' degree of identification with and perception of self-validation from supportive teachers and peers in the learning context: it is subdivided into social belonging in relation to teachers (SB-teacher) and in relation to peers (SB-peer) and academic belongingness in relation to teachers (AB-teacher) and academic belongingness in relation to peers (AB-peers).

Social support provided by teachers in the class mainly refers to individualised and personal support, such as expressions of caring and empathy; it may, for example, manifest itself in the form of friendly conversations or empathising with students during the language learning process. From an academic perspective, an L2 teacher can also instrumentally support learners by sharing useful books and materials, giving recommendations on learning resources, providing feedback sessions, and using different modalities in teaching, focusing on the content of what they learn (Affuso et al. 2023; Derakhshan, Solhi, and Azari Noughabi 2023). A strand of L2 studies has acknowledged the contributing influences of L2 teachers' academic and social support on learners' sense of belongingness (e.g. Karimi and Fallah 2021; Lee, Lee, and Chen Hsieh 2022). For example, L2 teachers' support has been shown to increase L2 students' motivation as well as their sense of relatedness (McEown, Noels, and Saumure 2014). Research has in general indicated that supportive L2 teachers can increase learners' engagement (Shakki 2022), achievement (Wang, Chen, and Chen 2021), and positive educational emotions (Xie and Guo 2022).

Research in educational psychology has also shown the importance of supportive classmates in promoting learners' feeling of belonging to the class (de Jong et al. 2023; Martin et al. 2022). Ahmadi et al.'s (2020) study provided evidence that peer support significantly contributes to students' feeling of belongingness. Similarly, in de Jong et al.'s (2023) study, peer relationships had a prominent impact on fostering other students' sense of belonging. Considering the significant influence of peers' social support on learners' sense of belonging, creating an encouraging class environment has the potential to cultivate a feeling of connection, which can eventually contribute to academic achievements (Azari Noughabi and Ghasemi 2024; Martin et al. 2022; Yang et al. 2023). Research on L2 learning also indicates that support provided by peers can have a significant impact on L2 learners' emotional wellbeing (e.g. Khajavy et al. 2018; Zheng and Zhou 2022). All these studies highlight that supportive peers help learners feel more confident, motivated, and engaged in L2 learning.

Studies have also shown that a stronger feeling of belongingness in academic environments is linked to academic success (Abdollahi and Noltemeyer 2018; Pedler, Willis, and Nieuwoudt 2022), and ER has been recognised as a mediating factor between the feeling of belongingness and achievement (Tian et al. 2021). In fact, L2 learners' perceptions of teachers and peers' support in the class may contribute to their sense of achievement or self-rated proficiency. Given the close relationship between ER strategies and the perception of interpersonal support from teachers and peers (Davis 2017), it is important to pay close attention to the mediating impact that ER strategies play in the association between L2 belongingness and self-rated proficiency beliefs.

Emotion regulation strategies

Thompson (1994: 27) defines emotion regulation (ER) as 'extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, specifically their intensive and temporal features, to accomplish ones' goals'. More specifically, individuals may internally or externally react to emotion-inducing situations with the purpose of enhancing and maintaining emotional arousals (especially positive emotions) as well as subduing or inhibiting them (specifically negative emotions). Although ER is a goal-oriented regulatory processing of emotional arousal, it may manifest itself unconsciously or consciously (Gross 1998), through which individuals automatically or in a controlled way might opt for different emotional reactions in diverse contexts (Gross 2002; Wang,

Chen, and Chen 2021). Cognitive reappraisal and expressive suppression are the two ER strategies that individuals use in different emotion-eliciting situations (Gross 2015; Gross and John 2003).

Cognitive reappraisal is an ‘antecedent-focused’ strategy (Lazarus and Alfert 1964), which is deployed before or during the experience of emotion when an individual alters their perception to reduce the undesirable affective influence of an event. Expressive suppression, conversely, is a reactive strategy associated with the modification of emotion after it is generated. A wealth of research has indicated a strong association between cognitive appraisal and increased positive emotions, decreased negative emotions, better psychological well-being and social relationships (Aldao, Nolen-Hoeksema, and Schweizer 2010; Solhi, Derakhshan, and Ünsal 2023; Troy, Shallcross, and Mauss 2013; Webb, Miles, and Sheeran 2012). Expressive suppression, on the other hand, has been acknowledged to be maladaptive and has been found to be negatively correlated with psychological well-being while being positively associated with negative emotions (Dryman and Heimberg 2018; Gross and Cassidy 2019). Although suppression can initially be used as a strategy for ER, it is deemed to be mainly effective only in the short term and does not involve cognitive appraisal (Jiang, Chen, and Liu 2016).

Several social-cultural, environmental, and individual factors have been confirmed to influence deployment of ER strategies (Jiang, Chen, and Liu 2016; Yin 2016). For example, ER strategies are correlated with individual factors, such as emotional creativity (Yang et al. 2021), motivational orientations (Gao and Yang 2023), process of writing (Sato 2022; Shafiee Rad and Jafarpour 2023), and collaborative language learning environments (Zhang, Liu, and Lee 2021). In a study with bilingual L2 learners, Yang et al. (2021) indicated that bilinguals’ adaptive ER strategies have a major impact on their emotional creativity, defined as the range, appropriateness and originality of emotional reactions (Kuška et al. 2020). Sato (2022) explored how L2 students regulate their emotions in response to feedback received from their supervisors. Results indicated that L2 student writers experience a variety of negative and positive emotions while processing feedback, and they regulate their emotions by either suppressing immediate emotional responses or by reappraising their thoughts to mitigate the emotional impact. The findings highlight the relevance and dynamicity of ER in the process of L2 learning. L2 research has also acknowledged the impact of L2 learning enjoyment on learners’ self-assessment of L2 proficiency. For example, in Botes et al.’s (2021) study, teachers and classmates were identified as the two key contributors to L2 learning enjoyment, which influences the self-perceived proficiency of EFL learners. Overall, despite the major impact of L2 teachers and class peers on self-assessment of L2 proficiency, how their academic as well as personal support can contribute to the perception of their L2 proficiency has remained unexplored. In the present study, we sought to investigate how L2 teachers and class peers (learner-external factors) as the contributors of L2 class belongingness, coupled with emotion regulation strategies (learner-internal factor), can explain how EFL learners perceive their proficiency level in an online L2 learning. Figure 1 shows the hypothesised model illustrating the four components of L2 belongingness connected to self-perceived proficiency level, with emotion regulation strategies mediating the relationship.

Method

Participants

The research sample consisted of 191 Turkish university students (39 males and 152 females) enrolled in the English Language Teaching (ELT) programme of several major universities in Istanbul during the spring semester of the 2022–2023 academic year. They were chosen at random and volunteered to take part in the current study (Freshman = 73, Sophomore = 72, Junior = 11, Senior = 35). The participants had an average age of approximately 20.40 years, ranging from 19 to 26. The undergraduate ELT programmes in Türkiye typically offer 8–10 courses per academic semester. In the first year, these courses predominantly focus on general English topics such as oral communication,

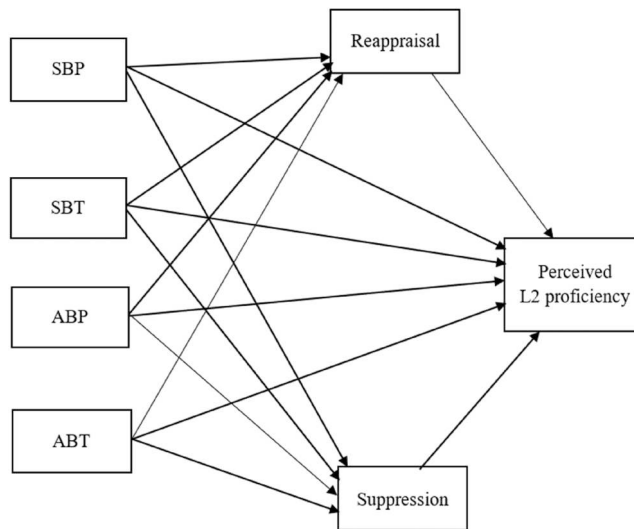


Figure 1. The hypothesised model.

listening and pronunciation, and reading and writing skills. Subsequent academic years usually include more specialised courses related to the field, such as approaches and methods in language education, linguistics, language and culture, and teaching language skills. Prospective students are required to pass the universities' compulsory proficiency exam before enrolling in the department, necessitating attainment of a B1-B2 level in standardised proficiency exams. Following the pandemic, Turkish universities adopted hybrid education for an academic year, with some courses being conducted online. When the data collection was conducted, the participants had already completed the first academic semester and had attended online classes for approximately 15–22 hours a week in total.

Data collection procedure

A questionnaire that assessed L2 belongingness, ER strategies, and self-rated proficiency level was distributed to participants in both paper and online formats. Prior to collecting the data, a consent form was obtained. In the first section of the questionnaire, the purpose of the investigation was explained, and they were assured of the confidentiality of the responses. The data were gathered during the fourth and fifth weeks of the spring semester.

Instruments

L2 belongingness

L2 belongingness was measured by Van Ryzin et al.'s (2009) adapted Classroom Life Scale. The original scale was developed and validated by Johnson et al. (1985). However, we used Van Ryzin et al.'s (2009) adapted scale, where the four components of the Classroom Life Scales are conceptualised as four facets of L2 belongingness: (1) L2 social belongingness with teacher (4 items; e.g. *My teacher really cares about me*); (2) social belongingness with peers (5 items; e.g. *Other students in this class care about my feelings*), (3) academic belongingness with teacher (4 items; e.g. *My teacher cares about how much I learn*), and (4) academic belongingness with peers (4 items; e.g. *In this class, other students care about how much I learn*). For our research, we simply added 'online' to 'in this class' and specified 'my English teacher' to reflect our particular research context. Responses to all items were given on a seven-point Likert scale ranging from 1 = strongly disagree to 7 = totally

agree. Van Ryzin, Gravely, and Roseth (2009) reported that in their study, teacher and peer support subscales demonstrated high reliability, with Cronbach's alpha coefficients of 0.92 for the entire scale. These findings are consistent with reliability estimates obtained in earlier and more recent studies (e.g. Johnson et al. 1985; Solhi 2023). Although the scale has mainly been used in a school context, its content validity has been found to be appropriate for the context of tertiary education and English language learning specifically (e.g. Solhi 2023). The four components of belongingness are domain-general facets, and the interactions between peers and students, as well as teachers and students, are fundamental aspects of all classes, including in-person and online L2 learning contexts. Both academic and personal support from peers and teachers are considered essential for fostering a sense of belonging in all classes across various online and in-person L2 learning environments.

Emotion Regulation Questionnaire (ERQ)

Gross and John's (2003) 10-item Emotion Regulation Questionnaire was utilised to assess students' ER strategies. The instrument was initially developed in a study involving undergraduate university students and asks respondents to rate their agreement in using two primary emotion regulation strategies: cognitive reappraisal (6 items; e.g. *When I want to feel more positive emotion (such as joy or amusement), I change what I am thinking about*) and expressive suppression strategies (4 items; e.g. *I keep my emotions to myself*) on a 7-point scale ranging from 1 = strongly disagree to 7 = totally agree. We also slightly modified the items by adding 'online class' at the end (e.g. *I keep my emotions to myself in online class*) to more accurately measure their emotion regulation strategies within the context of online L2 learning. Previous research (e.g. Brady, Kneebone, and Bailey 2019; Preece et al. 2019; Shafiee Rad and Jafarpour 2023) has demonstrated strong internal consistency and reliability for the scale, indicating that the conventional two-factor model remains reproducible and aligns well with the collected data (Preece et al. 2019). The scale is considered domain-general and has been found applicable for L2 students across different proficiency levels and educational contexts including online education (e.g. Solhi, Derakhshan, and Ünsal 2023; Zhang, Hu, and Yu 2024; Zhao et al. 2022).

English Proficiency Scale

Data on English proficiency were collected using Dörnyei and Taguchi's (2009) 1-item scale, which assesses individuals' self-reported English proficiency levels on a scale ranging from 1 = beginner 2 = post-beginner, 3 = lower intermediate, 4 = intermediate to 5 = upper-intermediate level and above. This comprehensive single-item scale provides explanations for each response. For instance, at the beginner level, respondents are described as *able to give simple greetings using set words and phrases, able to read simple sentences, grasp the gist of short passages, and to write a simple sentence in basic English*.

Data analysis

Initially, the data were checked for normal distribution, the absence of outliers, the internal consistency of the scales, and the possibility of multicollinearity. The normality was evaluated using Kline's (2015) acceptable ranges for skewness and kurtosis (3 for skewness and 10 for kurtosis). Cronbach's alpha and composite reliability (CR) were implemented to measure the scale's internal consistency, with values above 0.70 being regarded as acceptable (Hair et al. 2010). Additionally, average variance extracted (AVE) was used to evaluate the discriminant validity; values > 0.50 indicated acceptable convergent validity (Fornell and Larcker 1981). The composite reliability indices (CRs) were higher than the Average Variance Explained (AVE). A confirmatory factor analysis (CFA) was performed using AMOS 24 to ensure the measurement models' construct validity. Finally, the hypothesised model of the relationships between the variables was tested using a path analysis. The mediating effects of suppressive and reappraisal ER strategies were further investigated using bootstrapping with 5000 bootstrap samples (Hayes 2009). The chi-square divided by degree of freedom (χ^2/df),

Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root-Mean-Square Error of Approximation (RMSEA) were used to evaluate the fitness of the model. Hu and Bentler (1995) define the acceptable range for the indices as: $\chi^2/df \leq 5$; $GFI \geq 0.90$; $CFI \geq 0.90$; $TLI \geq 0.90$; $RMSEA \leq 0.08$.

Results

Descriptive statistics and correlation coefficients

Table 1 indicates the descriptive statistics for each variable. The skewness and kurtosis values revealed that the data was normally distributed.

The Pearson correlation coefficients between the variables were then calculated. The correlation matrix (shown in Table 2) revealed that the associations among the main variables were significant. Concurrently, the evaluated correlations were not above 0.80 to introduce the possibility of multicollinearity (Field 2013).

Confirmatory factor analysis

Separate CFAs were conducted to examine the scales' construct validity, and all factor loadings were found to be statistically significant ($p \leq .001$). The item factor loadings for each construct were suitable >0.5 . We used fit indices including the Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) to assess the fitness between our proposed model and the observed data. These indices collectively help determine the adequacy of the model. For example, GFI measures how well the model fits the observed data, with values closer to 1 indicating a better fit, and TLI adjusts for model complexity, with values above 0.90 indicating a good fit. As shown in Table 3, the fit indices indicate an acceptable fit between the model and the observed data. In addition, the estimated Cronbach's alphas indicated that the scales had high internal consistency.

Path analysis model

The results of the path analysis revealed that the hypothesised model of the relationships between the variables fits the observed data well; $\chi^2 = 2.340$, $df = 1$, $\chi^2/df = 2.340$, $p < 0.001$, $GFI = 0.997$, $CFI = 0.998$, $TLI = 0.951$, and $RMSEA = 0.084$ (see Hair et al. 2010; Shi, Lee, and Maydeu-Olivares 2019; West, Taylor, and Wu 2012). Figure 2 depicts the tested model, including the standardised regression weights of the model. The dotted lines indicated non-significant path weights.

The model shows significant and non-significant paths among social and academic belongingness, reappraisal, suppression, and self-perceived English proficiency. No direct association between social and academic belongingness and proficiency was found. Significant direct paths exist from social belongingness with peers and academic belongingness with teachers to

Table 1. Descriptive statistics and normality distribution

	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Reappraisal	1.50	7.00	4.97	1.22	-0.49	-0.07
Suppression	1.00	7.00	4.09	1.47	-0.33	-0.46
SBP	1.00	7.00	4.29	1.40	-0.18	-0.28
SBT	1.00	7.00	4.04	1.49	0.01	-0.41
ABP	1.00	7.00	5.00	1.36	-0.39	-0.37
ABT	1.25	7.00	5.70	1.26	-1.01	0.44
L2 Proficiency	3.00	5.00	4.70	0.53	-1.50	1.50

Note. SBP = social belongingness-peer; SBT = social belongingness-teacher; ABP = academic belongingness-peer; ABT = academic belongingness-teacher.

Table 2. Correlation matrix

Variable	1	2	3	4	5	6	7
1. Reappraisal	–	0.157**	0.461***	0.440**	0.331**	0.355**	0.175***
2. Suppression		–	0.119**	0.159**	0.216***	0.131**	–0.142*
3. SBP			–	0.728***	0.532***	0.373***	–0.108***
4. SBT				–	0.552***	0.391***	0.117***
5. ABP					–	0.712*	0.164**
6. ABT						–	0.170**
7. L2 Proficiency							–

Note. SBP = social belongingness-peer; SBT = social belongingness-teacher; ABP = academic belongingness-peer; ABT = academic belongingness-teacher. *** $p < .001$, ** $p < .01$, * $p < .05$

reappraisal. Reappraisal mediates the indirect associations between social belongingness with peers and proficiency, and between academic belongingness with teacher and proficiency. Suppression has no mediating effect on these associations, but a significant direct path from academic belongingness with peers to suppression is noted.

The mediating analysis

No significant direct effect was found between the predictors (SB-peers, SB-teacher, AB-peers, and AB-teacher) and the outcome variable (L2 proficiency). The findings also revealed that learners' reappraisal ER was directly associated with their self-perceived L2 proficiency ($\beta = 0.22$, $p < 0.01$). The mediation analysis indicated that there was a significant indirect relationship between SB-peers and self-perceived L2 proficiency through reappraisal ER ($\beta = 0.02$, $p = 0.01$). Additionally, the direct paths from SB-peers to reappraisal ER ($\beta = 0.30$, $p < 0.01$) and from AB-teacher to reappraisal ($\beta = 0.33$, $p < 0.01$) were significant. As shown on Figure 2 and in Table 4, there was also a significant indirect relationship between ABT and L2 proficiency through reappraisal ER ($\beta = 0.33$, $p < 0.01$). Furthermore, a significant direct path from ABP to suppression was identified ($\beta = 0.30$, $p < 0.05$). In sum, the findings indicated that the indirect effects of SBP and ABT on self-reported L2 proficiency through reappraisal ER were statistically significant with 99% confidence.

Given that the results indicated no significant direct relationship between SB-peers and L2 proficiency ($\beta = 0.01$; CI [–0.48; 0.08]) and between AB-teacher and L2 proficiency ($\beta = 0.003$; CI [–0.29; 0.28]), we can conclude that the relationships between SB-peers and perceived L2 proficiency, and between AB-teacher and perceived L2 proficiency, are fully mediated by reappraisal regulation strategies. In other words, the participants' reappraisal ER had a mediating impact on the association between their SB-peers and L2 proficiency ($\beta = 0.025$; $p < 0.01$, CI [0.005; 0.055]) as well as the relationship between AB-teacher and L2 proficiency ($\beta = 0.03$; $p = 0.002$, CI [0.009; 0.066]). Conversely, suppressive ER revealed no direct influence on L2 proficiency level ($\beta = -0.09$; $p > 0.01$) and was thus not a significant mediator of the relationships between the predictor variables (SB-peers, SB-teacher, AB-peers, and AB-teacher) and perceived L2 proficiency.

Table 3. The goodness-of-fit and reliability indices,

	χ^2	df	χ^2/df	GFI	CFI	TLI	RMSEA	α
Reappraisal	12.595	6	2.09	0.97	0.98	0.97	0.07	0.87
Suppression	6.490	2	3.24	0.98	0.98	0.955	0.09	0.84
SBP	11.280	5	2.25	0.97	0.99	0.981	0.08	0.91
SBT	7.197	2	3.59	0.97	0.98	0.949	0.09	0.88
ABP	6.190	2	3.09	0.98	0.98	0.953	0.09	0.87
ABT	6.434	2	3.21	0.98	0.99	0.978	0.09	0.92

Note. SBP = social belongingness-peer; SBT = social belongingness-teacher; ABP = academic belongingness-peer; ABT = academic belongingness-teacher.

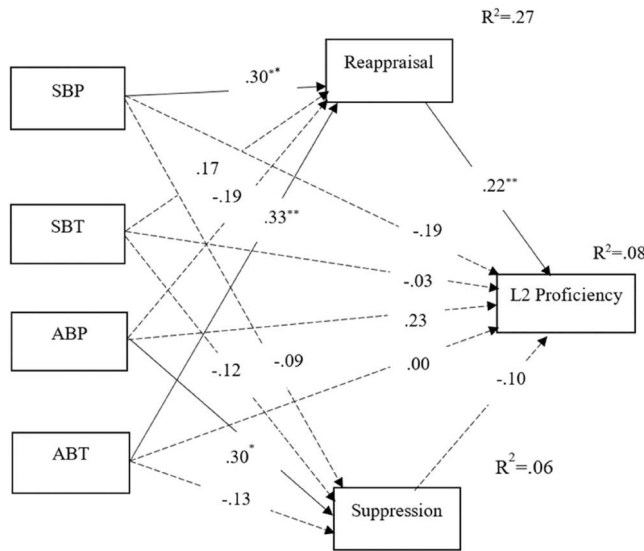


Figure 2. The path analysis results.

Note. SBP=social belongingness-peer; SBT = social belongingness-teacher; ABP = academic belongingness-peer; ABT = academic belongingness-teacher. ***p* < 0.01, **p* < 0.05. Dashed lines show non-significant paths and solid lines show significant paths.

Discussion

The current study assessed the association between L2 belongingness (measured in four dimensions), ER strategies, and self-perceived English proficiency level in EFL learners studying English online. The findings firstly revealed that there were no direct relationships between L2 belongingness indices and self-perceived English proficiency. In other words, the participants’ perceptions of belongingness with teachers and peers did not directly predict their perceived level of proficiency in L2 English. The finding that there is no direct relationships between L2 belongingness indices (i.e. academic and social belongingness with teachers and peers) and self-perceived English proficiency suggests that while a sense of belonging with teachers and peers is essential for learner motivation and engagement (Solhi 2023; Wentzel et al. 2019), it may not directly impact the heightened self-assessment of language proficiency. This underscores the complexity of factors influencing perceived L2 learning efficacy beyond barely social connectedness in the class. Specifically, the mediating role of reappraisal emotional regulation strategy between social belongingness with peers and academic belongingness with teachers and L2 proficiency highlights the significant role of reframing emotional responses as a pathway to enhance self-efficacy beliefs and heightened self-evaluation perceptions. These findings can be firstly discussed with respect to SDT (Deci and Ryan 2000,

Table 4. Indirect effects

Path	B (SE)	95% CI	p
SBP Reappraisal L2 Proficiency	0.025 (0.013)	[0.005, 0.055]	.015
SBT Reappraisal L2 Proficiency	0.013 (0.011)	[-0.002, 0.049]	.100
ABP Reappraisal L2 Proficiency	-0.016 (0.014)	[-0.053, 0.006]	.134
ABT Reappraisal L2 Proficiency	0.030 (0.015)	[0.009, 0.066]	.002
SBP Suppression L2 Proficiency	0.003 (0.006)	[-0.005, 0.024]	.323
SBT Suppression L2 Proficiency	-0.004 (0.006)	[-0.024, 0.003]	.265
ABP Suppression L2 Proficiency	-0.012 (0.011)	[-0.042, 0.004]	.151
ABT Suppression L2 Proficiency	0.005 (0.007)	[-0.003, 0.029]	.183

Note. SBP = social belongingness-peer; SBT = social belongingness-teacher; ABP = academic belongingness-peer; ABT = academic belongingness-teacher.

2012), According to SDT, intrinsic motivation and optimal functioning in educational settings are promoted when the psychological requirements for competence, connectedness, and a sense of autonomy are satisfied (Deci and Ryan 2000, 2012). These three factors are interrelated and collectively form the foundation of SDT (Van den Broeck et al. 2010). Specifically, this suggests that our participants' sense of belonging (social belongingness with peers and academic belongingness with teachers) in relation to their L2 learning environment, will be related to their L2 learning motivation through their level of proficiency. Indeed, the major impact of self-perceived proficiency on L2 learners' motivated behaviours has also been echoed in Pawlak et al.'s (2024) recent study, where L2 learners' 'gritty' characters (i.e. perseverance of effort and consistency of interest) predicted motivated behaviour for participants with highest self-perceived proficiency. In the present study, although the sense of L2 academic and social belonging fostered by L2 peers and teachers was not directly predictive of self-perceived proficiency among EFL learners, the relationships between SB-peers and perceived L2 proficiency, and between AB-teacher and perceived L2 proficiency were found to be fully mediated by the reappraisal regulation strategy. In other words, academically supportive L2 teachers and socially supportive class peers can directly influence EFL learners' cognitive appraisal and consequently their self-assessment of their proficiency levels.

The significant influence on perceived proficiency of academic support from L2 teachers and social support from peers is consistent with Wang et al.'s (2023) study, which revealed a positive correlation between university students' perceived social support, emotional adjustment, and self-efficacy beliefs, i.e. an individual's belief in his/her own capabilities. Their research also indicated that students with better emotional adjustment had lower levels of L2 anxiety. Dong, Liu, and Yang (2022) found that EFL learners' classroom anxiety, linked to fear of negative evaluation, was one of a number of affective variables influencing their self-rated English proficiency (Dong, Liu, and Yang 2022). Given academic support from teacher has been found to be important in mitigating EFL learners' anxiety levels (see Huang, Eslami, and Hu 2010), the major role of academic supportive L2 instructors becomes evident. In other words, these instructors not only facilitate L2 learning through effective supportive strategies but also create a learning environment that reduces anxiety, fostering a more accurate and positive perception of their L2 proficiency. In Badieli et al.'s (2023) study, EFL learners' peace of mind significantly influenced their self-perceived language proficiency. The impact of positive emotional orientations, such as L2 enjoyment, on self-perceived English proficiency was also found in Zhang et al.'s (2020) study. These findings highlight the importance of fostering positive emotions in L2 classrooms (Azari Noughabi et al. 2024). As implied by the findings of the current study, academic support provided by L2 teachers and social support from L2 peers appears to play a significant role in fostering a supportive environment and may ultimately enhance perception of language proficiency.

The significance of teachers' academic support as well as peers' social support in contributing to a sense of class belonging and subsequently enhancing perceived L2 proficiency level, can also be examined through the lens of social identity theory (SIT; Turner et al. 1987). According to this theory, an individual's feeling of belonging to different social groups contributes to their self-esteem and overall well-being. In line with our study's findings, EFL learners' higher levels of belongingness fostered by academically supportive L2 teachers can significantly impact judgements of their own worth or value (self-esteem), and thereby influencing self-rated English proficiency level.

Previous research has reported a positive correlation between peer support and development of language skills, including reading comprehension (Barber et al. 2015) and oral academic proficiency (Carhill-Poza 2015; Ismail et al. 2015; Kobayashi 2003). Since L2 peers' social support has been acknowledged to reduce L2 anxiety (e.g. Jin and Dewaele 2018), it can be inferred that this type of support might also indirectly impact EFL learners' self-rated English proficiency through encouraging a more effective ER strategy and decreased L2 anxiety. In the current study, although suppressive ER did not significantly mediate the relationships between the predictor variables and perceived English proficiency, there was a significant direct relationship between AB-peers and suppression ER. In other words, EFL learners who perceive academic support from peers are more likely to conceal

negative emotional orientations, such as L2 anxiety or nervousness, even if they are still anxious internally. This suggests that even though learners continue to experience such negative emotions, the perceived academic support from peers could potentially mask or mitigate the outward expression of negative emotional dispositions.

Implications

The results of the present study carry several pedagogical implications. First, it highlights that social support provided by peers contributes to learners' self-perceived proficiency level in the context of L2 online learning. In such settings, cultivating a supportive peer environment could boost learners' self-confidence and motivation, leading to positive outcomes for their L2 proficiency development and sense of self-efficacy. In online classes, to augment the sense of connectedness among L2 learners, instructors may wish to focus on assigning learners a diverse range of cooperative tasks. For example, L2 learners can collaborate with peers to undertake group projects or engage in discussions that encourage interaction and mutual support among participants. Such activities are conducive to enhancing the overall L2 learning experiences of learners. Furthermore, incorporating group activities such as peer feedback sessions, collaborative writing tasks, and peer tutoring can foster shared responsibility and a sense of L2 belonging within the virtual classroom environment. Such interventions can promote intimacy among peers by encouraging interaction and collaborative problem-solving (Jin and Dewaele 2018).

Because cognitive reappraisal acts as a mediator between a sense of academic belongingness with peers and perceived L2 proficiency, teachers may help students learn how to manage emotions, for example, by providing explicit instruction on cognitive reappraisal techniques and creating opportunities for L2 learners to practise and apply these strategies (Lemarchand-Chauvin 2023). Specifically, learners should be instructed that by changing the way they think about the situation, they are more likely to experience higher levels of positive emotions, such as L2 enjoyment, and lower levels of negative feelings, such as L2 anxiety, which have both been confirmed to be closely associated with L2 learners' self-perceived proficiency levels (see Botes, Dewaele, and Greiff 2022).

Given that academic support from teachers is another factor contributing to learners' perceived proficiency level, teachers need to explore the range of ways they can support their students; for example, keeping track of their learning progress, providing timely feedback on assignments, implementing strategies to address individual learning needs, offering opportunities for individual guidance and supplementary learning materials where needed. Adopting a motivating teaching style, providing positive feedback, and supporting learners' learning autonomy should support learners' feelings of competence (Reeve and Cheon 2021). Finally, as noted above, incorporating explicit instruction on ER strategies – i.e. helping learners identify, comprehend, articulate and manage emotions – should support learners to make the most of different L2 learning contexts, including dealing with the challenges of online education.

Limitations and future research

Limitations to the current study include the fact that this cross-sectional study collected data at a single point in time. Other sources of data including classroom observation and interviews might offer a more comprehensive account of the interaction between students' L2 belongingness and their ER strategies. Additionally, considering the dynamic nature of affective orientations, different longitudinal research designs such as time series or experiential sampling methods would give more insights into the interplay between L2 belongingness and emotion regulation strategies and the way they may contribute to self-rated proficiency levels over time. Further, learners evaluated their own English proficiency based on a single-item description. Although Dörnyei and Taguchi's (2009) scale has been found to be reliable and valid in previous L2 studies, it provides only a

limited picture of English proficiency. In particular, given the absence of subfactors for the L2 proficiency variable and our limited sample size, we were unable to include L2 proficiency as a latent variable in the structural equation modelling analysis. Future research may consider administering standardised tests of English proficiency so as to more accurately measure the construct and explore in finer detail the impact of L2 belongingness on language learning abilities, for instance, oral skills where relationships with the teacher and peers may well be a particularly strong influence. Furthermore, although the four facets of the belongingness scale are domain-general and the interactions between peers and students as well as teachers and students are fundamental aspects of all classes, the measure has mainly been used in secondary school contexts, and the participants have been from different courses in in-person classes (e.g. Johnson et al. 1985 Van Ryzin, Gravely, and Roseth 2009). Thus, the present research appears to be the first study to utilise this scale in the context of tertiary education and online English language learning specifically. Further studies would help to further validate the scale's appropriateness in measuring L2 learners' sense of belongingness in relation to peers and teachers in different online learning environments.

Conclusion

The purpose of the study was to investigate the association between L2 belongingness and self-perceived English proficiency, and in particular, the mediating impact of ER strategies, in the context of remote learning. Overall, the findings revealed that academically supportive teachers and socially supportive peers, coupled with use of a 'reappraisal' emotional regulation strategy, influenced EFL learners' assessment of their own proficiency levels in the context of online education. Identifying how L2 belongingness, ER strategies, and perceived competence relate to each other becomes even more significant in the case of remote learning conditions, which limit social and interpersonal relations.

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No potential conflict of interest was reported by the author(s).

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