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Modelling the Interrelationships Between Multilingualism and Self-efficacy, Resilience, Professional Development and Motivation by PLS-SEM

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ABSTRACT

Investigating multilingualism as a learning and teaching resource has been growing progressively in the last few years, along with initiatives taken by individual nations to help the learning of multiple languages, mainly in secondary education (Byram, 2018). Accordingly, the present study explored how multilingualism predicted the various variables of positive psychology, including professional development, resilience, self-efficacy and motivation, in the Iranian context. To do so, 100 Iranian EFL teachers of both genders were selected through convenience sampling as participants from public schools and the private sector in Golestan province, Iran. To collect data, the Multilingualism Questionnaire, resilience, self-efficacy, motivation and professional development. To analyze the data, Pearson correlation tests and Regression were run on the obtained data. After that, the suggested models for teachers' multilingualism were evaluated against the obtained data. Then, Path Analysis (PA) was run using AMOS with Maximum Likelihood Estimation (MLE) to evaluate the proposed model and reach the best models fit on multilingualism for teachers' multilingualism and the variables mentioned above. The results showed that there is a path from multilingualism to resilience, to self-efficacy and to professional development, while there is no path from multilingualism to motivation. As pedagogical implications, multilingual EFL teachers are recommended to spend much more time on their multilingual capabilities and select a class management style which can make use of their multilingualism in their classes, especially in classes with multilingual learners, since they are more likely to be influenced by multilingual teachers.

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1. Introduction

Investigating multilingualism as a learning and teaching resource has been growing progressively in the last few years, along with initiatives taken by individual nations to help the learning of multiple languages, mainly in secondary education (Byram, 2018). Such initiatives reveal the linguistically dynamic atmosphere of several cities and countries all over the world (Spotti & Kroon, 2017), where many nationalities live together, and communication happens in different languages. And though numerous multilingual initiatives have usually concentrated on the learning of English as a foreign (EFL) or second language (ESL), this, too, seems to be changing. According to the increasing significance of growing multilingual citizens in an increasingly multi-polar world, nations employing multilingual situations ought to deal with not only intending useful curricula that will cause effective learning consequences among learners but they similarly must educate and assess language teachers so as to confirm that these improve and keep on to nurturing the abilities and opinions required to encourage their students' tendency to be multilingual. As a result, the multilinguals' opinions can be affected by teacher education programs, which occasionally encourage a monolingual method of teaching languages and rarely notice teachers' multilingualism (Otwinowska, 2017).

Teaching English as a Foreign Language (EFL) in Iran has become increasingly complicated due to the growing demand for multilingual competence, the pressures from global standards, and the need for teachers to continuously level up themselves to pedagogical innovations. Iranian EFL teachers are expected not only to develop strong linguistic and methodological knowledge, but also to gain high levels of self-efficacy, resilience, and motivation in order to cope with classroom challenges, policy changes, and professional expectations. At the same time, teachers' professional development is closely linked to their ability to integrate multilingual awareness, be committed to their practice of teaching, and manage psychological resources effectively. Although prior studies have separately examined the role of constructs such as multilingualism, self-efficacy, resilience, motivation, and professional development, the interrelationships among these factors are under-explored, especially within the Iranian EFL context. Much of the existing literature has been descriptive or correlational, lacking a comprehensive structural model that captures the dynamic interplay among these variables. In particular, it is unclear how multilingual competence influences

teachers' psychological strengths, how self-efficacy and resilience contribute to sustained motivation, and how these factors collectively foster professional development.

Furthermore, there is a methodological gap in using advanced statistical techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM), which allows for testing complex models with multiple interrelated and interconnected constructs. Employing PLS-SEM can provide deeper insights into both the direct and indirect impacts among multilingualism, self-efficacy, resilience, motivation, and professional development, offering a more holistic understanding of Iranian EFL teachers' professional trajectories. Addressing this gap is pivotal because without a clear model of how these psychological and professional factors interact, policymakers, teacher educators, and practitioners lack evidence-based strategies to strengthen teacher training programs and promote sustainable professional growth. Therefore, this study aims to model the interrelationships among multilingualism, self-efficacy, resilience, motivation, and professional development among Iranian EFL teachers using PLS-SEM.

While the present study adopts a quantitative PLS-SEM approach to investigate the interrelationships among multilingualism, self-efficacy, resilience, professional development, and motivation, it also acknowledges that multilingualism cannot be comprehended solely as an individual cognitive or psychological resource. From a critical applied linguistics point of view, multilingualism is socially, politically, and ideologically constructed, with its value shaped by language hierarchies, educational policies, and institutional practices (Pennycook, 2021; May, 2022). In the Iranian context, English has a privileged position as the dominant foreign language, while local and minority languages are often given less visibility within formal educational settings. Such conditions may affect teachers' professional identities, their opportunities for multilingual pedagogies, and the ways they perceive the benefits of their multilingual repertoires. Consequently, the relationships examined in this study should be interpreted within these broader sociocultural and institutional contexts rather than as context-free psychological associations. Although the current research is not designed to examine issues of language ideology or policy directly, it is informed by the understanding that teachers' multilingual experiences are embedded within wider structures of power, identity, and educational governance. By integrating insights from current multilingualism scholarship with a strong quantitative modeling framework, this study seeks to contribute empirical evidence while recognizing the complex sociopolitical realities that shape multilingual teaching and learning in Iran (García et al., 2021; Flores & Rosa, 2023).

The present study is significant in both theoretical and practical terms as it seeks to model the interrelationships among multilingualism, self-efficacy, resilience, motivation, and professional development among Iranian EFL teachers using Partial Least Squares Structural Equation Modeling (PLS-SEM). From a theoretical perspective, this research contributes to a deeper understanding of how these five constructs interact as a dynamic system forming teachers' professional growth. While previous studies have explored these variables separately, limited empirical attention has been given to their integrative and mutual nature, particularly within the Iranian EFL context. By utilizing a PLS-SEM framework, this study advances theory-building in teacher psychology and second language education through a comprehensive, model-based approach that identifies both direct and indirect paths of influence. From a practical viewpoint, the findings will offer valuable insights for teacher educators, policymakers, and professional development planners in Iran and other EFL contexts. Understanding how multilingual competence can enhance teachers' self-efficacy, strengthen resilience, and sustain motivation can inform more effective teacher training programs that leverage multilingual awareness as a pedagogical and psychological resource. Moreover, identifying the key predictors of professional development can help institutions design targeted interventions to foster adaptive, motivated, and resilient educators capable of thriving in demanding instructional environments.

2. Literature Review

2.1. Theoretical considerations

In this part, first a short account of the theoretical foundations of multilingualism as the main variable of the present study is presented, which is followed by providing a short theoretical description of other variables.

2.2. Multilingualism and teachers' professional cognition

Multilingualism in language teachers is conceptualized not merely as possession of multiple codes but as a repertoire of translanguaging practices, metalinguistic awareness, and cultural/ communicative resources that teachers draw on in classroom planning, explanation, and interaction (Pulinx et al., 2017). Theories of multilingual language awareness and translanguaging suggest that multilingual teachers can mobilize comparative contrasts and cross-linguistic strategies as pedagogical tools; these resources plausibly strengthen instructional

flexibility and reflective practice, which are central to professional development (PD) and pedagogical efficacy. From a sociocultural perspective, multilingual competence situates teachers within broader communicative communities and provides tools for mediating learning and coping with classroom variability.

As said by Kramsch and Whiteside (2008, p. 664), the multilingual individual has "a particularly acute ability to play with various linguistic codes and with the various spatial and temporal resonances of these codes". They term this 'symbolic competence', describing it as "the ability not only to approximate or appropriate for oneself someone else's language, but to shape the very context in which the language is learned and used" (p. 664). Symbolic competence aligns well with the variation by Singleton and Aronin (2007) of the theory of affordances to define multilingualism. Regarding languages, affordances signify what languages propose, in tangible and intangible methods, to the individual regarding cognitive and evaluative skills, emotions, and knowledge (Aronin, 2014). Employing these affordances involves a sharp consciousness on the part of multilingual individuals, including teachers, of the numerous techniques wherein they can cooperate with their setting. The larger the number of languages that an individual recognizes, the greater the number of affordances he or she enjoys, while practical studies supporting this are still hard to find. In brief, all these backgrounds propose that MLTs have a possibly rich and complicated toolset that they can use to improve their teaching in different ways.

Teaching in a multilingual setting can also be described as diversity management since one central goal is linguistic flexibility. This can be achieved by increasing students' awareness of and interest in language(s) and teaching strategies to communicate, learn and explore them, preferably based on self-regulated learning. By comparing and reflecting, they can build up metalinguistic and metacognitive skills (Wang, 2024). Multilingual students will profit from this approach, because they bring their repertoire to different environments and need to communicate with very diverse speakers. The approach lets them transform this repertoire into applicable dynamic mobile resources (García & Otheguy, 2019).

In general, it can be stated that all students need to be prepared to live in a complex world full of diversity, where additive concepts in foreign language classes do not meet the requirements of today's society. Multilingual-sensitive teaching units and tasks depend very much on the authenticity of the topic and should balance the fostering of already existing language registers and their expansion. Students' proficiency in the surrounding language will

also increase, because concepts, academic content and learning strategies transfer across languages (Slaughter & Cross, 2020). Due to this transfer and grouping of learning processes, teaching time can be saved (Reich & Krumm, 2013). Having presented some theoretical issues on multilingualism, here it is tried to provide a short theoretical description for each of the four traits of positive psychology.

2.3. Self-efficacy (Bandura) and teacher functioning

Bandura's social-cognitive theory (1997) positions self-efficacy—beliefs about one's capacity to perform tasks successfully—as a proximal predictor of effort, persistence, and coping. In teaching, efficacy beliefs influence instructional choices, classroom management, and responses to challenge (Tschannen-Moran & Hoy, 2001). The four classic sources of efficacy—mastery experiences, vicarious experiences, social persuasion, and physiological/affective states—provide a useful framework for understanding how multilingualism and PD might shape teachers' efficacy: multilingual pedagogical successes act as mastery experiences; observing peers and participating in PD supply vicarious and persuasive inputs that boost efficacy.

2.4. Resilience as adaptive capacity

Teacher resilience refers to the ability to handle and manage difficulties, stresses and threats received from the profession of teaching and requires individual power and skill to overcome these challenges (Boniwell & Ryan, 2012). However, this definition is not agreed upon by the outstanding figures in educational psychology. Pattersons et al (2004) define it as when a teacher uses his energy fully to reach school aims despite all adversity and challenges existing at his workplace. Or it is defined as "the capacity to spring back, rebound and successfully adapt in the face of adversity and develop social, academic and vocational competence despite exposure to severe stress or simply to the stress that is inherent in today's world" (Henderson & Milstein, 2003, p. 7).

Beltman et al. (2011), in a study reviewing the related literature on teacher resilience, maintained that even though a good proportion of characterizations of teacher resilience have been developed, there is a substantial lack of investigation into teachers' ideas on what teacher resilience is. Nevertheless, the main trend in these studies seems to be orientated towards one of three facets of teacher resilience: individual factors, contextual factors and teachers' attitudes on their work setting. Up to now, most research studies concentrated on teacher resilience agreed that teacher resilience means keeping teacher obligation and motivation despite adversity

(Sinclair, 2008; Sammons et al., 2007). However, they are different on which components to take into account as important to resilient outcomes. Positive outcomes mean working efficiently in a stressful setting and insisting on continuing. Positive outcome is characterized to be adaptive rather than predictive. Useful flexibility in threatening conditions implies that one is either not tired at all, works energetically, or immediately survives any challenging situations.

Teacher resilience refers to the capacity to adapt, recover, and maintain commitment despite contextual adversity. The resilience literature conceptualizes it as an interplay of personal resources (e.g., coping skills, optimism), relational resources (collegial support), and contextual affordances (supportive PD, manageable workload). Resilience theory emphasizes both trait-like protective factors and dynamic processes by which teachers negotiate stressors; thus, constructs such as self-efficacy and motivation are theorized as factors that both contribute to and are supported by resilience (Boniwell & Ryan, 2012).

2.5. Motivation — self-determination and teacher engagement

Self-Determination Theory (Deci & Ryan, 2000) frames teacher motivation in terms of basic psychological needs (autonomy, competence, relatedness). When PD and institutional settings support these needs, teachers' intrinsic motivation and autonomous regulation are improved, which enhances engagement and sustained professional learning. Motivation interacts with efficacy and resilience: motivated teachers are more likely to engage in PD and persist through setbacks, while higher efficacy and resilience promote continued motivation.

2.6. Professional Development (PD) as situated learning

PD is best investigated through situated and social learning lenses: it is a process of identity and practice transformation rather than mere information transmission. Effective PD provides mastery opportunities, collaborative reflection, and contextualized feedback—mechanisms that directly target the four sources of self-efficacy and foster resilience through social support and skill building (Behroozizad & Alizadeh, 2024). Consequently, PD is hypothesized to mediate or amplify relationships between teachers' repertoires (e.g., multilingualism) and psychological resources (efficacy, resilience, motivation) (Pearce & Morrison, 2011).

2.7. Empirical studies

Although research on teacher multilingualism has expanded recently, explicit large-scale quantitative modelling of multilingualism's downstream effects on teacher efficacy and resilience remains emergent. Recent empirical work indicates multilingual awareness and training are associated with stronger reflective practice and professional learning outcomes in teacher samples (e.g., studies of multilingual-aware PD in European contexts). These studies suggest multilingual competence can function as an enabler of more engaged PD and reflective classroom practice. Several recent Iranian studies provide direct and indirect evidence for links among PD, self-efficacy and resilience:

Mossafaie et al. (2024) modelled Iranian EFL teachers' self-efficacy using SEM and found self-efficacy closely associated with outcomes including professional development, wellbeing, and instructional success—supporting the conceptualization of efficacy as tightly coupled with PD outcomes. This study is particularly important for Iran-context modelling because it uses an SEM framework to identify multiple consequences of teacher efficacy.

Rezazadeh et al. (2023) conducted a mixed-methods study on bilingual (Azeri-Persian) Iranian EFL teachers and identified factors that build resilience; bilingualism (a form of multilingualism) was associated with specific coping repertoires and reflective strategies that underpin resilience. This provides country-specific evidence that teacher multilingualism relates to adaptive capacities.

Khodami (2024) reported moderate levels of resilience among Iranian EFL teachers, with professional resilience prominent; teaching styles and professional practices predicted resilience outcomes, indicating PD and pedagogical orientation matter for resilience. These Iran-based studies converge with the theoretical expectation that PD and multilingual/bilingual repertoires are relevant to efficacy and resilience in local contexts.

Longitudinal and intervention studies across contexts show that PD which contains practice-based components (coaching, observation, collaborative reflection) increases teachers' efficacy and coping skills. Krulatz (2024) reports longitudinal PD effects on teacher cognition related to multilingualism, suggesting that PD can alter beliefs and practices over time; meta-reviews of PD in multilingual contexts also point to gaps in teacher preparation but confirm that targeted PD yields cognitive and motivational gains.

PLS-SEM has become more widely used in teacher cognition research because of its ability to handle complex models with multiple latent constructs and smaller to moderate sample sizes. PLS-SEM has recently been used to model relationships among reflective teaching, self-

efficacy, and related teacher outcomes—underscoring the method's suitability for the current paper's aims. For instance, PLS-SEM was used to relate reflective teaching and self-efficacy, illustrating how model-based approaches can unpack direct/indirect relationships between professional behaviors and psychological constructs.

Empirical work indicates that teachers' motivation moderates and mediates their engagement with PD and adoption of multilingual practices. Studies in EFL contexts (including recent papers from China and Iran) show instructor motivation links to PD participation and instructional engagement; motivation therefore functions as both predictor and outcome in integrated models of teacher development.

Although pieces of the possible effect of multilingualism on resilience, self-efficacy and motivation have empirical support, few studies have modelled all five constructs simultaneously, especially in the Iranian EFL context using PLS-SEM. Existing Iranian SEM/PLS studies have largely focused on subsets of these variables (e.g., efficacy and its outcomes; resilience correlates; bilingual teacher resilience). Therefore, empirically estimating a comprehensive model with multilingualism as an upstream resource, PD as a proximal institutional mechanism, and self-efficacy, resilience and motivation as psychological outcomes (and possible mediators) fills a timely theoretical and empirical gap—one that recent national studies indicate is both relevant and feasible to test. Therefore, the present study sought to find out how multilingualism is related to resilience, self-efficacy, motivation and professional development.

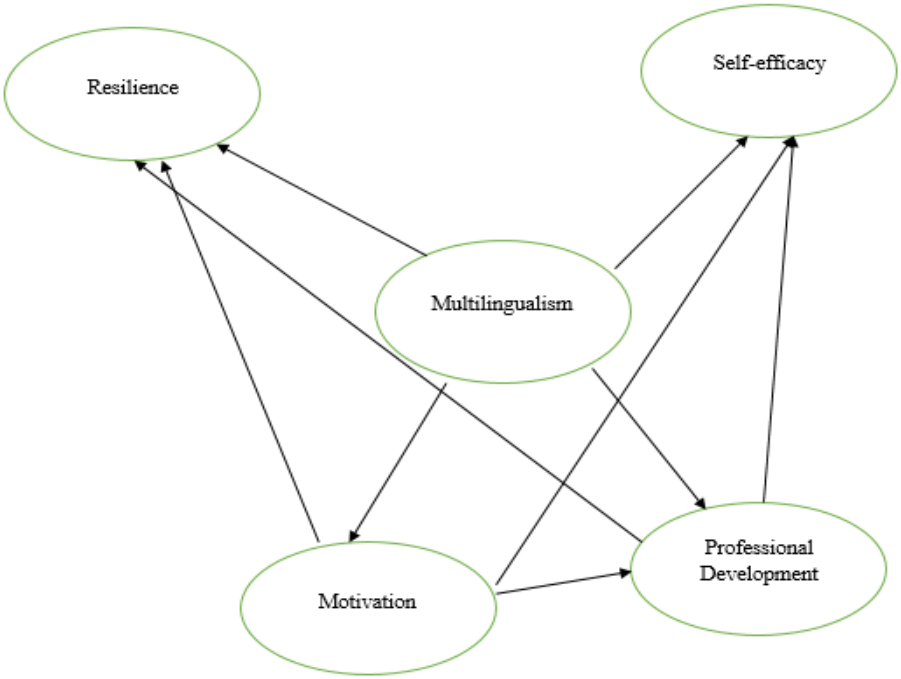
2.8. Theoretical Framework

The present study analyzed the possible relationships between teacher multilingualism and positive psychology traits such as self-efficacy, resilience, motivation and professional development based on previous empirical studies and theoretical considerations using a conceptual model (Figure 1). Multilingualism was considered as the main variable of the present study. This was conceptualized according to Calafato (2019) and Cook (2012). While the former argues that multilingual language teachers (MLTs) can be supposed as numerous abilities and aptitudes that they can employ to keep and improve their teaching practices in methods that might not be probable for teachers that have not developed these multilingual systems (Calafato, 2019); the latter, named the theory of multi-competence (Cook, 1992), protects a person or group's knowledge of more than one language, considering the total, in addition to interrelationships, of all the languages and how these can influence not only language use but

similarly the mind generally. There is evidence that there could be some relationships between multilingualism and the four traits of positive psychology presented in this study: self-efficacy, resilience, motivation and professional development (Abney & Krulatz, 2015; Calafato, 2019; García & Otheguy, 2019; Slaughter & Cross, 2020). To be more precise, there are some directions from multilingualism to each of these four constructs. In other words, based on the related literature, multilingualism can have some effects on these four traits of positive psychology. Thus, in this study, the conceptual model was built with PLS-SEM by using five constructs: multilingualism, self-efficacy, resilience, motivation and professional development. In addition, there can be some paths from motivation and professional development towards self-efficacy and resilience, which means theoretical foundations and empirical studies imply the idea that professional development and motivation are likely to exert some effects on resilience and self-efficacy. Through examining the interrelationships among these five constructs, we hoped to support these interrelationships empirically and identify new ones associated with them.

Figure 1

Theoretical Framework



According to the theoretical framework shown in Figure 1, the following research questions were developed:

RQ1. How does multilingualism predict self-efficacy, resilience, motivation and professional development among Iranian EFL teachers?

RQ2. How do professional development and motivation predict resilience and self-efficacy among Iranian EFL teachers?

3. Methodology

3.1. Participants

In this study, 300 Iranian EFL teachers were selected through convenience sampling as participants. They were in the age range of 25 to 55. They were all from Golestan province and taught English in various private English language schools.

Table 1

Demographics of the Participants

Type of Academic degree	Gender	Job experiences	Academic degree	age
English-related majors 199	Male 150	0-5 years of teaching 146	B.A: 208	25-35: 150
Non-English-related 101	Female 150	20-30 years of teaching 154	M.A: 90	35-45: 120
			PhD: 2	45-55: 30

3.2. Instruments

3.2.1. Teacher Resilience Questionnaire

The related data were collected through the Multidimensional Teachers' Resilience Scale (MTRS) developed by Mansfield and Wosnitza (2015). The questionnaire includes two parts. The first part includes participants' demographic information, such as their gender, age, and years of experience in teaching. The second part of the questionnaire comprises 26 Likert-scale items intended to assess four dimensions of teacher resilience: emotional (five items), social (five items), motivational (11 items) and professional (6 items) (Mansfield & Wosnitza, 2015). All items were assessed using a 5-point Likert-type scale ranging from "completely agree" to "completely disagree." Mansfield and Wosnitza (2015) conducted a study on Australian teachers that resulted in a version of the scale with three dimensions: motivation/emotion (five items, α =

.76), professional (two items, α = .75), and social (two items, α = .71). The validation of the Multidimensional Teachers' Resilience Scale (MTRS) was evaluated by Peixoto et al. (2019) on 334 Portuguese teachers. Their study proposed that the MTRS is a valid and reliable instrument to measure teachers' resilience. Since this questionnaire was not developed in Iran, its reliability and validity were checked among Iranian EFL teachers. In a pilot study with about 40 participants (teachers), the reliability of the questionnaire (Cronbach's Alpha) was measured. The coefficient of Cronbach's alpha was .82, which is an accepted figure for reliability. For validity (content validity), it was given to three experts (PhD holders in ELT) and three items were modified.

3.2.2. Teachers' Self-Efficacy Scale (TSES)

The first instrument (Tschannen-Moran & Hoy, 2001), TSE, consists of 24 items to measure teachers' sense of self-efficacy for EFL instruction. There are three subscales: 1) Efficacy for Instructional Strategies, 2) Efficacy for Classroom Management, and 3) Efficacy for Student Engagement. Each subscale has eight items with a nine-point response scale. The original developers reported high internal consistency of each subscale: Efficacy for Instructional Strategies (.91), Efficacy for Classroom Management (.90), and Efficacy for Student Engagement (.87). Since this questionnaire was not developed in Iran, its reliability and validity were checked among Iranian EFL teachers. In a pilot study with about 40 participants (teachers), the reliability of the questionnaire (Cronbach's Alpha) was measured. The coefficient of Cronbach's alpha was .86, which is an accepted figure for reliability. For its validity (content validity), it was given to three experts (PhD holders in ELT) and five items were modified.

3.2.3. Professional Development Questionnaire

Developed by De Vries et al. (2013), this questionnaire consists of 40 items under three factors: updating activities (11 items), reflective activities (13 items), and collaborative activities (16 items). It is a Likert-type scale with 1 meaning "Not applicable", 2 meaning "Disagree", 3 meaning "Somewhat applicable", and 4 meaning "Fully applicable". The reliability of the scale was assessed and approved (α=.88). Since this questionnaire was not developed in Iran, its reliability and validity were checked among Iranian EFL teachers. In a pilot study with about 40 participants (teachers), the reliability of the questionnaire (Cronbach's Alpha) was measured. The coefficient of Cronbach's alpha was .81, which is an accepted figure for reliability. For its validity (content validity), it was given to three experts (PhD holders in ELT) and two items were modified.

3.2.4. Motivation Questionnaire

To measure the amount of motivation of the participants, a motivation test by Schmidt et al. (1996) was used. It is a 50- item, Likert-type questionnaire ranging from strongly disagree (1) to strongly agree (6). A higher score indicates a higher degree of motivation and vice versa. This motivation questionnaire consists of 7 parts, which are as follows:

1. Intrinsic motivation: five items
2. Extrinsic motivation: 15 items
3. Personal goals: five items
4. Expectancy/ Control components: 9 items
5. Attitudes: four items
6. Anxiety: six items
7. Motivation strength: six items

Therefore, this questionnaire has 50 items in total, with 7 factors behind these items. Since this questionnaire was not developed in Iran, its reliability and validity were checked among Iranian EFL teachers. In a pilot study with about 40 participants (teachers), the reliability of the questionnaire (Cronbach's Alpha) was measured. The coefficient of Cronbach's alpha was .87, which is an accepted figure for reliability. For its validity (content validity), it was given to two experts (PhD holders in ELT) and two items were modified.

3.3. Procedure

The present research employed an explanatory design with the aim of examining how multilingualism predicts self-efficacy, resilience, motivation and professional development. Questionnaires were administered to 300 Iranian EFL teachers. To analyze the simultaneous interrelationships among the mentioned constructs, PLS-SEM software was utilized. Participants were informed of the study's objectives and were asked to complete the questionnaires carefully. The response rate was 98%, although some questionnaires with missing data were excluded through a pairwise deletion process. After the initial data entry into Smart PLS, it was discovered that certain respondents had provided careless answers or showed no engagement. To address this, the data were screened, and the responses which were non-engaged were removed before the final analysis. The refined data were then processed and analyzed using Smart PLS.

Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected because the study aimed to examine complex predictive relationships among multiple latent constructs, including multilingualism, self-efficacy, resilience, professional development, and motivation.

PLS-SEM is particularly appropriate for exploratory and prediction-oriented research, for models with numerous constructs and indicators, and when data may not fully satisfy multivariate normality assumptions (Hair et al., 2022). In addition, the method performs effectively with moderate sample sizes and enables simultaneous assessment of the measurement and structural models. Following the recommendations of Hair et al. (2022), reliability, convergent validity, discriminant validity, and path significance were examined and evaluated systematically.

3.4. Data Analysis

The analysis was conducted through PLS-SEM software to identify the interrelationships among Iranian EFL self-efficacy, resilience, motivation and professional development. PLS-SEM, a variance-based statistical method, was preferred over covariance-based SEM techniques such as AMOS or LISREL due to its flexibility with smaller sample sizes, tolerance for non-normal data distributions, ability to estimate complex models with numerous relationships, and capacity to incorporate both reflective and formative variables simultaneously, thereby offering an exploratory approach (Hair et al., 2017).

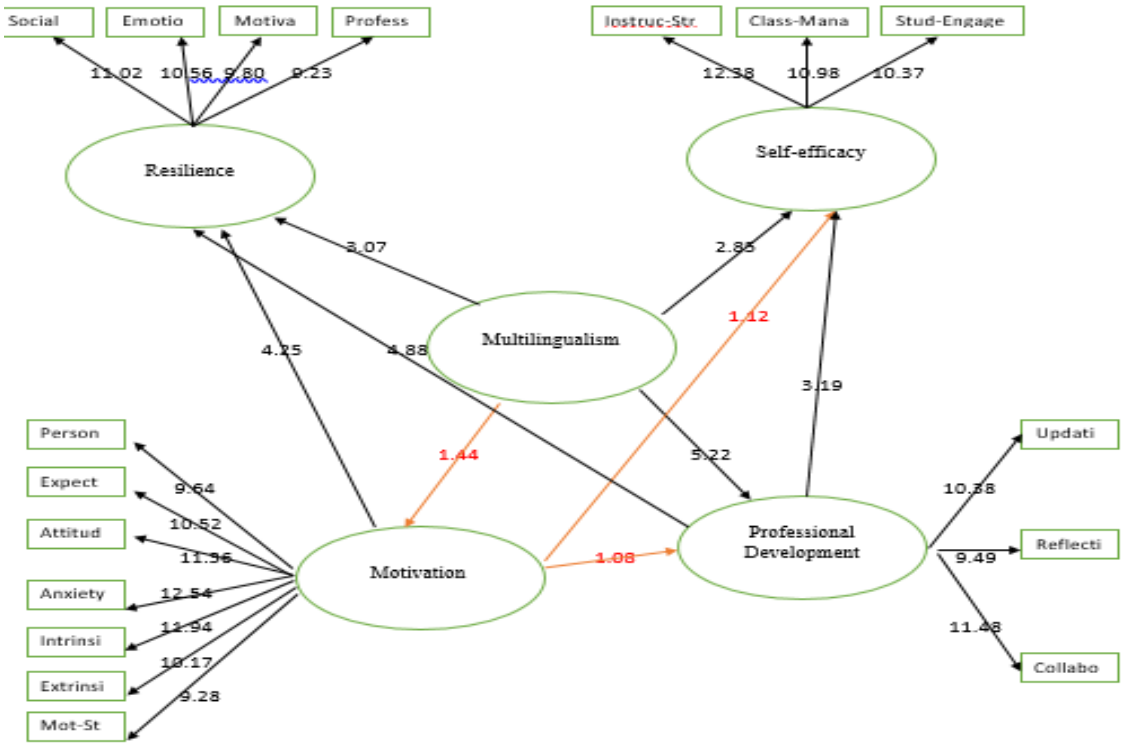
4. Results

4.1 Analysis of the conceptual model

An initial overview of the conceptual model was conducted to identify significant relationships within the structural model and to remove non-significant paths. The refined PLS-SEM model was then evaluated in two stages: first the measurement model, followed by the structural model. In this framework, measurement models illustrate the relationships between a construct (oval) and its indicators (rectangle), while structural models present the relationships among constructs (Hair et al., 2017). Path coefficients were considered significant if their t-values exceeded 1.96, corresponding to a p-value below 0.05 at the 95% confidence level; otherwise, they were removed from the model (Hair et al., 2017). Additionally, indicators with loadings below 0.4 were considered non-significant and excluded from the measurement model (Hulland, 1999).

Figure 2

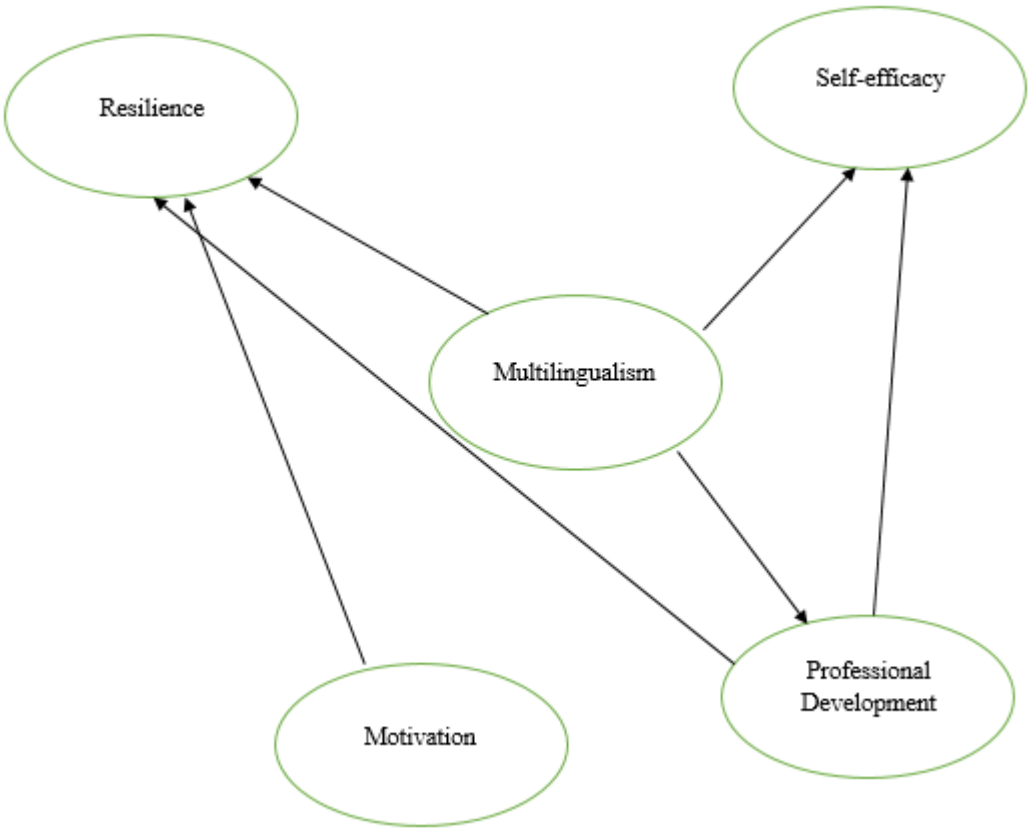
Loadings and t-values



As indicated in Figure 2, the paths from multilingualism to motivation, from motivation to professional development and from motivation to self-efficacy had t-values below 1.96. Consequently, these relationships were deemed non-significant and eliminated from the conceptual model, showing that multilingualism could not predict motivation and that motivation could not predict both professional development and self-efficacy. Since all other indicator loadings were above 0.4, their effects were significant at the 95% confidence level and were retained in the model (Figure 3).

Figure 3

The Modified PLS-SEM Model

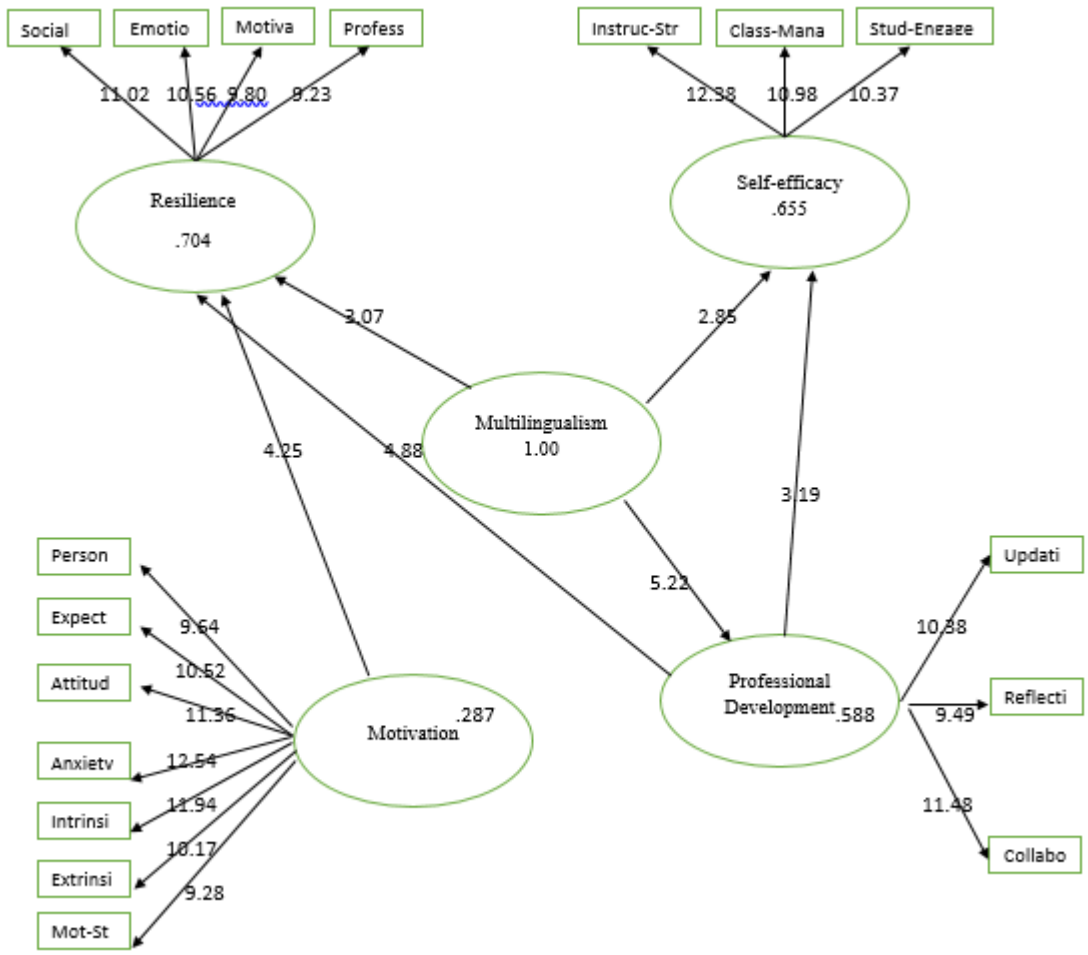


PLS-SEM model assessment

The model assessment included evaluation of the measurement models, the structural model, and the model's overall goodness of fit (GOF). Before the detailed assessment, outputs such as indicator loadings, path coefficients, and R^2 values were generated using PLS-SEM (Figure 4).

Figure 4

R2 Values, Loadings and Path Coefficients



Measurement model

Three crucial criteria were used to assess measurement models: indicator reliability, convergent validity, and discriminant validity (Hair et al., 2017). Indicator reliability, representing internal consistency, was assessed via indicator loadings, composite reliability (CR), and Cronbach's alpha (α). Convergent validity, the extent to which a construct explains variance in its indicators, was measured using average variance extracted (AVE). Discriminant validity, the extent to which a construct is more strongly associated with its own indicators than with those of other constructs, was evaluated through cross-loadings (Hair et al., 2017).

Figure 4 depicts that indicator loadings exceeding 0.4 met acceptable quality standards. Table 2 shows that CR values were acceptable (0.6–0.7) in exploratory research (Nunnally &

Bernstein, 1994). Thus, indicator reliability was confirmed, ensuring high internal consistency (Imran et al., 2019). AVE values were also satisfactory, supporting convergent validity, while cross-loadings verified discriminant validity.

Table 2

A Coefficient, CR and AVE Values for PLS-SEM Model

Variable	α Cronbach	CR	AVE
ML	1	1	1
M	.415	.774	.612
SE	.622	.715	.339
PD	.744	.915	.320
R	.855	.863	.164

Structural model

The structural model was evaluated through the significance of path coefficients (t-values), effect size (f^2), and coefficient of determination (R^2) (Hair et al., 2017). The results are summarized in Table 3. Effect sizes (f^2) represent the relative impact of exogenous constructs, with benchmarks of 0.02, 0.15, and 0.35 for small, medium, and large effects, respectively (Cohen, 1988). R^2 values demonstrate explained variance, with thresholds of 0.19 (weak), 0.33 (moderate), and 0.67 (substantial) (Chin, 1998). The R^2 values in Figure 4 indicate acceptable predictive power, and Table 3 shows that all relationships were significant at the 95% confidence level, with f^2 values at acceptable levels.

Goodness of Fit

GOF was employed as an index for the global validation of the PLS-SEM model (Tenenhaus et al., 2004). Although PLS-SEM lacks a universal GOF criterion, Tenenhaus et al. (2004) suggested reference values. Wetzels et al. (2009) proposed GOF benchmarks of 0.01 (small), 0.25 (moderate), and 0.36 (large). In this study, the GOF value was 0.329, suggesting a relatively large model fit.

Summary of the Model

The final model revealed that there is a path from multilingualism to resilience, to self-efficacy and to professional development, while there is no path from multilingualism to motivation. It means multilingualism can predict resilience, self-efficacy and professional

development but cannot predict motivation. Besides, it showed that there is a path from motivation to resilience, which can mean that motivation can predict resilience. Additionally, it revealed that professional development can predict resilience and self-efficacy since there is a path from professional development to both resilience and self-efficacy.

Table 3

T-values and f2 Values of the PLS-SEM Model

	T-Statistics	*f2* values
ML → PD	4.254	0.994
ML → SE	3.656	0.941
ML → R	9.478	47.558
M → R	4.114	1.244
PD → R	6.554	13.224
PD → SE	7.301	11.389

5. Discussion

The present study mainly revealed that multilingualism can predict self-efficacy, resilience, and PD. Accordingly, several interrelated mechanisms likely explain why multilingualism predicts higher teacher self-efficacy, greater resilience, and enhanced engagement in professional development. From a metalinguistic and pedagogical view, multilingual teachers typically possess heightened metalinguistic awareness and comparative knowledge of language systems, which helps them explain language phenomena, anticipate learner errors, and design scaffolded instruction. These practical pedagogical advantages provide repeated mastery experiences (successful instructional episodes), the single most powerful source of efficacy according to social-cognitive accounts. Thus, multilingual competence can generate iterative evidence that teachers are effective, raising self-efficacy. (Bandura's theory of self-efficacy helps explain these mastery-experience effects.) In terms of reflective orientation and adaptive repertoires, the literature depicts that multilingual teachers often use reflective practices—using knowledge of multiple languages to reconsider and refine pedagogy—which supports professional learning and adaptation. Reflection and reflective PD increase teachers' perceived control over instruction and their ability to adapt when lessons fail, which strengthens both efficacy and resilience.

From a sociocultural empathy and classroom management point, multilingualism tends to increase teachers' cultural empathy and communicative flexibility; these interpersonal strengths can reduce classroom conflict and unpredictability, which, as a result, lowers stress and supports resilient responses to setbacks. Over time, this contributes to sustained engagement with PD because teachers perceive PD as instrumentally useful rather than irrelevant.

This study also revealed that PD can predict self-efficacy and resilience. The direct effects of PD on self-efficacy and resilience can be interpreted via some established mechanisms. In terms of mastery and vicarious experiences within PD, effective PD that includes modelling, peer observation, coached practice, and feedback affords teachers concrete mastery and vicarious experiences—both recognized sources of enhanced self-efficacy. When PD design incorporates collaborative learning and incremental skill practice, teachers repeatedly experience competence gains, which increase their efficacy beliefs. From the viewpoint of social persuasion and collegial support, PD that builds professional learning communities supplies verbal encouragement and social validation, which raise teachers' confidence and their willingness to persist through challenge—key resilience components. In contexts where PD also reduces isolation and increases collegial problem-solving, teachers develop social resources that buffer stress. While cognitive reframing and coping strategies viewpoint maintains that PD often promotes reflective frameworks and coping strategies (e.g., reframing failures, classroom management techniques), which help teachers reappraise challenges and recover from setbacks more quickly—operationally increasing resilience. Finally, the present study also showed that PD can predict the resilience link in the model; therefore, it plausibly reflects both skill acquisition and improved emotion-regulation/attributional styles learned in PD.

The findings of the present study can be compared to previous related studies to see whether they are in line with them or not. The present PLS-SEM model showed that multilingualism significantly predicts teachers' self-efficacy, resilience, and professional development, and that professional development (PD) in turn significantly predicts teacher self-efficacy and resilience. These patterns align with and extend a growing body of empirical work linking multilingual competence, teacher development activities, self-efficacy, and resilience. First, research investigating multilingual teachers has consistently highlighted that multilingual experience is associated with richer reflective practice, higher metalinguistic awareness, and more adaptive classroom strategies—features that are plausibly related to greater professional growth and psychological resourcefulness. For example, Almusharraf et al. (2022) found that

multilingualism and participation in PD activities were positively associated with teachers' reflective practice and professional learning outcomes. Their analysis reported higher reflection/reflective-practice scores among multilingual teachers and argued that multilingual awareness supports reflective professional development.

Second, studies in Iranian EFL contexts have repeatedly shown strong links among teacher self-efficacy, professional development, and wellbeing-related constructs. Mossafaie et al's (2024) mixed-methods SEM study of Iranian EFL teachers reported self-efficacy as closely associated with several outcomes, including professional development and psychological wellbeing, supporting the present finding that PD and self-efficacy are tightly coupled in this national context. Third, the current result that PD positively influences self-efficacy and resilience resonates with prior SEM and quasi-experimental research showing that targeted PD (especially that which includes vicarious learning, mastery experiences and collaborative reflection) strengthens teachers' efficacy beliefs and coping capacities. Studies of PD effects on teacher cognition and multilingual teaching practices show PD can change teacher beliefs and classroom practices and thereby scaffold efficacy and adaptive responses to stressors. Finally, the observed relations among resilience, well-being, and teacher functioning have been emphasized in recent reviews: resilience is often identified as a protective resource that correlates with and helps sustain professional engagement and positive outcomes in language teachers, consistent with the current model where resilience is both an outcome of multilingualism and a construct linked to PD and efficacy. Taken together, the current PLS-SEM findings converge with earlier empirical and review work showing (a) multilingualism is not merely a background characteristic but is positively associated with teacher reflection/PD; (b) PD is an effective lever for enhancing teacher self-efficacy and adaptive capacities; and (c) self-efficacy and resilience form an interrelated cluster of psychological resources that support teacher functioning in EFL contexts.

The findings should also be interpreted in the sociopolitical context of multilingualism in Iran. Although Iran is full of various linguistic communities, educational policies and EFL instruction have traditionally prioritized standardized approaches that leave limited room for leveraging teachers' multilingual repertoires (Aghaei & Sadat Madani, 2024; Behroozizad & Alizadeh, 2024). At the same time, Iranian EFL teachers experience numerous challenges, including centralized curricula, examination-oriented instruction, limited professional autonomy, heavy workloads, and unequal access to professional development opportunities (Aghaei, 2016;

Mirvahedi et al., 2021). These contextual factors may shape how teachers develop and utilize multilingual competencies, self-efficacy, resilience, motivation, and professional expertise. Accordingly, future research should integrate sociopolitical and institutional variables to provide a more contextually grounded understanding of multilingualism and teacher development in Iranian EFL settings.

Conceptually, the model posits that multilingualism functions as a resource that enables better engagement with PD and benefits from it; in turn, PD improves psychological resources (self-efficacy, resilience) that sustain professional growth. Practically, these results indicate that PD programs in Iranian EFL settings will be more effective if they (a) acknowledge and leverage teachers' multilingual repertoires, (b) emphasize mastery-based and collaborative learning activities, and (c) include components which are explicitly designed to build adaptive coping and reflective practice.

The proposed model suggests a novel theoretical contribution by introducing multilingualism as a foundational psychological and professional resource rather than just a linguistic competence. Specifically, the findings indicate that multilingualism enhances teachers' resilience, self-efficacy, and professional development, suggesting that multilingual experiences increase adaptive coping, confidence in instructional practice, and continuous professional learning. However, the absence of a significant relationship with motivation shows that teacher motivation may be more strongly influenced by contextual factors, such as institutional support, career opportunities, and working conditions, than by multilingual competence alone. These findings refine existing theories of multilingual teacher development by differentiating between psychological capacities that are directly associated with multilingualism and those that depend on broader environmental conditions. For multilingual teacher education, the results underestimate the importance of preparing teachers to implement their multilingual repertoires strategically, reflect on multilingual identities, and develop pedagogical practices that transform linguistic diversity into a source of professional growth and instructional effectiveness.

6. Conclusion

The present study modeled and tested the complex interrelationships among multilingualism, self-efficacy, resilience, motivation, and professional development among Iranian EFL teachers through Partial Least Squares Structural Equation Modeling (PLS-SEM).

The findings revealed that multilingualism can predict teachers' self-efficacy, resilience, and professional development significantly, and that professional development, in turn, has a meaningful impact on self-efficacy and resilience. These results underscore the dynamic and interdependent nature of psychological and professional constructs within the teaching profession. Theoretically, the study extends current understandings of language teacher psychology by integrating multilingualism—a sociolinguistic and cognitive resource—into models of teacher development and well-being. It confirms that multilingual competence is not only a linguistic benefit but also a psychological asset that develops teachers' confidence, adaptability, and engagement in lifelong learning. Moreover, the interrelated links among professional development, self-efficacy, and resilience highlight the cyclical process through which professional growth develops inner strengths, which in turn guarantees teachers' motivation and capacity to cope with classroom and institutional challenges.

As pedagogical implications, the study suggests valuable implications for teacher education policymakers and professional development designers. Programs that acknowledge teachers' multilingual repertoires, provide professional learning experiences, and promote collaborative reflection are likely to yield greater gains in self-efficacy and resilience. Encouraging teachers to rely on their multilingual experiences can empower instructional strategies and sustain motivation, leading to more adaptive and effective teaching practices in Iran's EFL context.

A limitation of the present study is that multilingualism was primarily considered as an individual competence rather than a socially situated practice shaped by historical, cultural, and institutional contexts. Consequently, the study did not critically examine the ideological tensions related to the dominance of English in EFL settings or how such ideologies may influence teachers' professional identities, agency, and multilingual practices. Future research should focus on critical multilingualism perspectives to investigate how language ideologies empower relations and institutional policies shape Iranian EFL teachers' experiences. Such approaches would provide a more comprehensive understanding of multilingualism and complement the structural relationships identified through PLS-SEM.

Finally, while the model provides strong evidence for the proposed interrelationships, the findings should be interpreted with caution due to the study's cross-sectional design. Future research using longitudinal or experimental methods could further clarify causal directions and explore the moderating roles of additional psychological and contextual variables, such as

emotional intelligence, job satisfaction, or institutional support. Nonetheless, the current study offers a theoretically grounded and empirically validated model that deepens our understanding of how multilingualism interacts with teachers' professional and psychological dimensions, contributing to a more comprehensive view of EFL teacher development.

Future Studies

Future research should move beyond examining multilingualism as a set of linguistic competencies and instead conceptualize it as a dynamic sociocognitive and professional resource that shapes teachers' identities, agency, and instructional decision-making. Such a perspective would result in a deeper understanding of how multilingualism helps with teachers' self-efficacy, resilience, motivation, and professional development in different educational settings. In addition, future studies should adopt critical theoretical perspectives to investigate how Iranian EFL teachers negotiate multilingual realities within institutional, curricular, and policy constraints (Aghaei & Sadat Madani, 2024; Behroozizad & Alizadeh, 2024). Factors such as English-only ideologies, standardized assessment practices, limited institutional support for multilingual pedagogies, and sociocultural expectations may influence how teachers utilize their multilingual repertoires in classrooms. Employing qualitative or mixed-methods designs would enable researchers to capture teachers' lived experiences and contextual challenges, thereby extending the explanatory power of PLS-SEM models and generating more context-sensitive implications for teacher education, language policy, and multilingual pedagogy.

Declaration

We confirm that this work is original and is not under consideration by any other journal.

Transparency Statements

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

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Declaration of Interests

The authors declare that they have no conflict of interest.

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