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Modeling the associations between EFL teachers' immunity, L2 grit, and work engagement

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ABSTRACT

Due to the novelty of the concept of language teacher immunity, scant research attention has been dedicated to exploring its personality-based and psychological correlates in language teaching research. To expand the line of research investigating the contributing factors to language teachers' immunity, the present study, informed by positive psychology, aimed to test a structural model of English as a Foreign Language (EFL) teachers' L2 grit, work engagement, and immunity. The participants were 369 Iranian EFL teachers who completed three electronic surveys. The results of Structural Equation Modelling (SEM) indicated that EFL teachers' immunity was significantly influenced by their L2 grit and work engagement. In addition, EFL teachers' L2 grit was found to be a stronger predictor of their immunity than work engagement. The findings revealed that EFL teachers with higher levels of work engagement and L2 grit tended to be more immune to professional challenges, which subsequently helped them overcome stressors resiliently and remain committed to the profession. The results highlight the significance of applying positive psychology in the field of foreign language teacher education and add to our understanding of the antecedents of language teachers' immunity in EFL contexts. Finally, suggestions for future research are offered.

Introduction

Teacher immunity, defined as a "robust armoring system that emerges in response to high-intensity threats and allows teachers to maintain professional equilibrium and instructional effectiveness" (Hiver, 2017, p. 669), is an essential motivational factor in the development of language teachers' identity which facilitates their professional development (Hiver & Dörnyei, 2017). Teachers with higher levels of immunity indicate higher levels of self-efficacy (Hiver & Dörnyei, 2017), commitment (Hiver, 2017), and autonomy (Noughabi et al., 2020). Regarding the key role of immunity in teachers' professional identity, emotional state, and psychological growth, Hiver (2017) stressed the need to conduct further studies on this neglected aspect of language teachers' motivation.

Research indicates that language teachers' perseverance and commitment are integral components of their immunity (Hiver, 2017). Therefore, two possible contributors to teacher immunity could be L2 grit and work engagement. The notion of teacher L2 grit, defined as a personality trait which is a combination of perseverance of effort and passion for language teaching despite adversity (Sudina et al., 2021), might be of immediate relevance to teacher immunity because immunised

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teachers indicate high levels of enthusiasm for the job and have perseverance to overcome challenges and difficulties (Hiver, 2017). Due to the importance of teachers' L2 grit in their teaching outcomes (Sudina et al., 2021), it might be beneficial to identify whether it may affect teacher immunity. The other factor affecting teachers' immunity is their engagement, conceptualised as a motivational construct that reflects teachers' allocation of available cognitive, social, and emotional resources for doing instructional activities (Perera et al., 2018). As stated by Topchyan and Woehler (2021), higher job satisfaction correlates with higher levels of work engagement, i.e. a positive mental state characterised by energy for and dedication to the job (Schaufeli et al., 2002). In this regard, engaged teachers have vigour, dedication, and enthusiasm despite adversities (Bakker, 2017) which in turn might be another predictor of teacher immunity. Moreover, research shows that engagement and grit are associated with each other among language learners and teachers (O'Neal et al., 2018; Zeng et al. 2019).

Despite the key role of teachers' immunity, grit, and engagement in teachers' psychological growth and professional achievement, uncovering the association among these concepts has remained under the shadow, especially within the domain of foreign language education. This scarcity of empirical evidence might be related to the novelty of the concept of language teacher immunity and teacher L2 grit. Additionally, the concept of language teacher immunity has been less explored compared to other psychological variables (Hiver, 2017; Li, 2021). With the introduction of a validated scale for measuring teachers' L2 grit (Sudina et al., 2021) and the flourishing of positive psychology in foreign language teaching research (Dewaele et al., 2019), it is necessary to conduct a new study to identify the psychological antecedents and personality predictors of language teachers' immunity. Therefore, drawing on positive psychology, the present study aims to model the relationships between immunity, work engagement, and L2 grit among English as Foreign Language (EFL) teachers. Hence, this study aims to answer the following research question:

- RQ: To what extent can EFL teachers' immunity be predicted by their L2 grit and work engagement?

This study represents one of the first inquiries into both the psychological variables and personality traits (i.e. psychological characteristics which tend to be stable over time and reflect how one feels, thinks, and behaves; Mount et al., 2005) which predict EFL teachers' immunity using Structural Equation Modeling (SEM). In particular, the present study focuses on novel concepts, especially teacher immunity and L2 teacher domain-specific grit, that contributes to research on positive psychology and language teachers. We propose that EFL teachers who persist with passion in the teaching profession and sustain their commitment are more likely to remain immune from work-related difficulties and adversities. One major contribution of this study is to present a new model for the complicated network of the variables which develop language teachers' immunity. As advocated by positive psychology in foreign language education (Dewaele et al., 2019), EFL teachers can utilise their personality strengths (e.g. L2 grit) and better capitalise on positive psychological factors (e.g. work engagement) to maintain their professional equilibrium in response to ups and downs of their job (Hiver, 2017). As such, by modeling the interactions between immunity, L2 grit, and engagement this study can shed a better light on how personality traits and psychological variables can be conducive to L2 teacher immunity.

Literature review

Teacher immunity

The notion of teacher immunity, conceptualised as a contextual armoring system, emerges in response to job-embedded threats to assist language teachers in maintaining their professional equilibrium (Hiver, 2017). Research indicates that teachers' immunity affects their classroom affectivity,

instructional efficiency, and professional identity (Hiver, 2015). Teachers with productive immunity are more likely to remain committed to the job enthusiastically, cope with the difficulties resiliently, and regulate their emotions adaptively (Hiver & Dörnyei, 2017). In the present study, teacher immunity is operationalised as EFL teachers' robust protective system, composed of self-efficacy in teaching, classroom affectivity, resilience during the career, coping with challenges, openness towards innovation, and attitudes toward teaching, which prevents them from experiencing burnout (Hiver, 2017).

Previous studies on teacher immunity have identified a series of factors that may impact language teacher immunity. In his contributing study, Hiver (2017) delineates how language teachers' immunity is interwoven with their self-efficacy, classroom affectivity, commitment, and coping. In a qualitative study on Iranian EFL teachers' immunity, Haseli Songhori et al. (2020) found that four primary sources of job-related threats (personal-level stressors, school-level stressors, organization-based stressors, and sociocultural stressors) negatively impacted EFL teachers' immunity. In their concluding remarks, Haseli Songhori et al. (2020) implicitly stated the importance of diagnosing antecedents of teacher immunity with the aim of enhancing EFL teachers' professional growth.

Another line of inquiry scrutinised the precedents of teacher immunity. Rahimpour et al. (2020) explored predictors of teacher immunity based on the personality model of HEXACO (Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) and found that agreeableness, extroversion, and emotionality indirectly affected Iranian EFL teachers' immunity. Besides, job insecurity and reflective teaching significantly influenced teacher immunity. In spite of the contribution of the study of Rahimpour et al. (2020), psychological variables were not entered into their model of teacher immunity. In their recent mixed-methods research, Beyranvand and Mohamadi Zenouzagh (2021) found that EFL teachers' work engagement was positively linked to their immunity. Moreover, it was found that teacher immunity was tied with psychological and affective constructs.

In a similar fashion, previous research confirms language teachers' immunity is inextricably interwoven with their autonomy, emotions, and engagement (Noughabi et al., 2020) as well as their sense of self-efficacy (Hiver & Dörnyei, 2017). Consequently, concerning the theoretical interrelatedness of teacher self-efficacy and grit, it is hypothesised that teacher' L2 grit might be linked to their immunity. However, further empirical evidence is needed to support and substantiate this claim. Given that research on language teacher immunity is still young (Noughabi et al., 2020), identifying its antecedents can contribute to the field.

Teacher L2 grit

Recently, the notion of grit, defined as "the perseverance and passion for long-term goals" (Duckworth et al., 2007, p. 1087), has been increasingly investigated within different domains, including education and psychology (Teimouri et al., 2020). According to Duckworth et al. (2007), grit includes "working strenuously toward challenges, maintaining effort and interest over years despite failure, adversity, and plateaus in progress" (pp. 1087-1088). As stated by Duckworth et al. (2007), teacher grit is conceptualised by the perseverance of effort and consistency of interest. Therefore, teacher grit is one of the traits that supports teachers in overcoming stressors and remaining in the teaching profession (Sudina et al., 2021). Gritty teachers dedicate their energy to the work for a long time and consider instructional practices to be enjoyable even when they may face a multitude of professional challenges (Maiers & Sandvold, 2017; Sudina et al., 2021). In the present study, teacher L2 grit refers to EFL teachers' perseverance of effort to accomplish the goals and consistency of interest in the profession and their instructional practices (Sudina et al., 2021).

The benefits of having grit in educational settings have also been explored. Duckworth et al. (2007), for instance, believed that individuals' grit causes them to feel inspired and confident to

cope with challenges without feeling frustration. In addition to self-efficacy and resilience, grit also affects language teachers' endurance during job-related difficulties (Sudina et al., 2021). Moreover, teachers' optimum performance hinges on their grit and life satisfaction (Duckworth et al., 2009). Additionally, gritty teachers' passion-driven instruction plays a crucial role in developing their work engagement (Maiers & Sandvold, 2017).

Recent studies on the concept of language learners' grit (e.g. Alamer, 2021; Chen et al., 2021; Cheng, 2021; Feng & Papi, 2020; Khajavy, 2021; Khajavy et al., 2020; Lan et al., 2021; Lee, 2020; Sudina et al., 2020; Sudina & Plonsky, 2020; Teimouri et al., 2020; Wei et al., 2020; Yang et al., 2022) had contributing results to the literature, however, little is known about language teachers' L2 grit and its correlates (Sudina et al., 2021). This dearth of research could be attributed to the scarcity of a reliable domain-specific research instrument for measuring language teachers' L2 grit. According to Teimouri et al. (2020), one major drawback of previous studies on grit in Second Language Acquisition (SLA) research lies in their use of domain-general scales. Previous studies encouraged measuring grit as a domain-specific construct (Cormier et al., 2019; Yang et al., 2022). A domain-specific assessment of language teachers' grit will indicate their perseverance and passion for the job more precisely. That is why Sudina et al. (2021) conceptualised the notion of L2 grit among language teachers and designed and validated an instrument (L2-Teacher Grit Scale) for measuring the construct of L2 grit among EFL and English as a Second Language (ESL) teachers. Teacher L2 grit is a personality trait that entails perseverance of effort (i.e. trying resiliently to accomplish the goals and overcome the setbacks) and consistency of interest (i.e. having a passion for the profession). Sudina et al. (2021) confirmed the reliability and validity of the L2-teacher grit scale; however, they recommended researchers to carry out further studies to find out the psychological correlates of domain-specific teacher grit.

The line of research on teachers' L2 grit in language teaching is still at nascent stages (Sudina et al., 2021). With a strong consensus on the positive outcomes of teachers' grit in educational settings (Duckworth et al., 2009; Maiers & Sandvold, 2017) and a clear need to explore the domain-specific nature of grit (Sudina et al., 2021), identifying the correlates of language teachers' L2 grit will contribute to the existing knowledge of the concept. Regarding the need to unveil the relationships between domain-specific grit and other psychological variables (Sudina et al, 2021) and the increasing interest in the positive psychology trend within the field of second language acquisition research (Dewaele et al., 2019; Li, 2021; MacIntyre et al., 2019a; Mercer et al., 2016), the relationship between L2 grit and positive psychological variables such as teacher immunity and work engagement needs further exploration.

Teacher work engagement

Work engagement refers to a persistent affective state of mind determined by the vigour, dedication, and absorption an individual has concerning his or her job (Schaufeli, 2017). As stated by Schaufeli et al. (2002), vigour refers to ones' high level of energy, willingness, and resilience needed to invest effort buoyantly and persistently without being easily fatigued. Dedication contains a feeling of enthusiasm for and pride in the job, which makes an individual highly involved in the profession (Bakker, 2017). Absorption refers to one's concentration on doing work-related tasks happily without paying attention to issues unrelated to the work (Bakker & Demerouti, 2008). The positive association between teachers' work engagement, classroom performance, self-efficacy, and commitment (Bakker & Bal, 2010; Guglielmi et al., 2016; Hakanen et al., 2006) has been documented. In this study, teacher work engagement refers to EFL teachers' energy and dedication for being emotionally, cognitively, and socially involved in the profession (Klassen et al., 2013).

Teacher work engagement has been a recurring theme in previous studies (Perera et al., 2018). Recently, due to the emphasis on the positive psychology of language teachers (Li, 2021), researchers have been increasingly interested in studying the notion of work engagement within the domain

of foreign language education. In their cross-cultural study, Greenier et al. (2021) modeled the interplay among language teachers' work engagement, psychological well-being, and emotional regulation. They found that language teachers' work engagement could be significantly predicted by their psychological well-being and emotional regulation both in the Iranian and British contexts. In another recent study, a scale for measuring EFL teachers' motivation was developed and significant correlations were found between EFL teachers' motivation, job commitment, and work engagement (Pourtousi & Ghanizadeh, 2020). Additionally, they pointed out that language teachers' engagement could be explained by their motivation.

One line of research is specifically dedicated to the exploration of the factors associated with work engagement. According to Dewaele et al. (2019), teachers' work engagement significantly impacts their well-being. As highlighted by Høigaard et al. (2012), teachers with higher levels of work engagement are more likely to stay in the profession and experience job satisfaction. Research shows that teachers' work engagement is associated with their expression of affection and caring (Eldor & Shoshani, 2016). Additionally, language teachers' commitment and engagement are interwoven with their immunity (Hiver, 2017). According to Noughabi et al. (2020), EFL teachers' work engagement is a significant predictor of their immunity.

In sum, research on the concept of language teacher immunity is in its early stages (Gooran et al., 2022). In particular, uncovering the psychological variables and personality traits which contribute to EFL teachers' immunity has received scant research attention. In addition, reviewing the literature indicates there is a lack of empirical data on psychological factors which are associated with EFL teachers' L2 grit. Therefore, the present study aims to examine the interplay among Iranian EFL teachers' immunity, work engagement, and L2 grit. In particular, this study seeks to propose a model presenting the associations between teacher immunity, L2 grit, and engagement among EFL teachers. Based on the above arguments, the present study hypothesises the following research framework (see Figure 1).

Method

Participants

In the present study, a sample of 369 EFL teachers from different regions of Iran participated in completing the L2-Teacher Grit Scale, Teacher Immunity Scale, and Engaged Teacher Scale. To have a more inclusive sample, EFL teachers from different contexts and from a wide range of teaching experience participated in the study. The teachers had the experience of teaching at language
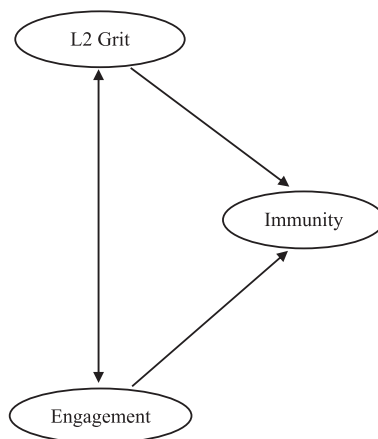

Figure 1. Theoretical structural equation model.

Table 1. Demographic Information of the Participants.

Variable	Frequency
Gender	Male = 143 (61.2%)
	Female = 226 (38.8%)
Major	English Language Teaching = 251 (68.02%)
	English Literature = 63 (17.08%)
	Linguistics = 14 (3.79%)
	English Translation Studies = 33 (8.94%)
	Other = 8 (2.17%)
Academic Degree	Bachelor of Arts (B.A.) = 159 (43.08%)
	Master of Arts (M.A.) = 177 (47.97%)
	Doctor of Philosophy (Ph.D.) = 33 (8.95%)
Teaching Experience	(0-5) = 202 (54.7%)
	(6-10) = 63 (17.1%)
	(16-20) = 49 (13.3%)
	(21-25) = 38 (10.3%)
	(26-30) = 17 (4.6%)
Work Context	State school = 73 (19.79%)
	Private school = 45 (12.20%)
	Language institute = 176 (47.69%)
	College/University = 55 (14.90%)
	Other = 20 (5.42%)

institutes, state/private high schools, or colleges. The academic degree of the majority of the participants was Master of Arts in English Language Teaching. Informed consent to participate in this study was obtained from all the teachers. The detailed demographic information of the participants is presented in Table 1.

Instruments

The L2-Teacher Grit Scale (L2TGS)
To measure the participants' L2 grit, the L2-Teacher Grit Scale (L2TGS), designed and validated by Sudina et al. (2021), was used. The scale contains 14 items, half positively keyed and half negatively worded, on a 5-point Likert-type scale with responses ranging from 1 (not like me at all) to 5 (very much like me). This scale is domain-specific and has been uniquely designed for measuring EFL/ESL teachers' grit. The scale has two components: consistency of interest ($\alpha = 0.87$; e.g. "New approaches to teaching and new classroom projects sometimes distract me from previous ones.") and perseverance of effort ($\alpha = 0.87$; e.g. "I don't give up easily when faced with challenges related to my teaching."). In this study, the reliability of the L2TGS estimated through Cronbach alpha was 0.89.

The Teacher Immunity Scale (TIS)
The Teacher Immunity Scale (TIS), developed by Hiver (2017), was used to measure teacher immunity among the participants. The TIS measure includes 39 items, with a 6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree), on seven factors, namely teaching self-efficacy ($\alpha = 0.73$; e.g. "If I really try hard, I can get through to even the most difficult or unmotivated students"), burnout ($\alpha = 0.84$; e.g. "At school, I feel burned out from my work."), resilience ($\alpha = 0.79$; e.g. "I can get through difficult times because I have experienced difficulty before."), attitudes towards teaching ($\alpha = 0.81$; e.g. "I enjoy working as a teacher because it brings me pleasure."), openness to change ($\alpha = 0.72$; e.g. "As a teacher, I prefer the familiar to the unknown."), classroom affectivity ($\alpha = 0.73$; e.g. "At school or in the classroom I often feel upset"), and coping ($\alpha = 0.78$; e.g. "When problems arise at work, I accept what has happened and learn to live with it."). Evidence shows the TIS is a reliable instrument for measuring EFL teachers' immunity (Hiver, 2017; Noughabi et al., 2020). In the current study, the internal consistency of the TIS estimated via Cronbach's alpha was 0.88.

The Engaged Teacher Scale (ETS)

To measure the participants' engagement, the Engaged Teacher Scale (ETS), developed by Klassen et al. (2013), was used. The ETS has 16 items with a 7-point response scale, ranging from 1 (never) to 7 (always). Also, the scale contains four components, including cognitive engagement ($\alpha = 80$; e.g. "I try my hardest to perform well while teaching."), emotional engagement ($\alpha = 90$; e.g. "I am excited about teaching."), social engagement: students ($\alpha = 0.82$; e.g. "In class, I show warmth to my students."), and social engagement: colleagues ($\alpha = 0.87$; e.g. "At school, I connect well with my colleagues."). The TIS has been regarded as a reliable and valid instrument for measuring teachers' work engagement (Ho et al., 2021; Topchyan & Woehler, 2021). Specifically, the ETS can be used for assessing EFL teachers' engagement (Noughabi et al., 2020). In this study, the ETS had an internal consistency of $\alpha = 0.91$.

Data collection

Initially, the electronic version of the survey containing the L2TGS, the TIS, and the ETS was created through Google Forms to be shared with the participants through the Telegram application. Informed consent was obtained from the participants. Given that the teachers were from diverse areas of Iran, we preferred to conduct the survey electronically. Additionally, using electronic questionnaires for collecting a large set of data is considered to be a convenient way for both researchers and participants (Dörnyei, 2008). The participants, who were members of seven English Language Teaching supergroups in Telegram, were randomly selected. None of the scales was translated into the participants' native language (Persian) to prevent the possibility of introducing an irrelevant construct. Instructions for completing the questionnaires were also attached. The survey link was forwarded to 435 EFL teachers who were members of the English teaching supergroups in the Telegram. After three months, from June 2021 to August 2021, a total of 369 forms were completed by the EFL teachers (return rate = 84.82%). There were no missing data.

Data analysis

After data collection, an initial data analysis was done to check whether assumptions of Structural Equation Modeling (SEM) were not violated. After checking sample size, normal distribution of the data, and multicollinearity, SEM was conducted through Mplus Software to reveal the causal relationships between the teacher' immunity, L2 grit, and engagement. The indices of chi-square ($\chi2$), chi-square/df ratio, comparative fit index (CFI), goodness of fit (GFI), Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) were taken into account to check the model fit (Hu & Bentler, 1995).

Results

The results of the study analysed via Mplus Software are presented in this section. First, descriptive statistics as well as the reliability of the scales are stated and then the structural model showing the factor loadings, regression coefficients, and fit indices is examined.

Descriptive statistics

Table 2 shows descriptive statistics of the three variables considered in the present study along with their subscales among the participants. They include: L2 grit (consistency of interest and perseverance of effort), engagement (cognitive, emotional, social engagement-students, and social engagement-colleagues), and immunity (teaching self-efficacy, burnout, resilience, attitudes toward teaching, openness to change, classroom affectivity, and coping).

Table 2. Descriptive Statistics of L2 Grit, Engagement, and Immunity and Their Subscales.

	N	Minimum	Maximum	Mean	SD
L2grit	369	29.00	70.00	54.40	9.68
Consistency of interest	369	6.00	30.00	20.49	5.67
Perseverance of effort	369	15.00	40.00	33.91	5.23
Engagement	369	58.00	112.00	97.09	11.94
Cognitive engagement	369	12.00	28.00	24.61	3.33
Emotional engagement	369	8.00	28.00	24.28	4.21
Social engagement-student	369	9.00	28.00	24.76	3.28
Social engagement-colleague	369	4.00	28.00	23.42	4.10
Immunity	369	105.00	228.00	173.50	23.30
Teaching self-efficacy	369	14.00	42.00	33.04	4.92
Burnout	369	7.00	30.00	22.10	5.72
Resilience	369	11.00	30.00	21.25	3.99
Attitudes toward teaching	369	6.00	30.00	24.48	5.15
Openness to change	369	10.00	34.00	21.98	3.93
Classroom affectivity	369	10.00	36.00	28.79	4.62
Coping	369	12.00	30.00	21.83	3.42
Valid N (listwise)	369				

As the table presents, the mean score for L2 grit is 54.40, for engagement the mean is 97.09, and the mean score of immunity equals 173.50.

Among the subscales of L2 grit, engagement, and immunity, perseverance of effort ($M = 33.91$, $SD = 5.23$), social engagement-student ($M = 24.76$, $SD = 3.28$), and teaching self-efficacy ($M = 33.04$, $SD = 4.92$) obtained the highest mean scores, respectively.

Reliability of the scales

To assure the reliability of the scales, both Cronbach's alpha and Composite Reliability (CR) were calculated and presented in Table 3.

As Table 3 indicates, all variables had high reliability values (0.7 < CR). Furthermore, all composite reliability values are higher than Average Variance Explained (AVE) which confirms the convergent validity of the variables. In addition, the construct of engagement exhibited good discriminant validity through AVE analysis (AVE > 0.4), however for immunity and L2 grit the AVE index is close to 0.4.

The structural model of the teachers' L2 grit, engagement, and immunity

The purpose of this section is to determine the effect of EFL teachers' work engagement and grit on their immunity as well as the relationship between grit and engagement. Before running the model in Mplus, the factor loadings of the items in each construct were examined and their suitability for the subsequent factor loadings exceeding 0.5 were checked. After checking the magnitudes, it was found that 16 out of 39 immunity items and 4 out of 16 engagement items, have factor loadings less than or equal to 0.5. However, for L2 grit all items had acceptable factor loadings. In order to prevent weak indicators of a single factor and forcing the fit to an unnatural structure of the data, those items were removed and another analysis was run. Table 4 illustrates the factor loadings of the three constructs. As can be seen, all the included items have factor loadings greater than 0.5.

Table 3. Reliability and Average Variance Explained for All Variables.

Variable Name	N of items	Cronbach's alpha	Composite reliability	AVE
Immunity	39	.88	.995	.36
Engagement	16	.91	.993	.43
L2 grit	14	.89	.992	.37

Table 4. Factor Loadings of Immunity, Engagement, and L2 Grit.

Factors	Items	Standardised Factor Loadings	Standard Deviation	Test Statistics	P-values
Immunity	I_1	0.53	0.04	13.53	0.001>
	I_6	0.59	0.03	16.09	0.001>
	I_7	0.60	0.03	16.94	0.001>
	I_8	0.68	0.03	22.42	0.001>
	I_9	0.59	0.03	16.53	0.001>
	I_10	0.63	0.03	19.03	0.001>
	I_11	0.53	0.04	13.56	0.001>
	I_12	0.60	0.03	16.78	0.001>
	I_14	0.57	0.03	15.35	0.001>
	I_16	0.58	0.03	16.06	0.001>
	I_18	0.66	0.03	20.85	0.001>
	I_19	0.65	0.03	20.10	0.001>
	I_20	0.59	0.03	16.40	0.001>
	I_21	0.63	0.03	19.11	0.001>
	I_22	0.57	0.03	15.27	0.001>
	I_25	0.54	0.03	13.94	0.001>
	I_29	0.62	0.03	18.04	0.001>
	I_30	0.54	0.03	13.86	0.001>
	I_31	0.58	0.03	15.63	0.001>
	I_32	0.58	0.03	15.61	0.001>
	I_34	0.64	0.03	19.84	0.001>
	I_35	0.54	0.03	13.98	0.001>
	I_38	0.57	0.03	15.03	0.001>
Engagement	E_1	0.66	0.03	20.37	0.001>
	E_2	0.74	0.02	26.54	0.001>
	E_3	0.73	0.02	25.69	0.001>
	E_4	0.61	0.03	17.18	0.001>
	E_5	0.70	0.03	23.42	0.001>
	E_6	0.59	0.03	16.00	0.001>
	E_7	0.56	0.03	14.29	0.001>
	E_8	0.56	0.03	14.29	0.001>
	E_9	0.72	0.02	25.42	0.001>
	E_10	0.58	0.03	15.19	0.001>
	E_11	0.66	0.03	20.11	0.001>
	E_12	0.65	0.03	19.39	0.001>
L2 Grit	G_1	0.63	0.03	16.96	0.001>
	G_2	0.55	0.04	13.38	0.001>
	G_3	0.60	0.03	15.68	0.001>
	G_4	0.55	0.04	13.56	0.001>
	G_5	0.68	0.03	19.46	0.001>
	G_6	0.57	0.04	14.15	0.001>
	G_7	0.69	0.03	21.23	0.001>
	G_8	0.56	0.04	13.85	0.001>
	G_9	0.58	0.03	14.99	0.001>
	G_10	0.56	0.04	13.27	0.001>
	G_11	0.60	0.03	15.48	0.001>
	G_12	0.66	0.03	18.90	0.001>
	G_13	0.63	0.03	17.36	0.001>
	G_14	0.58	0.04	14.81	0.001>

The goodness-of-fit indices were scrutinised to check whether the overall hypothesised model fitted to the empirical data. The most common index is the chi-square which expresses the significance of the difference between the covariance matrix of the fitted model and the covariance matrix resulting from the observed sample. In fact, the null hypothesis here states that there is no difference between the fitted model and the sample covariance matrix. The important point is that this index is affected by the sample size, so when the sample size is large, it will show a small difference, which indicates a good fit.

Therefore, the chi-square/df ratio along with other goodness-of-fit indices (CFI, TLI, and RMSEA) is used. Regarding the RMSEA index, a value less than 0.1 is acceptable. For the chi-square

Table 5. The Goodness-of-Fit Indices for All Variables.

Variable	chi-square/df	CFI	TLI	RMSEA
Immunity	2.88	0.881	0.886	0.07
Engagement	4.06	0.94	0.92	0.09
Grit	4.7	0.897	0.853	0.1

Table 6. The Regression Coefficients of The Relationship Among Grit, Engagement, and Immunity.

Association	Standardised coefficients	Standard deviations	Test statistics	P-values
Grit on immunity	0.886	0.017	52.30	<0.001
Engagement on immunity	0.819	0.023	35.39	<0.001
Grit with engagement	0.505	3.116	2.177	<0.002

index of degrees of freedom, the expected values are less than 5. For other indicators, values above 0.8 are acceptable. The results can be seen in Table 5.

According to the results, except the RMSEA index for L2 grit, the other indices are highly acceptable. If the appropriate values are established for most indicators, the model fits the empirical data.

In this section, the final model is examined to test the hypothesised structural model. Based on the final constructs, the model of structural equations is fitted and the regression relations of the model are analyzed along with its goodness-of-fit indices. The results of the model regarding the standardised coefficients, standard deviations, test statistics, and p-values concerning the effects of grit and engagement on immunity as well as the relation between the two exogenous constructs are illustrated in Table 6.

In the model, the direct effects of grit and engagement on the dependent variable (immunity) are significant, and also the relationship between the two exogenous variables is significant. The final structural model is illustrated in Figure 2. As can be seen, the chi-square/df ratio (4.47), the RMSEA (0.06), TLI = (0.89), GFI = (0.94), and the CFI = (0.91) all reached the acceptable fit thresholds. The model also indicated significant effects of grit and engagement on immunity as well as the relationship between grit and engagement on (p-value < 0.05). In other words, all thresholds show that the overall proposed model had an acceptable fit with the empirical data.

Discussion

This study aimed to explore whether teachers' immunity could be predicted by their L2 grit and work engagement in the EFL context of Iran. The interplay between these three variables had not been previously studied within the domain of foreign language teacher education. Regarding the research question, the results indicated that EFL teachers' work engagement and L2 grit were strong predictors of their immunity. The findings also revealed that EFL teachers' immunity, work engagement, and L2 grit were inextricably interwoven with each other. In line with previous positive psychology studies, it was found that positive variables are interconnected among EFL teachers (Li, 2021).

In particular, the findings of this study indicated that EFL teachers' L2 grit exerted a significant influence on their immunity. The role of L2 grit in enhancing L2 teacher immunity can be attributed to the ability of gritty teachers to remain involved in their profession and indicate resilience in tackling professional problems (Sudina et al., 2021). Also, gritty teachers sustain their interest in making efforts (Sudina et al., 2021) which causes them to have a passion for thriving in the field (Haseli Songhori et al., 2020; Hiver, 2017). In effect, to develop a strong protective mechanism, language teachers need to regulate their emotions appropriately and cope with difficulties resiliently (Hiver, 2017). Consequently, they make more effort to accomplish the established goals (Sudina et al., 2021). In other words, gritty EFL teachers are more likely to have a robust immunity system. This new finding contributes to the field of language teacher education highlighting the importance
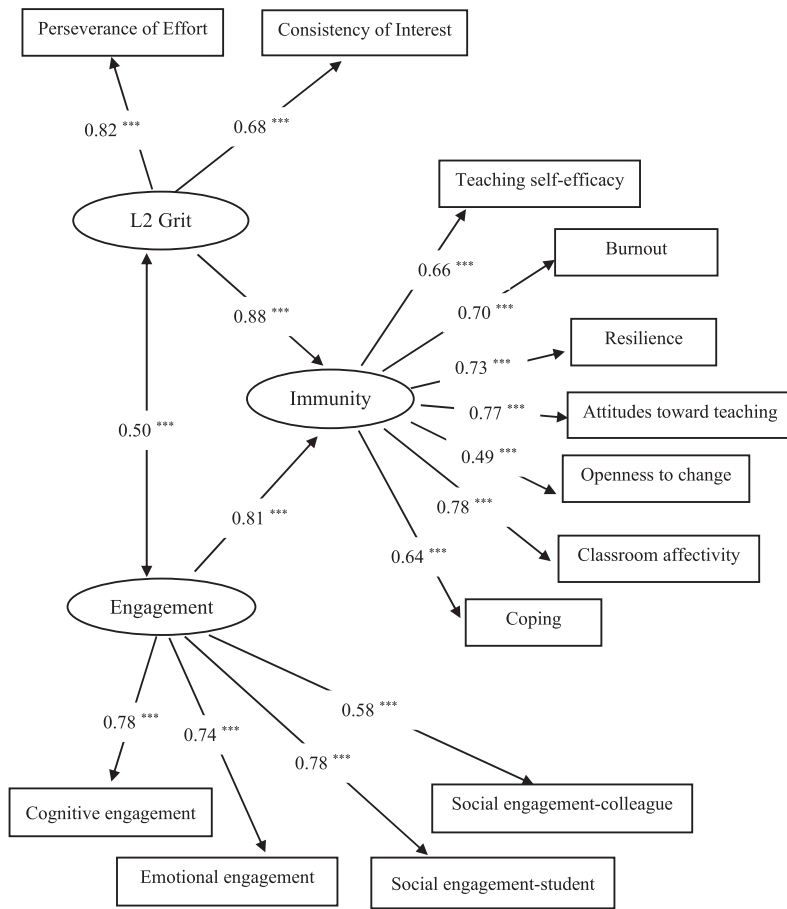
χ2/df= 4.47, RMSEA= 0.06, CFI=0.89, GFI= 0.94, TLI=0.91, ***p<0.001

Figure 2. The schematic representation of the association among the constructs.

of establishing mechanisms to increase dedication to and passion for the job for developing language teachers' productive immunity.

In addition, EFL teachers' work engagement also affected their immunity. This finding is in support of previous studies showing the positive relationship between EFL teachers' immunity and work engagement (Beyranvand & Mohamadi Zenouzagh, 2021; Noughabi et al., 2020). Thus, engaged EFL teachers can regulate their emotions and overcome job-related hurdles which subsequently helps them remain committed and motivated to the teaching profession (Ghanizadeh & Ghonsooly, 2014; Azari Noughabi et al., 2022). It might be interpreted that EFL teachers' perceived sense of work engagement helps them navigate setbacks and difficulties during the tedious language teaching process (Hiver, 2017). Concerning a wide range of job-embedded stressors in the teaching profession (Mercer, 2021), it is significant for educators to help language teachers develop productive immunity through increasing their sense of belonging and perseverance while meeting professional obstacles.

Furthermore, a significant correlation was found between EFL teachers' domain-specific grit and work engagement. This finding suggests that gritty teachers, with determination and interest in their job are more committed than their non-gritty colleagues. In accordance with the present results, previous studies have demonstrated that gritty teachers are more involved in their work

(Maiers & Sandvold, 2017) and more capable of overcoming the stressors and accomplishing the educational goals (Duckworth et al., 2007; Hiver, 2015). The significant and positive relationship between engagement and grit might be explained by the fact that engaged teachers have perseverance while doing their professional activities (Perera et al., 2018). In other words, a determined and gritty EFL teacher is more likely to show vigour, pride, and energy even if they face a multitude of job-related hurdles.

In sum, the present study verified theoretical links between EFL teachers' immunity, work engagement, and L2 grit. The findings highlight the importance of applying positive psychology in language teaching research (MacIntyre et al., 2019a; Mercer et al., 2016) to promote language teachers' mental health and psychological well-being (Mercer, 2021). This goal can be achieved by increasing their strengths and their life quality (Azari Noughabi et al., 2022; Jin et al., 2021). Likewise, the critical role of positive variables such as work engagement in enhancing EFL teachers' job satisfaction (Pourtousi & Ghanizadeh, 2020) was revealed. More specifically, teacher L2 grit is a crucial factor that increases their passion for the job (Sudina et al., 2021) and supports language teachers' immunity (Hiver, 2017; Li, 2021). Accordingly, perseverance of effort and consistency of interest coupled with cognitive, emotional, and social engagement can contribute to EFL teachers' immunity. Therefore, gritty and engaged teachers may show perseverance to overcome the difficulties and to have passion for making efforts which subsequently help them achieve higher immunity.

Overall, teacher immunity has not only a bright side (e.g. productive immunity) but also a dark side (e.g. counterproductive). While the coalition of positive factors coupled with positive work environment may facilitate the development of adaptive immunity (Haseli Songhori et al. 2020), the adverse psychological climate of an educational environment may cause the formation of a maladaptive immunity form (Hiver & Dörnyei, 2017). Therefore, we believe that enhancing EFL teachers' positive personality traits and engagement can lead them toward sustaining the productivity of their immunity or at least changing their less-productive immunity form which had been shaped maladaptively. On the other hand, based on the findings of this study, it might be interpreted increasing restrictions on language teachers' L2 grit and work engagement may constantly increase the possibility of the formation of a maladaptive immunity form which is characterised by exhaustion, burnout, and pessimism (Hiver, 2017).

The findings reported in this study should be interpreted in light of the following three limitations. First, this study included self-reported data. Future research should employ mixed-methods design and triangulate data in order to provide a better understanding of the interplay among the main variables. Second, all the participants of this study were from one country. Further studies are needed to include samples from other contexts to generalise the findings. Third, this study did not consider demographics such as teachers' experience. Future studies may consider the role of such factors in mediating the association between the main constructs. In addition, avid researchers may test the proposed model in ESL contexts in order to verify the reported findings. Moreover, further comparative studies are needed to depict the association between the main variables among both pre-service and in-service EFL teachers. Finally, researchers are recommended to investigate the possibility of improving teachers' L2 grit and immunity through teacher education programmes.

Conclusion and implications

This study aimed to model the interplay among EFL teachers' immunity, L2 grit, and work engagement. The results of SEM analysis revealed that EFL teachers' immunity was significantly influenced by their L2 grit and work engagement. This finding implies that gritty and engaged EFL teachers can resiliently cope with professional hurdles such as lack of support from stakeholders and heavy workload (Akbari & Eghtesadi Roudi, 2020) and regulate their emotions while dealing with problems. Additionally, the findings indicated the significant effect of EFL teachers' work engagement

on their immunity. The implication is that higher levels of work engagement positively impact EFL teachers' immunity; therefore, EFL teachers develop a robust defensive system against the typical classroom challenges such as learners' demotivation (Falout et al., 2009) and undesirable workplace context (Sadeghi & Khezrlou, 2016), thrive in their career willingly, and keep their professional equilibrium. Another implication is that increasing EFL teachers' perseverance of effort and interest in their career will result in an adaptive form of immunity (i.e. a positive immunity archetype which is conducive to commitment, enthusiasm, and job satisfaction) rather than the formation of maladaptive immunity (i.e. a negative immunity form which causes emotional exhaustion, burnout, and pessimism) among language teachers (Hiver, 2017). Teacher educators are recommended to support EFL teachers' work engagement and promote their L2 grit through teacher education and teacher psychology courses to improve their immunity which in turn yields passion for and interest in the teaching profession.

The proposed model suggests that highly gritty and engaged EFL teachers are more likely to be immune to professional problems. The findings suggest that developing grit-enhancing strategies accompanied by work engagement increases teacher immunity which can positively impact teachers' psychological growth in EFL contexts. In sum, the current study adds to our understanding of the predictors and antecedents of EFL teachers' immunity. The findings highlight that EFL teachers need a psychologically healthy work environment to maintain their interest and commitment, increase their passion for the job, and develop their immunity. These objectives can be achieved through supportive relationships in schools, reflective educational courses, and balanced workload coupled with financial recompense (Han & Wang, 2021; MacIntyre et al., 2019b; Mercer et al., 2016).

Data availability statement

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

Authors' contribution

All authors have materially participated in the research and article preparation. In addition, all authors have approved the final article.

Consent to participate

Informed consent to participate was obtained from all individual participants included in the study.

Consent for publication

Informed consent for publication was obtained from all individual participants included in the study.

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