Productive or Maladaptive Immunity? Which one is more Dominant among Iranian EFL Prospective Teachers?

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Abstract: Teacher immunity as a novel construct acts as a defense against the demands placed on teachers and the distressing experiences faced which result in emotional burnout. The main aim of this study was to draw attention to this overlooked dimension of teacher motivation and professional identity through exploring the immunity levels of the student-teachers at teacher education universities in Iran. Accordingly, a mixed methods study was designed in which 175 Iranian student-teachers (89 males and 72 females) majoring in Teaching English as a Foreign Language (TEFL) were randomly invited to this study. The Language Teachers Immunity Questionnaire (LTIQ) was used to collect quantitative data on teachers' immunity levels and a semi-structured interview was conducted to collect the qualitative data. After conducting coding and content analyses using MAXQDA and running one-way ANOVA and independent samples t-test, both qualitative and quantitative data were analyzed. The results led to the identification of three immunity types, namely, negative (maladaptive), neutral, and positive (productive) types. The results indicated that positive or productive immunity type was dominant among the student teachers. In addition, the results of the study indicated that unlike gender, the factor of years of education was a significant factor in terms of determining the immunity levels of the student teachers. Furthermore, the results of the study indicated that teacher immunity is a transient, dynamic, and organic construct which fluctuates according to the reinforcement or deficiency of its comprising components such as efficacy and attitude, among others.

Keywords: Pre-service Teachers, Productive Immunity, Maladaptive Immunity, Teacher Immunity.

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Introduction

Teachers are considered as the most concrete body of educational resources responsible for educating and cultivating the coming generations and are thought to be capable of forming the future community for better or worse (Maulana, Opdenakker, & Bosker, 2016). This is reflected in the metaphors available in the literature on teacher education, for example, "architects of society" (Hiver & Dornyei, 2015, p. 405) and the "critical pillars" of educational systems (Khani & Mirzaee, 2015, p. 93). This is mainly because they not only share their knowledge and skills but also their own personal traits, mental states, and behavior, all related to teachers' psychology (Haseli Songhori, Ghonsooli & Afra, 2018) which makes their job highly critical in terms of shaping a healthy future society (Skinner & Beers, 2016).

The critical role of teachers is inevitably associated with pressures from multiple sources such as imposed constraints on teaching autonomy, anxiety caused by low proficiency despite being pedagogically confident, poor working conditions such as low wages and limited resources (Rahmati, Sadeghi, & Ghaderi, 2019). The mentioned sources may lead to teacher attrition or burnout (Farrell, 2016) that seriously impact learners, teachers, and institutions, in addition to imposing personal and organizational costs. Accordingly, researchers have been interested in the question of why a number of EFL teachers maintain instructional effectiveness despite all such professional stressors whereas some others surrender or are indifferent. Although many relevant studies (Cirocki & Farrell, 2017, 2019; Farrell, 2016, 2018, 2019) mention reflective practice as the wizard or the "hidden aspect" of teachers survival, it has to be noted that even reflective teachers are experiencing periods of burnout in the profession (Day & Gu, 2014). Thus, it would be of utmost simplicity to draw on reflection as the only or main contributor of teacher survival.

To pursue the quest for discovering the reasons behind EFL teacher survival, Hiver and Dornyei (2015) introduced the unique concept of teacher immunity to draw attention to EFL teacher motivation and professional identity as additional contributors than reflection (Ordem, 2017). Teacher immunity encompasses the processes through which teachers create multiple defense mechanisms to reduce or block the damage imposed on their motivation and professional identities (Hiver, 2016a, 2016b, 2017). Teacher immunity focuses on teachers' ability (or inability) to suffer, cope with, adapt to, and overcome various disturbances in their daily classroom practice (Hiver, 2015). Simply put, it acts as a defense against the demands

placed on teachers and the stressful experiences faced which result in emotional tiredness and burnout (Rahmati, Sadeghi & Ghaderi, 2019).

Considering the fact that there is abundant evidence on Iranian EFL teacher burnout and attrition with regard to aforementioned sources of pressures and stressors (Farshi & Omranzadeh, 2014; Ghanizadeh & Ghonsooly, 2014; Ghanizadeh & Jahedizadeh, 2015, 2016; Ghanizadeh & Royaei, 2015; Ghaseminejad, 2002; Ghazalbash & Afghari, 2015; Gholami, 2015; Javadi, 2014; Khajavy, Ghonsooly & Fatemi, 2017; Khani & Mirzaee, 2015; Mahmoodi & Ghaslani, 2014) and its links with different aspects of the Iranian EFL teachers' personal and professional traits (Motallebzadeh, Ashraf & Yazdi, 2014; Nayernia & Babayan, 2019; Roohani & Dayeri, 2019; Rostami, Ghanizadeh & Ghapanchi, 2015; Vaezi & Fallah, 2011; Yazdi, Motallebzadeh & Ashraf, 2014; Zhaleh, Ghonsooly & Pishghadam, 2018). , it is rational to conduct more studies to identify the phenomenon considering the broader scopes of teacher motivation, self and identity, as they are presented within the scope of teacher immunity.

Hence, the significance of this study is that it may arise the Iranian EFL pre-service teachers and the teacher training stakeholders' awareness of some form of immunity which is necessary for the prospect teacher survival. Since teacher immunity has a significant effect on a teacher's motivation, emotion, and even classroom practice, understanding the characteristics of both the productive (positive) and maladaptive (negative) teacher immunity and how each develops, can turn the teacher immunity into a tool which is well-matched with change and growth and can make creative and open-minded teachers who remain motivated to thrive (Ordem, 2017). Therefore, this study aims to explore the Iranian student-teachers' immunity levels in their future jobs, i.e. their ability to overcome the adversities they may face with at work. It also aims to determine the factors contributing to student-teachers' immunity state and reveal the main types of Iranian student-teachers' immunity and their outstanding characteristics in the Iranian context. Most Iranian EFL language teachers and the teacher training stakeholders, in general, as well as the student-teachers, in particular, are unlikely to be aware of the prospect teachers' immunity levels and types. Therefore, estimating their awareness and awareness-raising can act as the cause of a developmental process (Sanz & Leow, 2011). Thus, to probe the Iranian EFL student-teachers' awareness of their immunity levels and types and to consider the significant role of language teacher immunity in EFL teachers' identity formation, emotional well-being, and instructional effectiveness, the following research questions were formulated:

1. Which type of immunity, productive or maladaptive, is more dominant among Iranian English student-teachers?

2. Do the years spent at teacher Training University have an impact on Iranian student-teachers' immunity levels?

3. Does the gender of Iranian student teachers have an impact on their immunity levels?

Literature Review

Despite the existence of the variables adversely influence teachers' motivation and induce negative experiences such as job stress and burnout, as well as lack of resilience to new developments, the majority of teachers are equipped with a form of "psychological invulnerability" (Saydam, 2019, p. 86) helping them deal with pressures and disruptions threatening their motivation and professional identities. The existence of psychological invulnerability led Hiver (2015) to research why some teachers appear to retain their teaching vision and thrive while others suffer and barely survive throughout their teaching careers. He finally proposed a new layer of experience that can affect the way language teachers react to future disturbances, under the term *teacher immunity*, which functions as a defense mechanism against the material and emotional demands. Accordingly, teacher immunity is responsible for protecting the EFL teachers against the demands placed on them and the traumatic experiences they encounter which result in emotional exhaustion and burnout. It was also found to be potentially powerful enough to affect almost everything teachers do in their careers. In addition, this immunity may be positive (productive and robust) or negative (counterproductive/maladaptive) (Hiver, 2015; Ordem, 2017).

Hiver's (2017, p. 412) further investigation also indicated that there is a non-immune outcome other than the productive and maladaptive immunity types, and the productive and maladaptive immunity types feature their own subcategories. Accordingly, EFL teachers are classified as (a) productively immunized teachers (i.e., those with a robust yet healthy form of teacher immunity); (b) partially immunized teachers (i.e., those who had developed particular elements of the flexible and beneficial form of teacher immunity); (c) maladaptively immunized teachers (i.e., those with a rigid and counterproductive form of teacher immunity); (d) partially maladaptively immunized teachers (i.e., those who had developed partial aspects of the detrimental maladaptive form of teacher immunity); and (e) immunocompromised teachers (i.e., those who have not developed a teacher immunity) (Hiver, 2017; Ordem, 2017).

However, teacher immunity is mostly researched within its two general forms: productive immunity and maladaptive immunity (Mercer, Oberdorfer & Saleem, 2016; Ordem, 2017; Gidarakou, 2019). Teachers with productive immunity do not usually suffer from, failure and burnout since they ignore disturbances and are good at coping with stress. Therefore, they are so satisfied with their profession, confident and committed that can eventually thrive in the job (Saydam, 2019). By contrast, those with maladaptive immunity are characterized by their conservativeness in their pedagogy, low motivation and self-efficacy and resistance to change even though it is for their benefit. Therefore, such teachers develop extreme risk-avoidance, evade innovative methodologies, and exercise mechanical control routines, and display apathy and fossilization in general (Saydam, 2019). In sum, EFL teacher immunity is a "double-edged sword" (Hiver & Dörnyei, 2015, p. 405), acting as an essential defense shield which sometimes becomes so overprotective that causes rigidity and conservatism among EFL teachers and thus, inhibit change and growth of teachers.

Due to its recency, teacher immunity has not been extensively researched in Iran. Among the few attempts, Rahmati et al. (2019), researched it among Iranian in-service EFL teachers and determined their low income, lack of confidence, learners' demotivation, parental expectations, limited facilities, negative attitudes toward English, and insufficient time to teach English as the main threats of teacher immunity. They further found that teacher's unwillingness to take risk, not only explains their disbelieving the potential value of disturbances in professional development but also justifies their being classified as negatively immunized EFL teachers despite their success in adopting appropriate coupling strategies. In addition, Rahmati et al. (2019) argued that classifying maladaptively or positively immunized language teachers is a matter of degree and their transition on this continuum depends on their levels of awareness as an integrated reflective practice.

Haseli Songhori et al. (2018), using a mixed-methods approach, investigated EFL teacher immunity among Iranian English teachers. The findings indicated that most Iranian English teachers developed maladaptive immunity and all the participants resisted change. The results were justified with reference to the broader social context of education in Iran in terms of 1) directed curriculum, 2) directed testing system, and 3) the effect of the scores pressure on the teaching/learning process (Namaghi, 2006) and teachers' low level of motivation and high level of stress (Akbari & Eghtesadi, 2017; Sadeghi & Sa'adatpourvahid, 2016; Haseli et al., 2018; Soodmand Afshar & Doosti, 2016).

With regard to the very few studies done in Iran on teacher immunity and the scarcity

of the instances of research on the subject worldwide, little is known about the dynamics and processes of immunity development or destruction among the teachers. Worse is our knowledge of the mechanisms through which pre-service teachers are forming a well-functioning immunity during their teacher training courses. This gap was the main motive for the researcher to conduct a study on the student-teachers who are going to join the frontline practitioners teaching English at Iranian high schools.

Method

This study was conducted in the following main: individual interviews, the pilot study of the Teacher Immunity Questionnaire, and the application of the finalized Teacher Immunity Questionnaire to the main study population.

Educational research usually includes designing and writing the research in one of the two major tracks: quantitative research or qualitative research (Saydam, 2019). In this paper, based on the nature of the study, mentioned aims and posed questions, the present researcher utilized the mixed methods approach.

Participants

In total, 175 out of 221 Iranian student-teachers of Teacher Education University (Farhangian University) of Arak were randomly invited to this study (98 males and 77 females). Their average age was 22, ranging from 20 to 24. The participants were majoring in Teaching English as a Foreign Language (TEFL).

Instruments

Language Teachers Immunity Questionnaire (LTIQ)

This questionnaire was developed by Hiver (2015) for seven constructs as teaching self-efficacy, attitudes to teaching, coping, classroom affectivity, burnout, resilience, and openness to change. This questionnaire was composed of 39 items in the above-mentioned 7 scales, each with a 6-point response scale (1=strongly disagree; 6=strongly agree). Teaching self-efficacy (7 items; α =.82) measured teachers' perceived effectiveness. Burnout (5 items; α =.80) measured teachers' buildup of chronic stress and the accompanying emotional manifestations. Resilience (5 items; α = .82) captured teachers' capacity to adapt and thrive despite experiencing adversity. Attitudes toward teaching (5 items; α = .85) measured teachers' general dispositional associations for teaching. Openness to change (6 items; α

= .74) measured teachers' receptivity toward change and novelty in their practice. Classroom affectivity (6 items; α = .81) measured the positive emotionality teachers experience in the classroom. Coping (5 items; α = .78) measured teachers' ability to manage conflict and deal with difficulties.

In order to eradicate any possible misunderstanding or confusion, the researcher pilot-tested the Language Teacher Immunity Questionnaire on twenty-five students who had similar characteristics to the participants of the main sample. They were asked to read the items carefully and identify the items with unclear meaning. The results led to some wording changes and modifications made to make the items appropriate for the target population of the study. Prior to the administration of the pilot test, the LTIQ was judged by four TEFL professors. As a result, some ambiguous items underwent changes and they confirmed the content validity of the mentioned-questionnaire for the purpose of this study. Then, in the next phase of the pilot study, the questionnaire was administered for the purpose of estimating its reliability. The reliability index, assessed by Cronbach's alpha formula, was found to be .81.

Semi-structured Interview

To identify how language teacher immunity archetypes manifest themselves in the pre-service teachers' behavior or how they categorize themselves in their future professional lives, this phase of the study was conducted on those participants who have been experiencing the practicum course (teaching practice) and were quite familiar with the concrete school settings and the motivating, demotivating, and stress-causing factors and the coping strategies that teachers use to deal with these factors because they were supposed to attend a predetermined school, 8 hours a week. It seems worth mentioning that this course is an opportunity to bridge the gap between the theoretical and abstract learning gained in the classroom with real-world concrete application and provides student-teachers with authentic hands-on experience in teaching.

All in all, the participants at this stage of the study were sampled among the respondents of the survey. Those who indicated in the questionnaire that they were willing to participate in a follow-up interview were contacted. A total of 47 student-teachers (21 males and 16 females) volunteered to take part in this phase of the study. Based on purposive sampling, the present researcher conducted interviews with 32 student-teachers (18 males and 14 females). As the interviews were planned to address the research questions painstakingly,

the participants who the current researcher assumed were information-rich and who would contribute in the most productive way were selected purposefully.

Thus, the interviews, in a semi-structured manner, were held individually and conducted in L1 so that participants could express themselves comfortably, and were recorded, transcribed verbatim and used for data analysis. It is necessary to mention that, the participants' answers made the interviewer ask some probing questions that "prompted the respondents to elaborate on certain points and give concrete examples" (Low, Ng, Hui, & Cai, 2017, p. 35).

Procedure

The data for the quantitative part of the study were collected through a Language Teacher Immunity Questionnaire developed by Hiver (2015). This questionnaire includes two parts. The first part gathers participants' demographic information such as their gender, age, and years of experience in teaching. The second part comprises 39 Likert-scale items related to 7 scales each with a 6-point response scale ranging from strongly disagree(1) to strongly agree(6).191 Iranian EFL student-teachers whose details were given above completed the LTIQ questionnaire administered both online (prepared on Google Docs) and through personal contact with some participants. The data were collected in about 1 month. Out of these 191 filled-in questionnaires, 16 were incomplete so were excluded in the final data analysis.

To conduct the analyses of the quantitative data for the second and third research questions, one-way ANOVA and Scheffe test were used. The rationale behind choosing these tests was that the researcher needed to compare the immunity levels of the four groups of the pre-service teachers according to the second research question and further analysis also was needed to compare the groups pairwise for a more detailed investigation of the differences between the groups which was accomplished by Sheffe test as the post hoc test. With regard to the third research question which focused on the impact of gender, independent samples t-test was used to test the related hypothesis stating that there was not any significant difference between the male and female participants.

For the qualitative part of the study, an interview protocol was designed. The researcher conducted all the interviews either at the university where he teaches and offers some courses to the participants of this study or on a smart phone. The interviews were conducted in L1 (Persian) to ensure that the participants felt comfortable in discussing their experiences and

expressing their feelings in their mother tongue, though oftentimes the majority of the participants chose to use English sentences or phrases throughout the interview. Each interview lasted between 20 to 25 minutes. Before each interview, the interviewer explained the purpose of the study to the interviewees. The interview proceeded in a way to lead the participants to reflect upon and talk about the posed questions. Data collection was stopped when the data reached saturation level. The sign of this saturation was that further data collection merely added to the bulk of the data rather than contributing to the informative content. Moreover, the participants' rights to voluntary participation, anonymity, and confidential treatment of their data were clearly explained both at the invitation to the study stage and at the actual interview session.

Following the interview, the participants were asked to give feedback about the interview questions. Two out of some posed questions in the interview are as follows:

1. What do you think are the keys/secrets to long term success as a teacher?

2. How will you behave in stressful situations that you may experience in your professional lives? Give concrete examples.

These questions gave the interviewees the opportunity not just to talk about themselves but also talk about teachers who they know well. Thus, the participants became more involved in the interview process, talked more and said that they liked the topic and enjoyed sharing their ideas. In this phase of the study, the data was collected during the last month of winter through semi-structured interviews.

It is worth mentioning that since the original data were in Persian, transcription and translation issues had to be taken into account. In terms of the reliability or agreement of the transcribed data, as discussed by (Cucchiarini, 1996), the researcher followed the transcription verification procedure suggested by McLellan, MacQueen, and Neidig (2003) which consisted of a two-step verification process. The first-stage review was accomplished by a bilingual assistant who carefully listened to the recorded audio to warrantee complete and accurate transcription. In the second stage, the researcher (the interviewer) reviewed the transcript to assure that no trace of the original identifiers remained in the transcript. Having confirmed the reliability or agreement of transcript through the aforementioned two-step process, translation reliability or agreement was also considered. With regard to the resources of this study, the translation review and verification process were accomplished by two experts. Having been verified, Persian and English documents were analyzed in parallel stages recommended by Santos, Black, and Sandelowski (2015), which helped the experts

discuss the transcripts and interact with the original and translated versions. Accordingly, data coding was done by the same experts in Persian, as recommended by Olson (2016), parallel to the same data in English.

Results

This section is dedicated to answering the research questions. In order to do so in an orderly manner, the research questions are mentioned first and the related analyses are presented, accordingly.

The first research question of the study was:

Which type of immunity, productive or maladaptive, is more dominant among Iranian English student-teachers?

To answer this research question, the researcher drew on the analysis of the qualitative data through which the axial codes and the classifications of the immunity orientations of the student teachers participating in this study were extracted. Figure 1 shows extracted from the data using MAXQDA (a software platform for qualitative data analysis). According to the results reported in Figure 1, it can be argued that the positive teacher immunity orientations (58%), which is about twice as much as negative orientations (27%) and about four times more than neutral orientations (15%), are the unquestionably dominant among the student-teachers. Accordingly, it can be argued that the student-teachers were enjoying productive immunity type in a dominant manner.
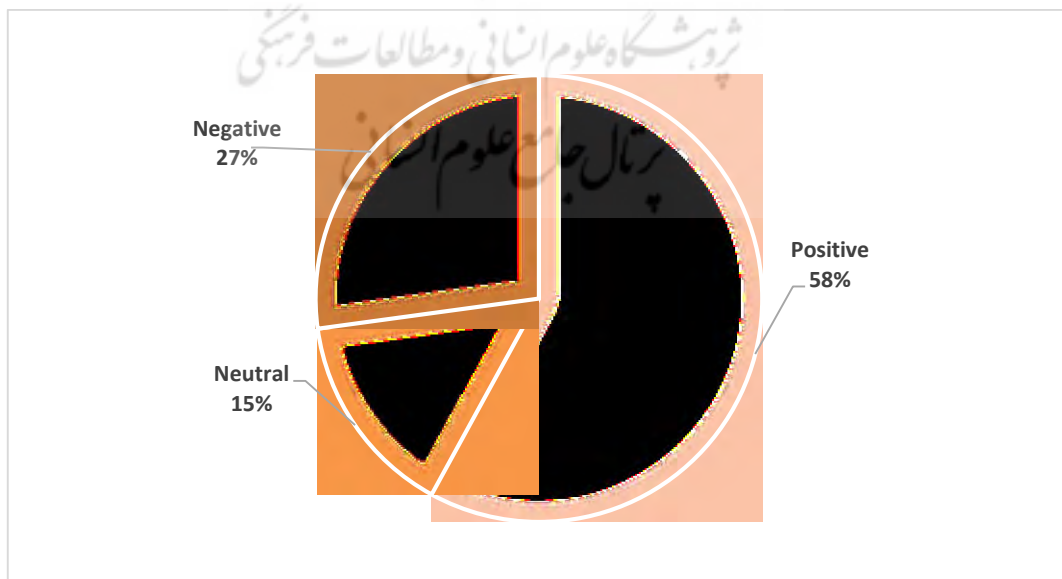

Figure 1. *The Axial Categories of Teacher Immunity Orientations*

However, although the dominant teacher immunity type among the student-teachers was found to be positive or productive type, it has to be noted that, unlike the previous studies such as Hiver (2015, 2017) which enumerated productive versus maladaptive types, the results of the study, as shown in Figures 1 and 2, demonstrated that there existed a neutral teacher immunity orientation among the student teachers. This can be interpreted as the transitional stage between the positive and negative, or in a more familiar terms, productive and maladaptive types. It can be argued that, according to the findings, teacher immunity seems to be a gradient continuum ranging from extreme productive orientation to extreme maladaptive orientation.

In addition, according to Figure 2, it can be argued that each of the teacher immunity types identified in this study is characterized by a number of traits. A teacher with a positive or productive teacher immunity orientation is self-confident, reflective, creative, and good at solving problems. These traits resemble a strong personality which acts as a shield against the environmental pressures. In addition, such teachers are adventurers, effective, disciplined, hard-working, willing to progress, persistent, and risk-taker which demonstrates their professional characteristics to be relied on while making real-time decisions at workplace. They are also able to adjust the rules, flexible, open to change, and profession lover, according to which they can stretch their immunity and save their selves and identities under organizational stresses and environmental pressures, especially, the unpredicted ones. Furthermore, such teachers are aspiring, caring, involver, and passionate which reflect their affective aspect of positive or productive teacher immunity orientation which enable them to add to their immunity through maintaining social bonds with their colleagues, family members, learners, and event students' parents, who form their immediate social contexts and administrators or other stakeholders of the educational organization who are considered to be distant affiliates threatening their immunity.

The second teacher immunity orientation which was identified in this study was the neutral teacher immunity orientation. Such teachers are characterized by their being bookish, explainer, frame-seeker which describes them as being attached to the textbook principles and their lack of understanding of their contextual restrictions, organizational potentials or shortcomings, social constraints, among other practical aspects of teaching English as a foreign language in a given school. Furthermore, such characteristics may be interpreted as the lack of inferring the theoretical debates and the inability in linking theory and practice. It seems that such teachers are lagging behind the immune teachers in terms of analyzing,

interpreting, and digesting the current conditions and situations. They are also temperamental and double-barreled which signify their lack of tolerance in stressful occupational conditions. In addition, they are characterized by their indifference which is also a symptom of teacher burnout (Motallebzadeh, Ashraf & Yazdi, 2014; Roohani & Dayeri, 2019; Yazdi, Motallebzadeh & Ashraf, 2014) and can be interpreted as a threshold to a guard-down stage of teacher immunity or edge of negative teacher immunity.

The third immunity type discovered in this study was the negative or maladaptive one. These teachers are fossilized, goofy, mal-functioning, and trouble-making. Such characteristics imply their lack of professional ability or inconfidence in doing their duties. They are also rule obsessed, irresponsible, and passive, and are skivers as well. These features resemble the ones seen among the burnt out teachers (Farshi & Omranzadeh, 2014; Ghanizadeh & Royaei, 2015; Ghazalbash & Afghari, 2015); i.e. their teacher immunity seems to be in its critically weak position so that they have almost lost their protective shield. Such teachers are also characterized by their social distance and depression which are also evident signs of burn out (Gholami, 2015; Javadi, 2014; Khani & Mirzaee, 2015). In addition, teachers with negative or maladaptive immunity are uncaring, unable to think out of the box, and inconsiderate which make it difficult for them to join the bandwagon of their educational institute and their organization, in a broader sense. This also explains why such teachers are vulnerable to burnout and being removed from the community of teachers in a given school or even the educational organization.
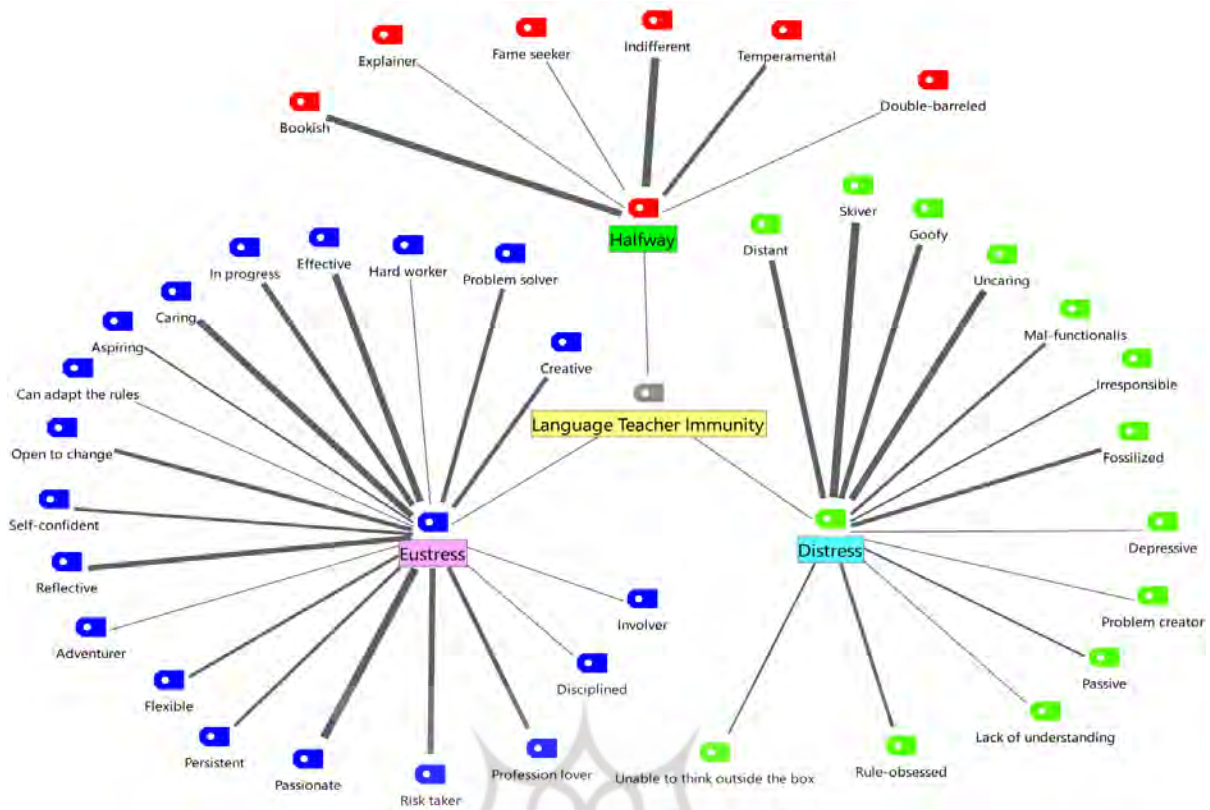
Figure 2. *Observed Teacher Immunity Orientations among the Participants and Their Traits*

Another emerging issue that needs to be debated regarding the results of the qualitative analysis of the data is that each of the discovered immunity types described above is an amalgam of traits interacting in an organic and dynamic way the overall result of which is realized as a positive, neutral or negative immunity type. Figure 3 demonstrates the contribution of the underlying traits of each type of teacher immunity.

As shown in Figure 3, being caring, effective, hard-working, risk taker, reflective, passionate, being in progress, and being a profession lover are relatively more important traits the student-teachers with positive or productive immunity are equipped with. On the other hand, student-teachers with negative or maladaptive immunity type are uncaring, goofy, skiver, distant and fossilized, above all. Student-teachers with neutral immunity type are more bookish, indifferent and temperamental, in an eye-catching manner.

According to Figure 3, it can be argued that each immunity type is fed by a blend of various characteristics, the reinforcement of each leads to a stronger orientation of each type. However, it has to be noted that these traits may or may not be correlated with one another so that the rise of one might or might not lead to the rise of another. Also, it has to be concluded that strengthening a teacher immunity type does not necessarily imply that a student-teacher

has to be improved in terms of all the constituting traits; i.e. modifications of even one or two traits, especially those with larger shares may suffice. Finally, it can be argued that the amalgam of the traits shown in Figure 3 implies that these traits are in dynamic inter-relationship with one another. This implies that raising a single trait may not practically contribute to the tangible modification of the immunity orientation of a student-teacher. It further denotes that teacher immunity is not stable and is subject to change since the underlying traits described above are changing over time and according to psycho-social conditions.
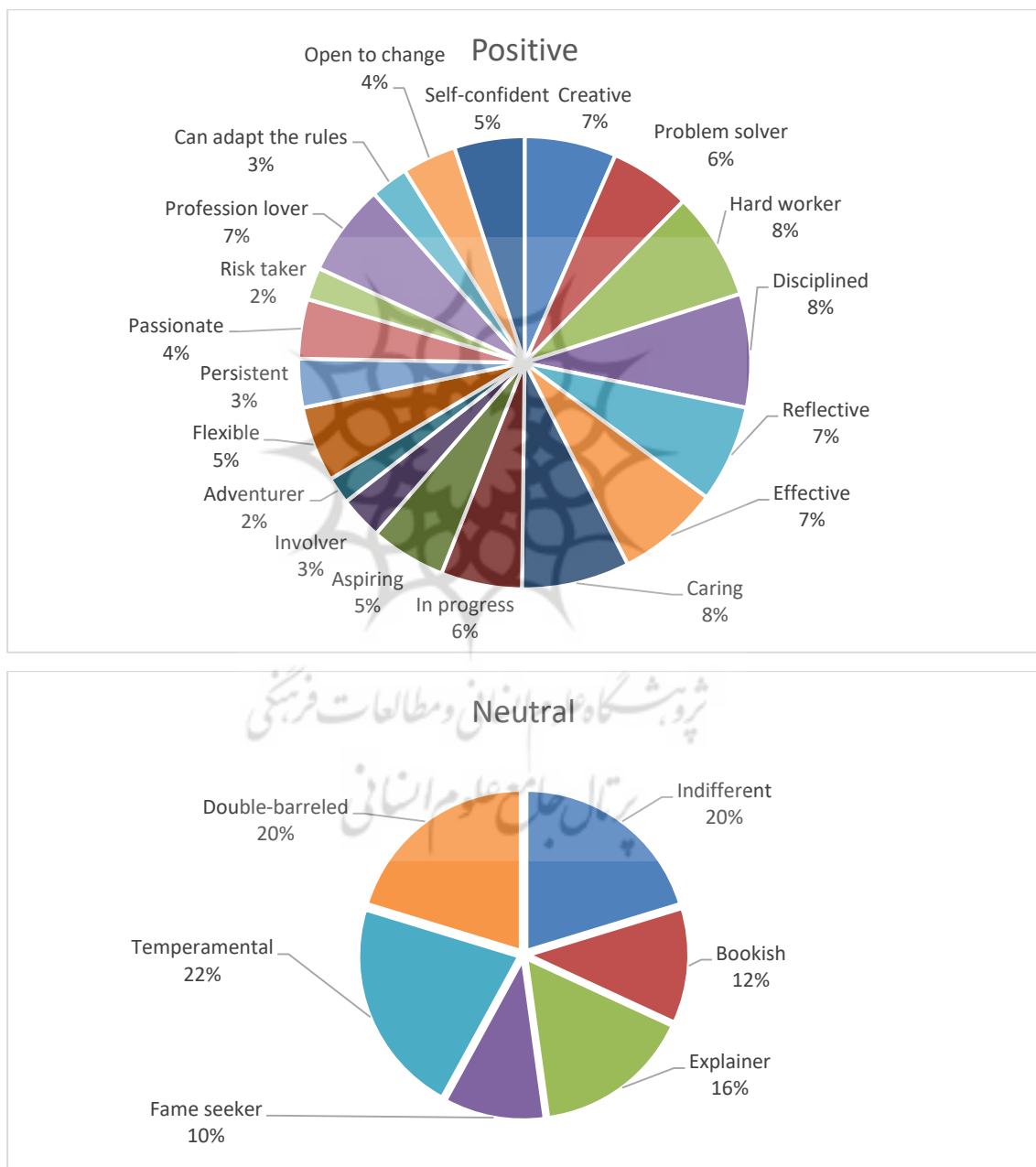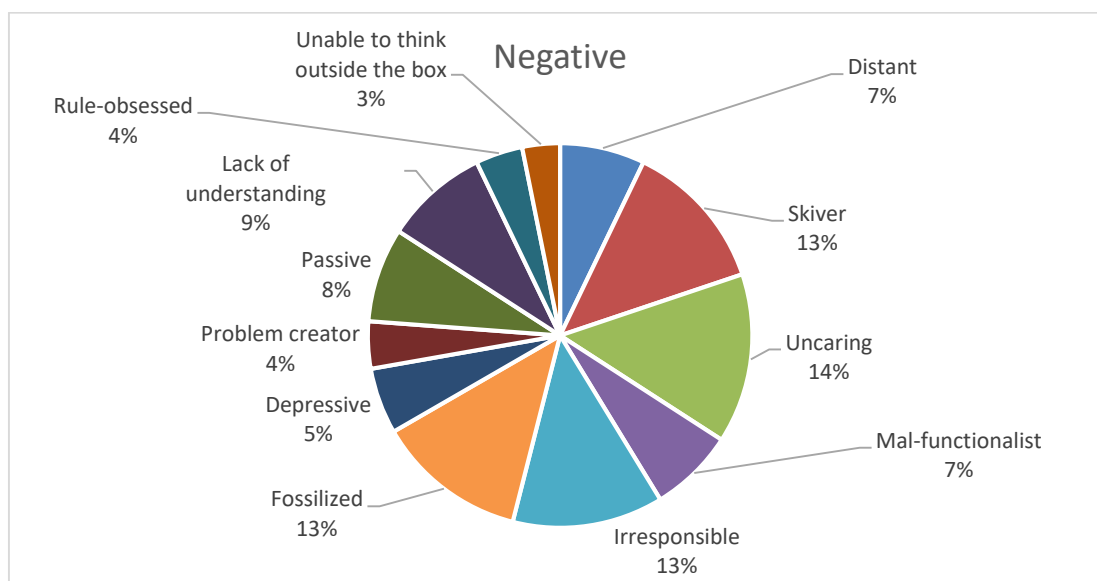
Figure 3: *The Underlying Traits to each Type of Teacher Immunity*

In addition to the analysis of the qualitative data, the researcher relied on the descriptive analysis of the quantitative data collected through the questionnaire to confirm the obtained results from the interview. The observed mean scores and the standard deviations of the data were calculated for each of the components of the teacher immunity as measured by the questionnaire. The results are shown in Table 1.

Table 1: *Descriptive Statistics for the Components of Teacher Immunity as Measured by the Questionnaire.*

Components	*M*	*SD*	Minimum	Maximum
Efficacy	4.77	.72	2	6
Burnout	3.91	.58	2	5
Resilience	4.10	.94	2	6
Attitude toward teaching	4.21	.71	2	5
Openness to change	3.58	.60	2	5
Classroom activity	4.27	.62	3	6
Coping	4.57	.88	3	6

According to the statistics shown in Table 1, it can be argued that the overall mean scores observed for the EFL student-teachers' immunity components in this study confirm the findings of this study regarding the dominancy of positive or productive immunity type among the pre-service teachers. Having the fact in mind that the Likert scale ranged from 1 to 6, the hypothetical mean of the scale was 3.5. Considering the Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), the hypothetical mean was 3.5 for each component.

The observed overall mean score for student teachers' efficacy (4.77), resilience (4.10), attitude toward teaching (4.21), classroom activity (4.27), and coping (4.57) were all above 3.5, which imply that the participants enjoyed relatively, but not very, high level of positive or productive immunity type. However, openness to change (3.58) as an index of teacher immunity was rather neutral since it was negligibly above the hypothetical mean. In the same vein, the observed burnout mean (3.91) was also beyond the hypothetical mean (3.5), but not much, which implies that the proportion of student-teachers with negative or maladaptive immunity type (27%), as reported in Figure 1, is worth considering.

The second research question of the study was:

Do the years spent at teacher Training University have an impact on Iranian student-teachers' immunity levels?

In order to answer this research question, the descriptive statistics for overall immunity levels and the components were calculated for first-year, second-year, third-year and fourth-year student-teachers. The results are shown in Table 2.

According to the statistics in Table 2, the observed mean score of efficacy for student-teachers are similar (<4.70) except for the fourth-year students (5.46) who enjoy a much greater level of efficacy. In terms of burnout, the observed means range from 3.75 (for the third-year students) to 4.00 (for the first-year students) which is not high. The observed means for resilience, however, are all similar (>4), except for the third-year students (3.50) which is the lowest. Similarly, with regard to the observed means for the attitudes toward teaching which is above 4 for the students of year one, two and four. The third-year students' observed mean was lower (3.85). The observed means for openness to change are rather similar and range from 3.44 (for the second-year students) to 3.73 (for the fourth-year students). By contrast, the observed means for classroom activity are all above 4 for the students of year one, two and three whereas the one for the fourth-year students is 3.84. With regard to coping strategy, all of the observed means are above 4, and the fourth-year students enjoy the highest mean (4.88). According to the reported results in Table 2, it can be argued that the differences among the observed means of the student-teachers of different years are more eye-catching in terms of efficacy, resilience, attitudes toward teaching, and classroom activity. In order to further investigate the difference statistically, one-way ANOVA was used, the results of which are shown in Table 3.

Table 2: *Descriptive Statistics for Overall Teacher Immunity and its Components according to Student-teachers' Years of Study.*

Components	Education Year	*M*	*SD*	Minimum	Maximum
Efficacy	1st year	4.67	.73	2	6
	2nd year	4.64	.60	3	6
	3rd year	4.60	.68	3	6
	4th year	5.46	.50	5	6
Burnout	1st year	4.00	.69	3	5
	2nd year	3.84	.60	2	5
	3rd year	3.75	.58	3	5
	4th year	3.9615	1.28	2	5
Resilience	1st year	4.32	.71	3	6
	2nd year	4.17	.71	3	6
	3rd year	3.50	.20	2	5
	4th year	4.00	1.35	2	5
Attitude toward Teaching	1st year	4.25	.75	2	5
	2nd year	4.17	.71	3	5
	3rd year	3.85	.65	2	5
	4th year	4.57	.50	4	5
Openness to Change	1st year	3.62	.62	2	5
	2nd year	3.44	.62	2	5
	3rd year	3.57	.10	3	5
	4th year	3.73	.10	3	5
Classroom Activity	1st year	4.40	.61	3	6
	2nd year	4.40	.57	3	5
	3rd year	4.10	.49	3	5
	4th year	3.84	.67	3	5
Coping	1st year	4.59	.69	3	6
	2nd year	4.57	.69	3	6
	3rd year	4.21	.91	3	6
	4th year	4.88	.1.39	3	6
Immunity	1st year	4.23	.58	2	6
	2nd year	4.08	.55	2	6
	3rd year	3.85	.52	2	6
	4th year	4.26	.91	2	6

Table 3: *One-way ANOVA for Comparing the Immunity of the Student-teachers of Different Years.*

	df	F	p
Immunity (Between Groups)	3	3.12	.02

According to the results in Table 3 (F= 3.12, p= .02<.05), it can be argued that there was a significant difference among the student-teachers of different years in terms of their teacher immunity. To further compare the groups of student teachers, Scheffe test was run for pairwise comparison. The results are reported below in Table 4.

Table 4: *Scheffe Post Hoc Test for Comparing the Immunity of the Student-teachers of Different Years.*

n	N	Subset for alpha = 0.05	
		1	2
3rd year	28	3.8571	
2nd year	45	4.0889	4.0889
1st year	76	4.2368	4.2368
4th year	26		4.2692
Sig.		.075	.663

As shown in Table 4, the difference among the first-year, second-year and third-years student-teachers is insignificant (p= .07> .05). Similarly, the differences among the second-year, third-year and fourth-year students are also negligible (p= .66 > .05). However, the difference between the first-year and fourth-years student-teachers is significant (p< .05). This finding implies that the immunity of the student-teachers is gradually changing over time while getting trained at the university. With regard to the observed means, reported in Table 2, the immunity of fourth-year student-teachers (4.26) is slightly more than the immunity of the first-year student-teachers (4.23); however, it has to be noted that the immunity levels of the fourth-year student-teachers are more heterogeneous (SD= .91) than those of the first-year student-teachers (SD= .58). That is, according to the reported means in Table 4, it can be seen that the immunity of the teachers is rather lower in the first year; however, they gain more immunity in the coming years. It is noteworthy that the observed mean scores are increasing as students are spending more time at the university so that their immunity levels are improving.

In order to further investigate the issue, the comparison among the student-teachers of

different years was pursued with regard to the components of teacher immunity. The results are shown below in Table 5.

Table 5: *One-way ANOVA for Comparing the Components of the Immunity of the Student-teachers of Different Years.*

	df	*F*	*p*
Efficacy	3	10.939	.000
Burnout	3	.888	.448
Resilience	3	5.922	.001
Attitude toward Teaching	3	4.931	.003
Openness to Change	3	1.461	.227
Classroom Activity	3	7.091	.000
Coping	3	2.726	.046

As demonstrated in Table 5, there are significant differences among the student-teachers in terms of efficacy (F= 10.93, p= .00<.05), resilience (F= 5.92, p= .00<.05), attitude toward teaching (F= 4.93, p= .00<.05), classroom activity (F= 7.09, p= .00<.05) and coping (F= 2.72, p= .04<.05) among the student-teachers. By contrast, the observed difference in the mean scores of the student-teachers in terms of burnout (F= .88, p= .44<.05) and openness to change (F= 1.46, p= .22<.05) was insignificant. Accordingly, it can be argued that the observed difference among the student-teachers of years one and four in terms of their immunity has to be due to their differences in terms of efficacy, resilience, attitude toward teaching, classroom activity and coping, but not burnout and openness to change. To further compare the groups of student-teachers, Scheffe test was run for pairwise comparison. The results are reported in Table 6.

Table 6: *Scheffe Test for Comparing the Components of the Immunity of the Student-teachers of Different Years.*

	Education Year	N	Subset for alpha = 0.05	
			1	2
Efficacy*	3rd year	28	4.6071	
	2nd year	45	4.6444	
	1st year	76	4.6711	
	4th year	26		5.4615
Burnout	3rd year	28	3.7500	
	2nd year	45	3.8444	
	4th year	26	3.9615	
	1st year	76	4.0000	
Resilience*	3rd year	28	3.5000	
	4th year	26	4.0000	4.0000
	2nd year	45		4.1778
	1st year	76		4.3289
Attitude toward Teaching*	3rd year	28	3.8571	
	2nd year	45	4.1778	4.1778
	1st year	76	4.2500	4.2500
	4th year	26		4.5769
Openness to Change	2nd year	45	3.4444	
	3rd year	28	3.5714	
	1st year	76	3.6316	
	4th year	26	3.7308	
Classroom Activity*	4th year	26	3.8462	
	3rd year	28	4.1071	4.1071
	2nd year	45		4.4000
	1st year	76		4.4079
Coping*	3rd year	28	4.2143	
	2nd year	45	4.5778	4.5778
	1st year	76	4.5921	4.5921
	4th year	26		4.8846

According to the results reported in Table 6, it can be argued that with regard to the student-teachers' efficacy, there was a significant difference between the fourth-year students and other groups ($p< .05$). This may imply that the transition of their immunity level starts in the third year in terms of their efficacy and as it is seen in Table 6, improves from < 5, in the first three years, to well above 5 in year four. However, in terms of their burnout, there was

no significant difference among the groups. With regard to resilience, there is a declining pattern, with the minimum observed mean in the third year (3.50), which is significantly lower than the observed means for the first-year and second-year student-teachers. However, it is seen that the observed man score for the fourth-year students are also above 4, which implies that the third year is the critical year for the formation of student-teachers' resilience. The same pattern is seen regarding the student-teachers' attitudes toward teaching. There existed a significant difference between the third-year and fourth-year student-teachers' attitude toward teaching ($p < .05$). In addition, the third-year student-teachers' observed mean was the lowest (3.85) which implied that this year is the critical year in the formation of their attitude toward teaching at schools. With regard to their openness to change, there was no significant difference among the four groups ($p > .05$). This may imply that, similar to burnout, their openness to change is a neutral component in forming their immunity. According to Table 6, the observed mean for the classroom activity of the fourth-year student teachers (3.84) is significantly lower than the observed means for the other groups which are all above 4. It shows that similar to efficacy, transition of the student-teachers' classroom activity starts in the third year, but in a declining manner. Similar to what was seen about the attitudes of the student-teachers' attitude toward teaching, their coping is critically formed in the third year due to the fact that there was a significant difference between the third-year and fourth-year students' coping ($p < .05$). According to Table 6, while the observed mean for the coping of the third-year students is the lowest (4.21), the one for the fourth-year students is the highest (4.88). According to the results reported in Table 6, it can be concluded that burnout and openness to change are the neutral components of the formation of the student teachers' immunity. In addition, efficacy, resilience, attitude toward teaching, and coping were found to have a rising trend when the student-teachers are passing their fourth year at the university which implies that they have positive, constructive productive roles in building up their immunity. By contrast, their classroom activity has a declining trend when they are passing their fourth year at the university which implies that this component has a negative or maladaptive impact on their immunity.

The third research question was:

Does the gender of Iranian student teachers have an impact on their immunity levels?

To answer this research question, a comparison was made between the female and male student teachers in terms of their immunity levels and its components. The results are shown below in Table 7.

Table 7: *Independent Samples T-test for Comparing the Immunity Components of the Female and Male Student-teachers.*

	Gender	N	M	Std. Deviation	t
Efficacy	Male	95	4.7263	.77791	.89
	Female	80	4.8250	.65168	
Burnout	Male	95	3.9895	.77863	1.40
	Female	80	3.8250	.75933	
Resilience	Male	95	4.1684	.95263	.91
	Female	80	4.0375	.93381	
Attitude toward Teaching	Male	95	4.1895	.71896	.55
	Female	80	4.2500	.72041	
Openness to Change	Male	95	3.6105	.58881	.51
	Female	80	3.5625	.63333	
Classroom Activity	Male	95	4.2316	.64334	.97
	Female	80	4.3250	.61160	
Coping	Male	95	4.6316	.86360	.98
	Female	80	4.5000	.90007	
Immunity	Male	95	4.1789	.58308	.83
	Female	80	4.1000	.66751	

As shown in Table 7, according to the observed t indices, there is no significant difference between the female and male participants in terms of their overall immunity ($t = .83$, $p < .05$), efficacy ($t = .89$, $p < .05$), burnout ($t = 1.40$, $p < .05$), resilience ($t = .91$, $p < .05$), attitude toward teaching ($t = .55$, $p < .05$), openness to change ($t = .51$, $p < .05$), classroom activity ($t = .97$, $p < .05$), and coping ($t = .98$, $p < .05$) as well. Accordingly, it can be argued that, unlike years of education at the university, gender does not affect the immunity levels of the participants.

Discussion

Noticing the existing gap in the slim body of the literature on teacher immunity regarding the scarcity of knowledge about the pre-service or student-teachers' immunity levels, the researcher plunged into exploring the existence and dominance of the types of teacher immunity, either productive or maladaptive (Hiver, 2017), among 175 student-teachers of English as a foreign language. This study, devising both qualitative and quantitative methods, also probed the immunity levels of student-teachers according to their education years and gender as well.

The results of the qualitative study demonstrated that there are three types of immunity types among the student-teachers, negative, or maladaptive, neutral, and positive or productive. This finding broadens our view in comparison to what was described by Ordem (2017), for example, as the binary classification of teacher immunity. However, it has to be noted that previous classification was merely based on practicing teachers not the pre-service ones. Despite this fact, it is still possible that further investigation of the immunity of in-service teachers result in identifying more types of immunity, especially, if we consider the findings of the more recent study such as the one done by Rahmati et al. (2019) concluding that classifying maladaptively or positively immunized language teachers is a matter of degree. The findings of this study in terms of indicating the possible existing types of immunity among the student-teachers also confirm this. Accordingly, it can be concluded that teachers are sliding on the immunity continuum back and forth according to several psychological and social factors. To be more specific, it has to be concluded that teacher immunity is not a stable trait but a situational, transient, modifiable teacher trait which is a result of an amalgam of variables.

Several previous studies on teacher immunity or the related concepts such as Cirocki and Farrell (2017, 2019); Farrell (2016, 2018, 2019) highlighted reflective practice as the main contributor of teachers survival. However, the findings of the qualitative analysis in this study revealed that although teacher reflection has a role in promoting positive or productive immunity in student-teachers, there are many other elements such as creativity, self-confidence, risk-taking, perseverance, passion, persistence, and flexibility among others that contribute to their productive immunity. Also, it has to be noted that the findings of this study may relatively justify why even reflective teachers are experiencing periods of burnout in their profession (Day & Gu, 2014). This is due to the fact that, according to the findings of the study, teachers' immunity is a dynamic or, in a better sense, organic trait. This "organicity" of the trait does not only accounts for the transient nature of immunity among the student teachers or the practicing teachers which leads to the occasional feeling of burnout, but also justifies this phenomenon through giving roles to those many underlying traits that may be turned on and off in different situations and result in a varying teacher's immunity state along the continuum. In other words, based on the results of both qualitative and quantitative analyses of the data, it can be argued that teachers' immunity is an organic trait of teacher which includes both productive (reflection, creativity, passion, caring, etc.) and maladaptive (absenteeism, uncaring, depression, passiveness, etc.) components

simultaneously. The immunity type of a teacher at a given time or situation is dependent on how many of the positive or negative components are on or off. That is, the interaction between the active or "turned-on" components determines the final state of a teachers' immunity level in a particular period of time. This is quantitatively seen in the results of the study regarding the role of burnout and openness to change in this study, in comparison to what was reported in the previous studies by Rahmati, et al. (2019) and Haseli Songhori et al. (2018), for example, in which these components had roles in modifying teachers' immunity levels whereas they were neutral in this study. Their neutrality, however, might be due to the fact that the participants of this study, unlike the abovementioned ones, were student-teachers and had not experience teaching in schools first hand so that they can be influence by stressors and other sources of organizational or social pressures.

Day and Gu (2014) argued that the teachers' transition on immunity continuum is dependent on their levels of awareness as an integrated reflective practice. The results of this study, as discussed above, confirms this finding; however, extends the scope of the contributors to several many others. In addition, the findings of this study broadens our perspective toward the organic nature of teachers' immunity such as the one suggested by Rahmati, Sadeghi and Ghader. (2019) who introduced "imposed maladaptive immunity as a transitional stage from exercising agency to setting into a state of complete indifference due to lack of support from macro-level educational policy makers" (p. 91), rather than the linear nature as discussed by Haseli Songhori, Ghonsooly and Afraz (2018) who identified "four stages of self-organization, namely, triggering, coupling, realignment, and stabilization" (p. 128) along the continuum of the teacher immunity. The findings of this study suggest that teachers' immunity is organic in the sense that a human body's immunity system is organic (Hiver, 2015, 2016, 2017; Ordem, 2017, Saydam, 2019), if the metaphor of "organicity" is extended. That is, similar to human body which cannot be imagined without any infection in any given period of time even if there is no symptom of that, a teacher's immunity is partially infected with maladaptive or negative components. The reason why a teacher is feeling immune is the dominance of the positive or productive immunity components, the deficiency of which would lead to the neutral state of immunity and the weakness of which would lead to negative or maladaptive state. In the same line, it is noteworthy that with regard to the metaphor of "organicity" or organic nature of teachers' immunity it has to be argued that similar to an alive body in which there is no zero immunity system despite the severest disease, teachers are not totally destroyed in terms of their immunity. That is, teachers are

hypothesized to be "revivable" in terms of their immunity, similar to the human body immunity system. That is, through reinforcing positive teacher traits such as creativity, reflectivity, self-confidence, and efficacy among others, it would be possible to help teachers restore their immunity. This metaphor justifies the changing state of the immunity of the student-teachers over the four-year period at the university. As it was reported earlier, the student-teachers experienced a significant disequilibrium in terms of their efficacy and attitude toward teaching. For example, in the third year; however, their state of immunity changed for better in the following year. This may be considered as evidence for the fact that the interaction of their personal and professional traits, rather than a number of unchanging features such as gender, is responsible for their transient sense of immunity.

Conclusions

The contribution of an effective teacher to learner achievement and education quality is an increasingly significant issue in modern education and has recently been a hot topic among L2 teaching researchers. Among the recent developments was the concept of teacher immunity (Hiver & Dörnyei, 2015), related to teacher identity, self, and motivation, which has been researched among the practicing L2 teachers. Despite the contributions of the previous research to our understanding of the concept among the in-service teachers, there was a still a need to investigate the issue among the pre-service teachers who have not been the cannon of the previous studies so far.

To fill the existing gap, the researcher conducted a mixed method study of the pre-service teachers to explore their types of immunity and the possible variables affecting the construct. The results of the qualitative study confirmed the existence of the immunity types discussed in the previous studies, i.e. productive and maladaptive, while adding a neutral type to the previous taxonomy, emphasizing the transient organic nature of the construct. It also demonstrated that the preservice teachers enjoyed productive immunity. Further quantitative analysis of the data from the questionnaire also showed that unlike gender, the years spent on teacher training certainly positively affects the degree of their teacher immunity level. It is noteworthy that the analyses of the results in terms of the immunity components showed that not all components are contributing equally to the development of overall immunity levels of the teachers and their share depends on the personal and situational factors, as it was discussed as the organicity of teacher immunity.

The findings of this study are thought to be of significance for the policy-makers and

the stakeholders of teacher training in Iran, in general, and EFL teacher education, in particular. According to the results, to help would-be EFL teachers turn into an effective and constructive human resource of the educational system, their immunity has to be viewed in its organic sense and has to be monitored, refreshed, restored and treated even.

However, this study was inevitably prone to a number of limitations. For one thing, the statistical population of the study did not encompass the pre-service teachers in all or most of the teacher training centers in Iran. Hence, the results has to be cautiously generalized. There is a need to raise the awareness of the student-teachers, as well as the in-service teachers, about the significance of teachers' immunity and its contribution to a teacher's personal and professional life well-being. Constant studies on their immunity levels are needed and further studies, especially of longitudinal types, are required to shed light on the recently-introduced but critically-contributing concept of teacher immunity. Second, the concept of teacher immunity in the current study was put forward for would-be English language teachers. It can also be attributed to all teachers working in any educational system in general and to in-service English language teachers in particular.

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