Teaching English Language, Vol. 9, No. 2, Fall & Winter 2015, pp. 37-74

Associations among EFL Teachers' Professional Identity, Professional Vitality, and Creativity

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Received on June 25, 2015
Accepted on December 20, 2015

Abstract

Teachers' professional identity, professional vitality and creativity are three major factors that appear to affect teachers' professional life in EFL contexts. The main purpose of this study was to scrutinize the network of associations among these three variables and their respective subscales. Participants of this study were 300 Iranian EFL teachers from secondary school. We used teacher's professional identity questionnaire developed by Beijaard, Verloop, and Vermunt (2000), a modified version of professional vitality; one of the sub-scale of Skovholt Practitioner Professional Resiliency and Self-Care Inventory (2010) and creativity style questionnaire developed by Kumar & Holman (1997), to measure the variables. The results of Structural Equation Modeling (SEM) analysis confirmed the hypothesized model of relationships among the study variables. The final model of the network of associations among variables also revealed significant correlations among various subscales of the study. The findings of this study have various implications for language teachers and psycholinguistic researchers.

***Keywords**:* Professional Identity; Professional Vitality; Creativity; EFL Teachers

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1. Introduction

Teachers are among the most influential and also vulnerable members in any education system. Almost in every educational system one important goal is implementing and developing creative skills in individuals to cope with rapid technological changes in teaching domain. Teachers have a crucial role in developing students' competence, so they should be creative and help their students to be creative too. Among different factors, teachers' professional identity, professional vitality, and creativity due to their significant impact in teachers' performance have aroused much more interest.

Within the field of teaching and teacher education, many studies have been focused on teachers' professional identity (Beijaard, Meijer & Verloop, 2004; Bromme, 1991; Joyce & Weil, 1980; O'Connor, 2006; Olsen, 2008; oser, 1992; Vähäsantanen, 2007; Varghese, Morgan, Johnston, and Johnson 2005; Walkington, 2005; Woods & Jeffrey, 2002), professional vitality (Baruch et al., 2014; Cavner, 2014; Intrator & Kunzman, 2006; Judge, Thoresen, Bono & Patton, 2001; Mecalfe & Game, 2006; Ryan & Frederick, 1997; Sederberg & Clark 1990; Williams, 2012), and creativity (Celep & Yilmazturk, 2012; Dobbins, 2009; Ghonsooly & Raeesi, 2012; Jung, 1966a; Landeche, 2009; Schaulfeli et al., 1996; Schmidt, 2006) to investigate the role of these factors in their occupational functions and performance.

Among various investigations being done, some seem to be partially considered to in the previous studies. However, few researches have attended the issue of teacher creativity in combination with other factors such as teachers' professional identity and professional vitality. Teachers' performance has been reported to be affected by such factors in many studies (Baruch et al., 2014; Beauchamp & Thomas, 2009; Beijaard et al., 2004; Day, Elliot & Kingston, 2005; Dworkin, 1985; Intrator & Kunzmam, 2006; Jeffrey & Craft, 2006; Morais & Azevedo,

2011; Ryan & Frederick, 1997; Torrance, 1969; William, 2012, Woods, 1995).

Studies about teachers' professional identity mainly focus on background factors that affect the development of teachers' professional identity (e.g. Schepens, Aelterman, & Vlerick 2009). Although recent developments in educational psychology have enhanced the need for taking the role of teachers' identity, vitality, and creativity into account, scarcity of research in terms of creativity in the field of language teaching and learning and lack of interrelations of these individual factors made us explore it deeper and figure out its relationship with teacher professional identity, and vitality. This study sought to compensate this problem by exploring the nexus of relationships among teachers' professional identity, professional vitality, and creativity.

1.1 Professional identity

According to Hamman et al. (2010) studies on teacher professional identity in educational domain has gained specific attention. Renee (2013) stated that teacher professional identity have important role in teacher efficiency, maintenance, and their practice in classroom. Beijaard et al. (2004) defined teacher professional identity as "ongoing process of integration of the 'personal' and 'professional' sides of becoming and being a teacher" (p. 113). Also, Avalos (2006) defined teacher identity as teacher's definition of themselves in relation to their professional duties and educational and teaching relationships.

Kostogriz & Peeler (2007) stated that teachers' professional identity formation is not a stable process; rather it is teachers' continuous negotiation in the situated context. Indeed researchers and practitioners generally agree that identity formation is constantly evolving. Through the professional identity, the teacher transmits to pupils the information, skills, and values that he or she finds relevant for teaching and learning (Vähäsantanen, 2007).

Based on the work of Bromme (1991), Beijaard, Verloop & Vermunt (2000) studied three critical factors related to teachers' professional identity through examining teachers' expertise within three related areas, including their roles as subject matter expert.Beijaard et al (2004) stated that teacher's identity changes as a result of shifting in their knowledge of content matter, pedagogy and didactics. According to Beijaard et al. (2000),

> A Subject matter teacher bases his/her profession on subject matter knowledge and skills. A didactical expert teacher bases his/her profession on knowledge and skills regarding the planning, execuation, and evaluation of teaching and learning processes. Pedagogical expert teacher bases his/her profession on knowledge and skills to support students' social, emotional, and moral development (p.754).

In a more recent study, (Beijaard et al. 2004) stated that "professional identity is not something teachers have, but something they use in order to make sense of themselves" (p.123). Beijaard and de veries (1997) considered the pedagogical aspect of teachers' profession more important than others. Bennet & Carre (1993) believed that subject matter knowledge is a fundamental aspect of teacher's identity to alter the programs, enhance effective activities, explain things at high quality level, and diagnose students' understanding and misconceptions adequately. Teacher's knowledge about prescribed traditional models of teaching (e.g; Joyce & Weil, 1980) force them to consider relevant aspects of teaching, although it is not sufficient justice to the reality and complexity of teaching (Beijaard, 1990). According to Vermunt (1995) a teacher must play the role of a facilitator in the process of teaching and learning and not just a transmitter of knowledge.

1.2 Professional vitality

Professional teachers dedicate their time, energy, and hearts in their practice (Day, 2004). Professional vitality originates from teachers' experience of self to stimulate and energize others, thus provides advantageous circumstances for teachers to inspire their students by modelling presence or deep engagement (Hargreaves, 1998; Intrator & Kunzman, 2006; Meijer, Korthagen & Vasalos, 2009). Professional vitality entails an emotional and intellectual engagement with teacher's practice that establishes common, reciprocal, and positive connection between teachers and students (Meijer, Korthagen & Vasalos, 2009). Vitality refers to ‘‘the experience of having energy available to one’s self’’ (Ryan & Frederick, 1997, p. 2). Based on vitality as a sense of available energy in one’s self, Ryan & Frederick (1997) concluded that it should be higher when successfully accomplishing autonomously motivated practices than when successfully accomplishing controlled ones. According to Deci & Ryan (1985) vitality is energy that is perceived to originate from the self, an inner sense of causality. So individuals perceived and corresponding report vitality depends on the amount of experiences of available energy as "one's own" that originated from the self.

According to Intrator and Kunzman (2006) "potent teaching" associates with "vocational vitality that power, reinforce, and inspires students and cannot be restricted to a curriculum or method.. Teacher’s professional vitality is “the capacity to be vital, present, and deeply connected to his or her students," they say. It is not "a fixed, indelible condition, but a state that ebbs and flows with the context and challenges of the teaching life" (Intrator & Kunzmam, 2006, p.16). Intrator & Kunzman, (2006) stated that vocational vitality demonstrates itself in individuals practice, leads them to engross in their roles, and direct energy into the physical, cognitive, and emotional efforts related to their jobs. Better teachers enjoy teaching and increase student

learning (Ashton & Webb, 1986). According to Metcalfe and Game (2003), energy that is ignited based on relational forces that teachers impart to their students are important. According to Cavner (2014) teacher vitality is teacher's energy that is present in the classrooms and in their profession. High Vitality teachers are purposeful, innovative in developing current state, and consider obstructions as opportunities to learn (Intrator & Kunzman, 2006).

1.3 Creativity

In educational systems, teachers are considered as crucial creative factors since teaching and learning as central goals for all educational activities are mainly in connection with the schools (Longman, 1985). Further, fulfillment of educational system goals depends on efficient and innovative teachers (Soltani, 2006). There are different definitions for creativity depending on whether we see it "as a property of people (who we are), processes (what we do) or products (what we make)" (Fisher, 2004, p. 8). Creativity is an autonomous and primary energy within the psyche of person (Jung, 1966a), "discovery of a new, novel, or unusual idea or product by the application of logic, experience, or artistry" (Schaulfeli et al. 1996, p. 164). 'Creativity is the application of knowledge and skills in new ways to achieve a valued goal' (Bentley, 2001, p.136). According to Ken Robinson (2006) creativity is as significant factor in education as literacy. Stenberg & Williams (1996) emphasized the importance of teacher's creativity in fostering student's creativity by being role models for their students to learn the language better. Teachers’ creativity and efficient learning are linked to each other. Investigations about teacher creativity have demonstrated that higher level of school standards in English leads teachers’ to value passions about teaching and creativity (Frater, 2001). According to Cremin (2009) language learning have more creative processes than mechanical ones, so creativity should not be regarded as

optional but a target of the English curriculum and it should be allocated more attention.

Furthermore, creativity is considered as a source of accomplishment and productivity (Esquivel, 1995). Indeed, "no matter how good policies are, they rely on teachers to implement them in classrooms" (Ferrari et al., 2009a, p. 360). Hence, teachers have significant role in developing students' creativity (Esquivel, 1995). They should accompany them in the process of knowledge building, by adopting roles of facilitator and fellow collaborator (Sawyer, 2012). According to Polk (2006) creativity is one of the features of effective teachers. Peat (1989) stated that in education, students can expand their creativity if teachers promote their own creativity and model for their students. To attain this goal, there must be freedom to play and make mistakes, since external restrictions can confine creativity and limit the mind (Peat, 1989).

Results of Torrance's research (1974) demonstrated that teachers normally are not aware and familiar with creativity. Forrester & Hui (2007) stated that teachers should think beyond the traditional methods of subject knowledge to overcome multiple life ambiguities, and turn from a traditional subject-teacher to reinforce and facilitate learning. However, nowadays, prescribed standards restrict student's creativity (Hui & Yuen, 2010). Teaching learners that knowledge is static and thorough leads them to great consumers not providers of knowledge. Kumar, Kemmler and Holman (2010) stated that high-creativity students were more willing to report having a stronger belief in unconscious processes, using more techniques to be creative, and being less worried about developing a final product.

Creative teachers have a solid knowledge base. They know their subject – English, teaching English, and learning English - and they draw on their subject matter knowledge in building creative lessons (Richards, 2013, p. 23). Innovative teachers are familiar with a wide range of strategies and adjust their teaching

to foster learning. According to Cremin (2009) various features of personality characteristics of creative teachers are confidence, curiosity, enthusiasm, commitment, openness to emotions, a sense of the self as a creative being, and secure knowledge about the subject. Autonomous and innovative teachers are aware of themselves as creative beings, although for some this may be a relatively new insight. They model, demonstrate and foster a questioning stance and the making of connections, and a marked degree of autonomy and ownership (Cremin, 2009, p.43). In addition, innovative teachers have a humanist approach, openness to emotions and feelings and a strong moral investment in their work (Woods & Jeffery, 1996).

1.4 Professional vitality and identity

According to Self-Determination Theory (SDT) developed by Deci and Ryan (1985), people need to feel competence, connection, and autonomous in order to achieve psychological growth. Autonomy is a volitional state of endorsing choices that reflects individual's interests, willing and values that can lead to wellbeing (Decci & Ryan, 2000**).** Based on delf-determination theory, William (2012) found the function of need fulfillment on vitality and burnout as a two well-being forms of Christian humanitarian organization in India, and indicated the importance of supporting autonomy, competence and relatedness. Within SDT view, Deci and Ryan, (2008) stated that "insofar as vitality represents energy available to the self, psychological nutriments to the self should enhance energy – that is, they should make energy more available to the self " (p. 711).

As Volkmann and Anderson (1998) maintain “professional identity exists as a complex and dynamic equilibrium where personal self-image is balanced with a variety of social roles that teachers feel obliged to play" (p. 296). Reflection is a main component linked with the concept of self (Antonek, McCormic, & Dontato, 1997). According to Namaghi (2009) lack of reflection impeds the development of the self as a teacher, since

self-reflection makes connection between teacher's experiences and their knowledge and feelings. According to Decci and Ryan (2000), autonomy as a volitional state of confirming choices reflects individual's interests, willing and values that can lead to wellbeing. Teaching conditions indoctrinate teachers to behave in prescribed ways (e.g., receiver of knowledge, transmitter of knowledge, and implementer of externally produced plans), they do not find any opportunity to reason soundly about their teaching as well as to perform skilfully. They are thus alienated from their personal and professional identities " (Namaghi, 2009, p.121).

Various investigation conducted by scholars demonstrated that agency is associated with autonomy and identity (Benson 2006; van Lier 2007; Vitanova 2004). According to Korhonen, Agency, autonomy and identity are, indeed, interrelated in FL learning, which can be seen as a process involving different forms of agency that closely connect to autonomy, entail a reconstruction of identity and hopefully extend the realm of the three notions beyond language learning contexts. A non-linear relationship can be identified between agency, autonomy and identity, all of which play essential roles throughout the learning process (2014, p. 79).

Since vitality as individuals' energy emerges from the self, one's reported vitality depends on the extent that one experiences one's energy as 'one's own' (Deci & Ryan, 1985). Intrator & Kunzmam (2006) emphasized that individual's ability to become and keep energetic and tuned in is a significant dimension of professional vitality that leads to teacher's great interest and keenness to the needs of students and context**.** Representation of enjoyable activities that one engages on a regular basis demonstrates itself in one's identity to the extent that the activity is highly valued and important (Aron, Aron, & Smollan, 1992; Csikszentmihalyi, Rathunde, & Whalen, 1993).

Nix, Ryan, Manly, and Deci (1999) stated that "behaviors that are autonomous or self-determined may yield better maintain or enhance the vitality relative to non-self-determined activities (e.g., being externally controlled or ego-involved)" (p. 269). Kasser & Ryan (in press) found some linkage between personal autonomy and vitality. Malekzadeh (2015) found significant association between Iranian EFL teachers' professional identity and vocational vitality. In a study, Sheldon, Ryan, & Reis (1996) demonstrated association of self-determination and vitality among college students. Based on this study, a trait measure of autonomy was related with vitality in a way that changes in student's autonomy were significantly associated with changes in vitality. Another study conducted by Reis, Sheldon, Gable, Roscoe, and Ryan (in press) revealed that altering individual's autonomy were significantly linked to changes in their vitality.

1.5 Creativity and identity

Many investigations have demonstrated the impact of personalities and developments of creativity on teacher identity. Innovative teachers are more likely to implement ‘new’ ideas in schooling and teaching. According to Watson (2007) professional identity has significant relationship with professional knowledge and action, although these relations are complex. In a study Alexander, Van Wyk, & Moreeng (2014) tried to find Constructing Student-Teacher identities by mentorship project initiative and demonstrated that the initiative helped them show more self-confidence and creativity in the activities.

Amabile (1983) stated that self-determination has been associated to higher creativity. According to Menter (2010) teacher's creativity, the extent that teachers are autonomous in their professional identity and their definition about their identities are related to each other. Expectations, demands, and limitations of formal structures and institutions of national

education system may hinder developing of teacher's creativity (Menter, 2010). According to, Beijaard et al. (2000) teachers' perception of professional identity influence their effectiveness, professional development, and desire to change and adjust themselves with new innovative ideas. Cremin (2009) found that core features of creative practice are closely interrelated.

Furthermore, literature suggests that teacher's professional identity development are affected by their reactions to the challenge of creativity that makes the role and the identity more complex (Menter, 2010).

Teacher collaboration and enquiry, pupil voice, community engagement, exploiting new technologies, creative partnerships are "five strands that may all contribute to the re-emergence of a confident professional identity among teachers" (Menter, 2010, p.69). Furthermore, along with developing creative partnership, excellent opportunities should be created for developing of teacher's professional identity (Menter, 2010).

Kompırović & Živković (2012) examined the factor structure of the scale of professional identity of teachers and the linkage scores on this scale with the dimensions of creativity and collaboration factors. The obtained results of canonical correlation analysis of the factors of professional identity and quality indicators of teachers' work (creativity and collaborative relationships) were statistically significant. Also it was revealed that " teachers with higher academic qualifications, professional engagement later in the classroom and longer working lives are more important achievements of the factors of creativity and collaboration" (p.1).

According to Muwanga-Zake (2010) and Søreide (2006) not only teachers continuously promote teaching skills and methods but also they are more inclined and eager to learn along with identity construction to develop their own competencies. Furthermore, in a study Alexander, Van Wyk, & Moreeng (2014) indicated that teacher's creative and innovative attitudes

have association with their competencies. They criticized traditional education methods and demonstrated that creative instruction inspires student-teachers to think autonomously, engage actively and express themselves clearly and freely. They found that enabling environment established by mentor teachers and school principals can make student teachers to be more creative and promote their creative professionals. Some strategies can improve creative instructions for developing teacher professional identity such as "student-centered activities, multimedia, assistance, classroom management the connection of teaching contents to real-life situations, open-ended questions, and encouragement to think creatively" (Van Wyk, & Moreeng, 2014, p. 412).

1.6 Vitality and creativity

Teacher's confidence in their own ability to attain desired achievements encourages them to inspire their students to acquire teachers' expectation that leads to greater professional satisfaction (Yoo, 2014). Experiencing of satisfaction inspires them to establish similar learning situations for their students. According to Lunenberg, Korthagen & Swennen (2007) lack of self-confidence in teachers' performance causes them set less challenging goals for themselves and their students. Teachers' experience of mastery in their goals leads to higher experience in professional vitality and greater confidence to produce more challenging learning activities for their students (Bandura, 1997; Yost, 2006). Furthermore, Tschannen-Moran & Woolfolk Hoy (2007) emphasized on teacher self-efficacy and vocational vitality as essential factors in students achievements. They stressed that teachers who experience a sense of incompetence and a low morale will provide less challenging learning tasks and consequently produce negative learning results. Positive emotions enhance individuals' tendency to adopt change and develop the fluency, the flexibility and the originality of their creative thinking (Vulpe & Dafinoiua, 2011).

Liu, Chen, and Yao (2011) indicated that harmonious passion should be linked to creativity. Since, experience of harmonious passion, makes individuals feel they are free and not restricted by their environment and are inclined to probe novel possibilities. Also, harmonious passion evokes the energy and emotion that can ignite creative processes. In another study, Luh and Lu (2012) confirmed that harmonious passion promote creativity. Maureen Musser, et al. (2013) stated that "Creativity, relevance, and active learning experiences can reignite students' and teachers' passion for learning and foster the conditions" (p. 8). Miller (2006) called this condition "timeless learning," that "students develop deep joy, wholeness, awe and wonder, and a sense of purpose" (p. 12). Creative teachers believe that the innovation would develop their student's achievements, and also it would help the teachers enhance their work enjoyment and prevent personal boredom (Emo, 2009).

And according to Intrator and Conzman (2006) high vitality teachers have purpose, taking initiative in developing current state and responding to hardness and difficulty, and perceive themselves as competent agents to challenge the current situation rather than passively adjusting to a particular condition. High Vitality teachers have developed sense of targeting that is vital for the improvement of outcome, resilient ability to solving problems, keeping vision towards future, and consider obstructions as opportunities to learn (Intrator & Kunzman, 2006). Greaves and Farbus's (2006) demonstrated that fostering and supporting of creative activities promote well-being and positive changes in elderly health. Furthermore, creativity predicts positive result, physical health, psychological harmony, and vitality (Collins, 2006; Bostic's (2003). Davis (2009) in a meta-analysis of 60 experimental and 10 non-experimental investigations revealed that positive feelings and mood contribute to the progress of creativity. Also, in a meta-analysis of 102 studies, Baas and colleagues (2008) showed that positive

mood creates more creativity than the neutral mood. Finally, creative thinking has been shown to enhance individual's joy as an essential factor in reducing adversity and hardness of life (Maltz, 1984).

1.7 The current study

The aforementioned literature demonstrated that teachers' professional identity, professional vitality, and creativity have been linked to each other from different perspectives. So far, however, few studies if any have been reported on the interrelationships of these three concepts. Furthermore, previous studies have implemented methods without a unified theory behind. Most of the studies conducted and reviewed do not draw upon the more reliable and strong methodological designs and models which can present an exact, more precise and inclusive picture of the relationships of the variables in the study. One general and powerful analysis technique is structural equation modeling. Such gaps provoked the researchers to explore the network of associations amongst EFL teachers' identity, vitality, and creativity employing a more sound theoretical as well as methodological framework. Hence, in the light of previous findings, we expected significant relationships among these three variables and also their various sub-scales and based on these expectations we proposed a model in which all of these three teacher variables are correlated to each other (Figure 1). In order to investigate the associations in details and probe into the interrelationships of various sub-scales of the study, we implemented a structural equation modeling approach.

According to Bollen and Long (1993), Structural Equation Modeling (SEM) is a powerful collection of multivariate analysis approach which is performed to both validate the measurement model and fit the structural model. These are analyzed through exploratory and confirmatory phases the result of which is reported in the following sections.

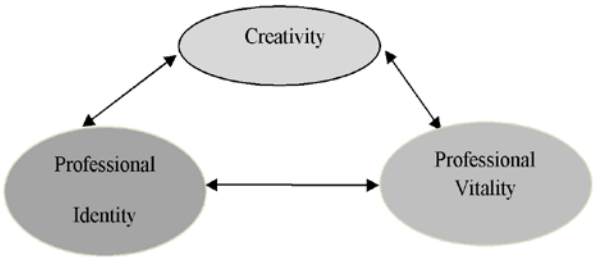

Figure 1. The hypothesized model of the relationships among main variables of the study

2. Method

2.1 Participants and procedure

Participants in this study were 300 (167 male, 133 female) Iranian EFL teachers from secondary school. All the participants had at least 5 years of experience in language teaching. They participated voluntarily in the study. They were ensured about their privacy concerns. Willing participants were given an anonymous pack of survey pages which contained of all of the questionnaires used in the study.

2.2 Instruments

Three self-report questionnaires were used in this study. Beijaard, Verloop, and Vermunt's (2000) questionnaire was used to assess teacher's professional identity. This questionnaire consists of three sub-scales; teachers in the subject matter field (4 items, items 1-4, α = .62), teachers in the didactical field (6 items, items 5-10, α = .58), and teachers in the pedagogical field (4 items, items 11-14, α = .68).The teachers were asked to represent their professional identity by awarding a total of 100 points to the three aspects of their identity. The reliability of the Persian adapted version of the scale has been estimated to be .71.

A modified version of professional vitality; one of the subscales of Skovholt Practitioner Professional Resiliency and

Self-Care Inventory (2010) was used to assess EFL teacher's professional vitality for the purpose of the research. The Items on Professional vitality sub- scale were conceptualized by three dimensions: Attitude, Interest, and Skill. The original scale consists of four sub-scales: Professional Vitality (eight items, with possible score 8-40), personal vitality (11 items possible score 10-55), professional stress (9 items, possible score 8-40), and personal stress (9 items, possible score 10-50). In this study, we just used the Professional Vitality sub-scale with 8 items. The items are presented in statement form with response options ranging from 1 = Totally Disagree, 2 = Disagree, 3 = No opinion, 4 = Agree, to 5 = Totally disagree. It was essential to evaluate the reliability of the subscale for this specific group of participants since reliability can be person and situation specific (Field, 2009). The reliability of the Persian adapted version of the questionnaire was .91.

Creativity style questionnaire developed by Kumar and Holman (1997) was used to assess EFL teacher's creativity .It consists of eight subscales. According to Hocevar and Bachelor (1989) this is a self-reported and the most defensible measure of creativity. It uses a 5-point scale with strongly agree (1), agree (2), unsure (3), disagree (4), and strongly disagree (5).

2.3 Data analysis

In order to explore the relationships assumed in our hypothesized model, first we submitted data to SPSS 18.0 and then using the AMOS 22 program, we tested the model by means of SEM (structural equation modeling) analyses. At the first step and in an exploratory approach to analyze the data, we implemented Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity to estimate variables values and validate the sub-scales or observed variables which we considered for each of our main or latent variables. The second step was devoted to validation of the full posited model (the main variables and their sub-scales) through

a confirmatory statistical approach referred to as the goodness of fit. In order to estimate how the supposed relationships among model's variables fit the data, various conventional fit indices were calculated.

Referring to Tseng et al. (2006), we chose root mean square error of approximation (RMSEA), root mean squared residual (RMR), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normal fit index (NFI), comparative fit index (CFI), incremental fit index (IFI) as well as normal chi-square as indices of good model fit. Values of AGFI > .85 and for RMR0 ≥ 0 are considered to be acceptable fitness indices. The acceptable value for GFI, NFI, CFI, and IFI is greater than 0.90. This index for RMSEA is greater than 0.05 and in case of normal chi-square the acceptable value is greater than 5 (Bollen, 1989; Steiger, 1990; Hu & Bentler, 1999; Byrne, 2001). We then explored the significant relationships among the main variables and subscales of our proposed model. In so doing, along with estimating goodness of fit indices and the matrix of correlations, multiple regression analyses were run to reveal the model path predictions. In the following section, the results are reported at length.

3. Results

Descriptive statistics of all measures are shown in Table 1.

Table 1

Descriptive Statistics for All Measures

Subscale	N	Min	Max	Mean	SD	Skewness	Kurtosis
Subject Matter Field	300	4.00	20.00	11.813	5.2271	.005	-1.501
Didactical Field	300	6.00	30.00	18.436	7.1256	.004	-1.008
Pedagogical field	300	4.00	20.00	12.393	4.4637	-.033	-1.433
Attitude	300	3.00	15.00	9.7667	3.5431	-.238	-1.350
Interest	300	3.00	15.00	9.3567	3.4051	.045	-1.384
Skill	300	4.00	20.00	12.190	4.4707	-.094	-1.398
Creative Capacity	300	2.00	10.00	6.1667	2.6499	.873	5.265
belief in the creative process	300	18.00	90.00	56.520	1.5450E	-.254	-.778
Use of Techniques	300	20.00	100.00	57.113	16.4284	-.221	-.784
Use of Other People	300	9.00	45.00	27.170	7.67054	-.057	-.876
Final product orientating	300	7.00	35.00	19.843	7.03161	.031	-.911
Environmental control/ behavioral self-regulation	300	18.00	90.00	55.913	16.4725	-.291	-.743
Superstition	300	2.00	10.00	5.5967	2.25483	.095	-780
Use of Sense	300						-1.283
Valid N(listwise)	300	4.00	46.00	10.680	4.56146	.287	

As it can be detected from Table 1, all continuous variables were not normally distributed (Skewness & Kurtosis < 2), thus, Spearman bivariate correlation was run. The following table provides correlation matrix of all of the subscales and main scales of the study.

Table 2
Correlation Matrix of All main Scales and Their Sub-scales

	SMF	DF	PF	AT	IN	SK	CC	BUP	UOT	UOP	FPO	ESBSR	SU	UOS
ID														
SMF	-													
DF	.857**	-												
PF	.834**	.839**	-											
VT														
AT	.753**	.697**	.759**	-										
IN	.800**	.787**	.801**	.771**	-									
SK	.776**	.703**	.767**	.827**	.797**	-								
CR														
CC	.484**	.459**	.495**	.490**	.510**	.516**	-							
BUP	.601**	.578**	.619**	.585**	.598**	.571**	.671**	-						
UOT	.570**	.576**	.601**	.546**	.564**	.564**	.643**	.833**	-					
UOP	.494**	.478**	.546**	.500**	.523**	.509**	.511**	.666**	.709**	-				
FPO	.488**	.467**	.502**	.477**	.513**	.474**	.552**	.605**	.628**	.797**	-			
ECBSR	.482**	.457**	.512**	.497**	.499**	.477**	.676**	.858**	.787**	.713**	.686**	-		
SU	.403**	.344**	.376**	.410**	.415**	.430**	.481**	.509**	.450**	.461	.627**	.577**	-	
UOS	.473**	.403**	.460**	.432**	.432**	.465**	.504**	.573	.492	.597**	.707**	.634**	-.756**	

P<.05 p**<.01 Note: VT=Vitality, At = Attitude, IN = Interest, SK=Skill, ID=Identity, SMF= Subject matter field, DF= Didactical field, PF= Pedagogical field, CR=Creativity, CC= Creative capacity, BUP= Belief unconscious process, UOT= Use of techniques, UOP= Use of people, FPO= Final product orienting, ECBSR=. Environmental control/ behavioral self-regulation, SU= Superstition, UOS= Use of senses

As Table 2 above clearly shows, significant correlations were found between the main variables of the study. Besides the main variables, the subscale factors are also in some cases highly correlated. Since our main target is to indicate the correlation between the three factors of Identity, Vitality and creativity, we can observe the high correlation between subscales of identity. The highest correlation is detected between didactical and subject matter fields (r = 0.857), and pedagogical and didactical fields (r = 0.839). Didactical field is also highly correlated with subject matter field with a value of (r=0.834). Association between skill and attitude sub-scales of professional vitality was in the second place with value of (r = .827). Skill is associated with interest (r = .897), and attitude and interest (r=.801). Sub-scales of creativity are associated to each other. The highest

correlation is between environmental control/ behavior self-regulation and belief in unconscious process (r=858). Also the techniques and believes in the unconscious processes are highly correlated to each other (r = 833).

Moreover, not only all the sub-scales of the study are strongly associated with their main variables, but also some of these sub-scales are associated with other sub-scales and main variables, too. The highest correlation is detected between sub-scales of identity and vitality. Interest and pedagogical field are correlated highly with each other (r=.801), interest with subject matter field (r=.800), interest and didactical field (r =.787), and skill with subject matter field (r =.776). Moreover, Sub-scales of creativity are correlated with all sub-scales of professional identity and professional vitality. In spite of the multiple relationships among the main variables and their various subscales, however, simple correlation analysis couldn't be accounted as a strong confirmatory measure, due to error measurement, to propose accurateness of these relations in the network of associations among different components of our hypothesized model. Consequently, the researchers probed into the significant relationship in the network of associations through structural equation modeling approach in exploratory and confirmatory phases. Since each of our substantial variables encompassed multiple sub-scales, validation was necessary. At the exploratory stage of our analysis and to ensure about sufficiency of sampling and appropriateness of the factor model for each of our main variables, we used KMO measure of sampling adequacy and Bartlett's Test of Sphericity. As it is shown in Table 3, all of the statistics for KMO measure were greater than 0.5 which supported sufficiency of sampling. In addition, confidence level of 0.000 for Bartlett’s test validated appropriateness of factor model for all of our main variables.

Table 3 which represents KMO and Bartlett’s test results, indicated that each set of subscales appropriately measured their

respective variables. The next stage of our analysis included a confirmatory approach to examine accuracy of the relationships among the study main variables as well as the links among different sub-scales. To evaluate fitness of our hypothesized model to the collected data, a confirmatory factor analysis was run with the help of AMOS 22 program. The calculated fitness indices (Table 4) indicated that our posited model of the relationships among study main variables fitted the data (_x^2/ DF=1.275, RMSEA=0.047, RMR= 0.013, GFI= 0.974, AGFI= 0.945, NFI= 0.980, CFI=0.984, IFI=0.984).

Table 3

KMO and Bartlett's Test of Study Variables

Variables			Vitality	Creativity
KMO Measure of Sampling Adequacy		.771	.758	.877
Bartlett's Test	$\chi 2$	810.573	676.356	2.060E3
	d.f.	3	3	28
	Sig.	0.000	0.000	0.000

Table 4

Structural Equation Model: Fit Statistics

Fit Indices	Factor Structure	Value	Result
Normal Chi-Square	x^2/ df<5	1.065	Accept
Root Mean Square Error of Approximation	RMSEA<0.05	.040	Accept
Root Mean Squared Residual	RMR≥0	0.017	Accept
Goodness- of-Fit Index	GFI>0.9	.956	Accept
Adjusted Goodness-of-Fit Index	AGFI>0.85	.836	Accept
Normal Fit Index or Bentler-Bonett Index	NFI>0.90	.976	Accept
Comparative Fit Index	CFI>0.90	.982	Accept
Incremental Fit Index	IFI>0.90	.983	Accept

Figure 2 displays the schematic representation of the accepted model as well as standardized path correlations among main variables and sub-scales. The non-significant paths were deleted from the final accepted model. It is clearly indicated that teacher professional identity, professional vitality, and teacher creativity of our participants were associated with each other. As it is detectable from this figure, the link between teacher professional identity and professional vitality was direct, positive and reciprocal. Also, the link between teacher creativity and professional identity was direct, positive and reciprocal. The strongest association was between teacher identity and teacher vitality (0.96). The next strong link was found between creativity and professional vitality (0.69) and the last one was between teacher creativity and professional identity (0.65). In addition to the relations found among the main variables of the study, various subscales of one particular variable as well as various sub-scales of different variables demonstrated to be associated with each other in either positive or negative directions. In case of teacher creativity, creative capacity exhibited relations to all sub-scales of creativity. Furthermore, other sub-scales of creativity were linked to each other. Moreover, didactical field and subject matter field, as two sub-scales of professional identity were not linked to each other. In case of professional vitality, attitude demonstrated relation to skill and interest, but there was not any relationships between interest and skill.

With regard to inter-group associations among various sub-scales of different variables of the study, various reciprocal relations were detected. Creative capacity was positively linked to all sub-scales of professional identity and professional vitality except interest. Belief in unconscious process was also related to interest, subject matter field, didactical field, and pedagogical field. Use of strategies was found to be associated with attitude, skill, and subject matter field in a positive direction.

Environmental Control/behavioral self-regulation was associated with skill and use of senses positively correlated with all sub-scales of vitality and subject matter field. Among these inter-group relations the link between subject matter field and interest (r = .19), skill and didactical field (r = .17) demonstrated the strongest associations.

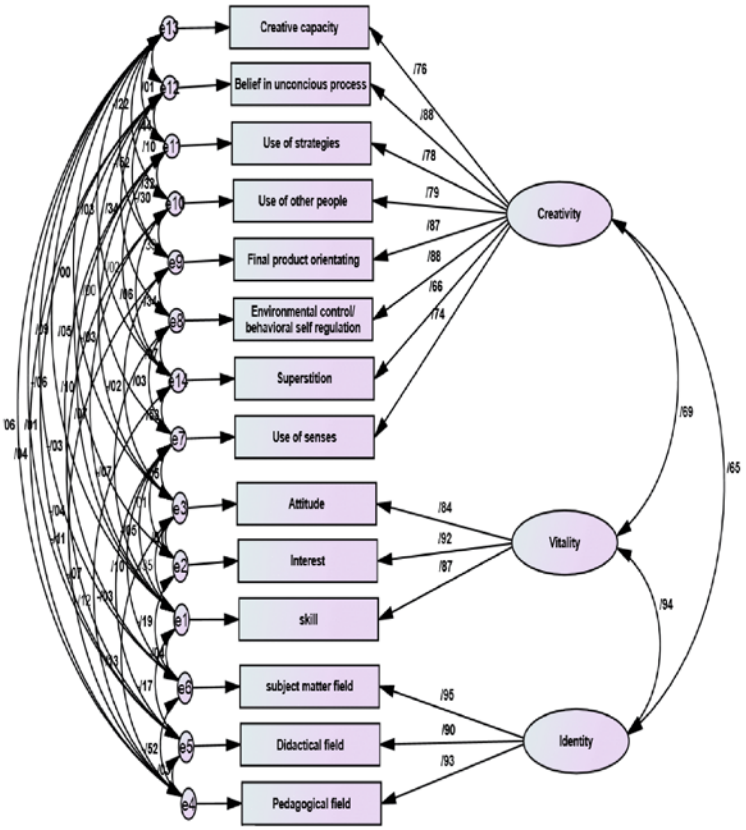

Figure 2. Structural equation modeling in standardized estimation

Multiple regression findings also confirmed the relationships obtained by SEM. To see how the main variables of study load each other and how predictions are made, a multiple regression was run. Table 5 shows the findings.

Table 5
Multiple Regressions with Professional Identity and Professional Vitality as Independent Variables and Teacher Creativity as Dependent Variable

	Teacher creativity		
Predictor	B	t	Sig.
(Constant)	116.128	13.690	.000
Professional Identity	.314	3.776	.000
Professional vitality	.379	4.565	.000
Sig = .000			F=
R^2 = .445			119.247
			R=.667

Predictors: (Constant), identity, vitality Dependent Variable: creativity

Multiple regression analysis indicated that professional vitality (B=-.379, t=4.565, sig=.000) predict teacher creativity more powerfully than professional identity (B = .314, t = 3.776, sig=.041). As is indicated by their B and t values, these two measures were positive predictors of teacher's creativity.

4. Discussion

This study aimed to probe into the network of associations among teachers' professional identity, professional vitality, and creativity. The main results of this research, achieved through SEM analysis, proved the proposed model of the associations among the study variables, since all of our three main variables were affirmed to be related to each other. The main findings of this paper were in line with previous studies which demonstrated

the relationships between teacher professional identity and professional vitality (Deci & Ryan, 1985; Malekzadeh, 2015; Williams, 2012), professional identity and creativity (Alexander, Van Wyk, Moreeng, 2014; Beijjard et al., 2000; Kompırović, Žıvković (2012 , and teacher professional vitality and creativity (Intrator & Kunzmam, 2006; Emo, 2009).

In order to investigate the links among various sub-scales of the main variables, first spearman correlations were calculated which revealed multiple associations among different sub-scales (Table 1). Sub-scales of professional identity, including subject matter field, didactical field, and pedagogical field had the most significant relationship with each other. Didactical and subject matter field had the highest correlation, pedagogical and didactical field in the second place, and didactical field was highly correlated with subject matter field. This finding also indicated consistency with previous research (Beijaard, Verloop, and Vermunt (2000) that found how teachers see their professional identity as consisting of a combination of subject matter field, didactical, and pedagogical field.

Subscales of teachers' professional vitality demonstrated positive links with each other. Skill and attitude demonstrated the most positive links with each other. Interest and skill had positive significant relationship with each other in the second position. Interest and attitude had significant positive links with each other in the third position. These findings were also supported by other studies (Malekzadeh, 2015) that found association between all sub-scales of professional vitality as an important factor in teacher's performance. Furthermore, sub-scales of creativity demonstrated association to each other. The environmental control/ behavior self-regulation and belief in unconscious process had the highest correlation. Use of techniques was highly correlated to belief in unconscious process. Belief in unconscious process and creative capacity had positive links with each other. The association between

Environmental control/ behavioral self-regulation and creative capacity was positive and significant. Use of people and Environmental control/ behavioral self-regulation had positive relationship with each other. The results of this study are in line with previous research done by Kumar, Kemmler & Holman (2010) that stated those in the high-creativity group were more inclined to report having a stronger belief in unconscious processes, using more techniques to be creative, and being less concerned about developing a final product.

Furthermore, in addition to significant relationships that were found among sub-scales of each main variable, the correlations among different sub-scales of various main variables discussed previously were confirmed through SEM analysis. As discussed before, the highest correlation was detected between sub-scales of identity and vitality. Interest and pedagogical field was correlated highly with each other, interest with subject matter field, interest and didactical field, and skill with subject matter field. Our findings exhibited that teacher professional vitality and professional identity have significant relationship with each other. It implies that high vitality teachers' have higher sense of professional identity and higher professional identity leads teachers to high level of vitality. This can have significant effect on teacher's performance in classroom and consequently on students competence. These findings served as verification to Malekzadeh (2015) that found the highest link between teacher's professional identity and professional vitality. Accordingly, the positive significant link was between sub-scales of vitality including interest, attitude, and skill, and sub scales of creativity. Belief in unconscious process had highest correlation with interest, then with attitude and last with skill. These results were ion line with other studies (Edwards & Dirette, 2010) that found relations between burnout and fostering of professional values as well as the broad scope of occupational therapy, which may operate as an obstacle to constructing a concise and well

recognized professional identity. As it was shown by the correlation matrix (Table 2), all sub scales of creativity had positive significant relationship with interest, attitude, and skill. To see if the significant relationships obtained via simple correlation processes are confirmed in the network of associations among the study variables, it was necessary to submit the data to SEM analysis. It was demonstrated that all of the main variables of the study were linked with each other.

As discussed before, positive significant links between sub-scales of creativity and subscales of professional identity were not studied before. Our findings exhibited that teacher professional identity and creativity have significant relationship with each other. It implies that teachers' higher sense of professional identity leads them to have high level of creativity. This can have significant effect on teachers' practice, effectiveness, and performance in classroom and consequently on students competence.

5. Conclusion

In this study, we used SEM analysis to provide a more precise estimate of the relationships among teacher professional identity, professional vitality and creativity in a network of associations. Findings of the present study revealed that professional identity and professional vitality had positive reciprocal relationships with each other. The relationship between professional identity and creativity was positive and reciprocal. Professional vitality and creativity had positive and reciprocal associations. Some of the sub-scales of the main variables involved in the study also proved to be related with one another. Strong network of associations among these three teacher variable suggests that administrators and policy makers must consider the significant role of teachers' professional identity and their vitality in implementing innovation and creativity in effective teachings to enhance their students' competence. Training programs must emphasize and consider

teachers professional identity developments, promote their vocational vitality, and encourage teachers to be more familiar with creativity. Administrators can enhance teachers' professional vitality, sustain their inner energy, and promote their professional identity by helping them to experience autonomy and have reflection in teaching as a key component associated with the concept of self. The results of this study confirmed that administrators should consider the role of EFL teachers' creativity in EFL teacher education programs as an important factor in teachers' effective teaching and consequently in their students competence to foster creativity in the classroom.

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