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Research Article

Creativity Fostering Teaching: Impact of Creative Self-efficacy and Teacher Efficacy

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Abstract

Teachers who foster creativity of their students bequeath one of the most crucial skills. This study aims to reveal the connection between two teacher-related factors, (i.e., creative self-efficacy and teacher efficacy), and teachers' creativity fostering behaviors. Teachers' creative self-efficacy could impact their creative teaching performance because of their natural inclination to be creative and serve as a role model. Teacher efficacy had two aspects: internal and external. Internal aspect of teacher efficacy was expected to relate to their creativity fostering behaviors because teachers have to take initiative and have internal locus of control to teach more creatively under the system-wide constraints. No hypothesis was made for the external factors. Creativity fostering teacher behaviors were regressed on teacher efficacy and creative self-efficacy after controlling demographic variables. As hypothesized, teachers' self-efficacy and internal aspects of teacher efficacy predicted creativity fostering teacher behaviors whereas external aspect of teacher efficacy was not significant. More experienced teachers seemed to be more teacher-centered than student-centered. Results were discussed in terms of teachers as creative role models and internal locus of control.

Keywords

Creative self-efficacy • Teacher efficacy • Creative teaching • Internal efficacy • External efficacy

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As the need for creativity emerges more in the workforce (IBM, 2010), educators' response to this phenomenon becomes more important. Although most creativity researchers believe that creativity is teachable, learnable, and improvable (McWilliam, 2007; Murdock, 2003; Rhodes, 1961; Torrance, 1970, 1972; Torrance & Torrance, 1973) and there is empirical evidence showing the impact of creativity training (Scott, Leritz, & Mumford, 2004), creativity has not often been an educational priority (Geist & Hohn, 2009; Maisuria, 2005).

This gap between the need and current practice and policy can be closed in several ways such as changing educational policies that would improve educational climate and teaching styles and methods. Most of such changes, however, would require changing or improving the teaching practices. Therefore, teachers play a central role in any such effort (Esquivel, 1995). Teachers can make a difference in students' creative potential as a result of three inter-related components: teacher's own creativity, instructional practices, and the classroom climate that teachers set. The first factor is about teacher's personal creativity and the last two are more about what teachers do in the classroom to support creativity.

Creativity Supporting Teacher Behaviors

There are various models of creative teaching in the literature. One of such models is Torrance Incubation Model (Murdock & Keller-Mathers, 2008; Torrance, 1979; Torrance & Safter, 1990). The model consists of three components: heightening anticipation, deepening expectations, and extending the learning. Heightening anticipation aims to give purpose and motivation through warm-ups and activities that generate curiosity and increase desire to learn the content through confrontation with ambiguities and uncertainties. Deepening expectations involve further engagement in the subject through careful analysis of the concepts and ideas through digging deeper and exploring beyond the obvious. Extending the learning is about engaging the learners to take the content beyond what is taught and discussed in class. Cropley (1997) provided a more specific list of teacher behaviors that foster creativity including (1) Encouraging students to learn independently, (2) Having a co-operative, socially integrative style of teaching, (3) Motivating their students to master factual knowledge, so that they have a solid base for divergent thinking, (4) Delaying judging students' ideas until they have been thoroughly worked out and clearly formulated, (5) Encouraging flexible thinking, (6) Promoting self-evaluation in students, (7) Taking students' suggestions and questions seriously, (8) Offering students opportunities to work with a wide variety of materials and under many different conditions, (9) Helping students to learn to cope with frustration and failure, so that they have the courage to try the new and unusual.

In addition to general models for creative teaching, some studies focused on the domain-specific creativity. Aktamis and Ergin (2008) compared the teacher-centered teaching method and creativity based scientific process skills in science education. The 12-week program increased students` scientific creativity in comparison with the control group. In a parallel study, Atalay and Kahveci (2015) revealed the significant contribution of Integrated Curriculum Model in social studies education on students` creativity.

Soh (2000) developed Creativity Fostering Teacher Index (CFTIndex) as a 45-item questionnaire based on Cropley's model. Factor analysis of these items in a sample of 117 teachers generated a nine-factor structure (Independence, Integration, Motivation, Judgement, Flexibility, Evaluation, Question, Opportunities, and Frustration). Because of the extensive nature of the model and the test, this instrument (CFTIndex) was used to assess creativity fostering teacher behaviors.

Teachers' Creativity

The National Advisory Committee on Creative and Cultural Education (NACCCE, 1999) distinguished "teaching creatively" from "teaching for creativity."

Teaching creatively is about 'using imaginative approaches to make learning more interesting and effective' (p. 89) whereas *teaching for creativity* refers to efforts put to develop young learners' creative thinking. This distinction also reveals the connection between the two: Teaching for creativity requires teaching creatively. To be able to teach creatively, the one who teaches would have to utilize his or her creative potential. Consequently, teachers' personal capacity is called for teaching for creativity. Torrance (1972) argued that creative teachers have a wide variety of options for handling the in-class problems and creative teachers can inspire students' creativity as role models (Torrance & Myer, 1970). Sanches (1994) linked how teachers' creative styles are connected to their pedagogical practices. Teachers' creativity matters because of its impact on learners (Halliwell, 1993).

In practice, though, teachers' creativity is under the pressure of national testing (Aktas, 2016; Aljughaiman & Mowrer-Reynolds, 2005; Amabile, 1996; Craft, 2001; Gordon, 1999; Hayes, 2004) and supporting creativity may be perceived as a paradox or luxury in such a performance driven system (Grainger, Barnes, & Scoffham, 2004; Hartley, 2003; Prentice, 2000). Dobbins (2009) found that teachers' creativity is restricted by curriculum and learning objectives. Jeffrey (2002) and Tomlinson, Little, Tomlinson, and Bower (2000) criticized this approach because of its overemphasis on measurable improvements on assessment outcomes that come along with too many constraints and structure leading to suppressing creativity and innovation.

Under such conditions that limit creativity, creativity supporting teacher behaviors have to rely more on teachers' personal creative strengths. This point is important

because teaching is an improvisational activity (Rejskind, 2000; Sawyer, 2011) and there is room for creativity (Baer, 2003; Baer & Garrett, 2010; Beghetto & Kaufman, 2010). To this end, creative self-efficacy is a useful construct. Ozkal (2014) discussed the issue that there is a positive relationship between teachers` creativity fostering behaviors and their self-efficacy beliefs. Tierney and Farmer (2002) developed creative self-efficacy scale as an estimate of people's belief on to what degree they could perform creatively on the work. They developed the instrument items based on the creativity and self-efficacy literature using Gist and Mitchell's (1992) self-efficacy development model. Tierney and Farmer (2002) found that creative self-efficacy can predict creative performance above and beyond self-efficacy. Their short instrument has been frequently used in creativity research both within the educational (e.g., Beghetto, 2006; Mathisen & Bronnick, 2009) and business context (e.g., Gong, Huang, & Farh, 2009; Tierney & Farmer, 2011). Lapėnienė and Bruneckienė (2010) found that creative self-efficacy is a strong predictor of perceived creativity at work. Therefore, it can be argued that higher creative self-efficacy implies higher creativity supporting teaching practices.

Teacher Efficacy

Besides teachers' personal creativity and more specifically their creative self-efficacy, their general orientation of teacher self-efficacy is also of great importance. As summarized above, creativity is not an educational priority in most of the educational models. To some, schools do disservice to the creative development of the students. The idea that schools kill creativity has gained popularity in recent years (Beuke, 2011; Bunday, 2013; Robinson, 2006, 2012). This claim is sometimes supported by the amazing success of eminently creative people such as Steve Jobs, Albert Einstein, and Thomas Edison, who were not great students but indeed achieved great creative accomplishments. Empirical studies (e.g. Runco, 1999; Torrance, 1968) revealed that original thinking declines in fourth grade probably because children learn to conform to the structure of formal education and follow certain rules and suggestions more often (Runco & Cayirdag, 2013).

Reversing this situation is related to teachers' orientation of their efficacy as a teacher. Some teachers view their teacher efficacy in relation to the external conditions such as parents, administrators, students, educational system, and availability of resources, whereas some tend to see themselves as the prime factor in making a difference (Guskey & Passaro, 1994). Put differently, the former reflects external locus of control and the latter is more about internal locus of control (Lefcourt, 1982). Teachers' internal locus of control was related to student achievement (Murray & Staebler, 1974; Rose & Medway, 1981). Phares (1965) found that those with internal locus of control made greater social impact than those with external locus of control. Thus, it is hypothesized that teachers with a stronger internal locus of control are to make positive impact on students than those with external locus of control.

The current study aims to clarify the relationship between teaching creatively and teaching for creativity. It is hypothesized that teachers' creative self-efficacy and teacher efficacy with an internal locus of control will be positively correlated with creativity fostering teacher behaviors, whereas teacher efficacy with an external locus of control will not be related because of the current trends in education that prioritize standardized assessment rather than creative development and intellectual curiosity.

Method

Participants

322 teachers (118 and 203 females) took part in this study. The convenience sampling method was used. The sample was representative of various types of subjects consisting of 73 (22.8%) elementary school, 49 (15.3%) physical education, arts, or technology design, 44 (13.8%) mathematics, 31 language arts (%9.7) 31 social studies (%9.7), 26 (8.1%) English (second language teacher), 25 (7.8%) sciences, 14 (4.4%) religion and ethics, and 7 others (2.2%). 288 (90%) teachers served at public schools and 32 (10%) at private schools.

Twelve teachers teach at pre-k level (3.8%), 68 (21.3%) at elementary, 197 (61.6%) at middle, 24 (7.5%) at high, and 19 (6%) at various levels. Only 43 teachers did not have a degree in education (13.4%) and 44 had a graduate degree (13.8%). In terms of teaching experience, 132 teachers (41.3%) had less than 5 years, 84 (26.3%) teachers between 6 to 20 years, 65 (20.3%) teachers between 11 to 15 years, 24 teachers (7.5%) between 16 to 20 years, and 15 (4.7%) had more than 20 years.

Procedures and Data Analysis

Data collection occurred in two phases. Following the language and cultural adaptation of the Creative Self-Efficacy Scale into Turkish, 298 teachers took the instrument to investigate its factor structure using exploratory factor analysis with maximum likelihood estimation.

A separate group of teachers (N = 301) took Creative –Self-Efficacy Scale along with the Teacher Efficacy Scale (TES) and the Creativity Fostering Teacher Index. After reporting descriptive statistics (Mean, standard deviation) and internal reliability of all instruments and subscales, normality of the data was investigated. Finally, hierarchical regression analyses tested the predictive power of creative self-efficacy and teacher efficacy on creativity fostering teaching after controlling gender, years of experience, educational degrees, school level, and type of school.

Instruments

Creative Self-Efficacy Scale (CSES), the Teacher Efficacy Scale (TES) and the Creativity Fostering Teacher Index (CFTI) were used for the study.

Creative Self-Efficacy Scale (CSES). The CSES is developed by Tierney and Farmer (2002). The aim of the scale was measuring the employees' beliefs in their own creativity in the work. Although Tierney and Farmer (2002) specifically focused on the creativity in the work, they developed items related with the general creativity skills. Based on the results of their exploratory factor analysis, they decreased their 13-item item pool to the 3 items. Cronbach alpha coefficient for the 3-item scale was .83 and it did not increase by adding the more items. The present study used a five-point Likert scale leading to a total score range of 5 to 15. A sample item for the scale is "I have confidence in my ability to solve problems creatively". Although the scale were originally developed for the employees, several other studies used the instrument in different settings, including educational context (e.g. Beghetto, Kaufman, & Baxter, 2011; Mathisen & Bronnick, 2009; Yu, 2013).

Because creative self-efficacy has not been adapted to Turkish yet, its adaptation was conducted in the present study. The CSES was translated from English to Turkish by two professors who are fluent in both languages and working on the field of creativity. Independently translated versions were compared and then, the scale was analyzed in terms of general meaning of the sentences, sentence forms, and grammatical structures of the sentences by the two Turkish language teachers. The scale was applied to 63 college students in order to see the language competency of the scale. The final version of the scale was administered to a larger group for obtaining the validity and reliability evidence of the scale.

298 teachers (187 females and 106 males, 5 did not report) took creative self-efficacy scale. Among them, 137 (45.8%) were working in private schools and 155 (51.8%) were working in public schools. Most of the teachers had an undergraduate degree (230 (76.9%)), 61 (20.4%) of them had a graduate degree, and 7 (2.3%) had a 2-year college degree. Sixteen (5.4%) of participants were working as high school teachers, 147 (49.2%) of them were working as middle school teachers, 92 (30.8%) of them working as elementary school teachers and 36 (12%) of them working as kindergarten teachers. Finally, 95 (31.8%) had 1-5 years of experience, 60 (20.1%) had 6-10 years of experience, 71 (23.7%) had 11-15 years of experience, 40 (13.4%) had 16-20 years of experience, and, 31 (10.4%) had more than 20 years of experience in teaching.

Exploratory factor analysis (EFA) was conducted using maximum likelihood extraction method. Three-item scale had alpha coefficient value of .95 ($M = 9.35$, $SD = 3.87$). Kaiser-Meyer-Olkin value was .77 with a Bartlett's test of sphericity of (X^2

= 880.87, *df* = 3, *p* = .001). The extracted factor explained 86.14% of variance. CFA was not tested because of model saturation.

Teacher efficacy scale (TES). The initial version of the scale was developed by Gibson and Dembo (1984) and revised by Guskey and Passaro (1994). The revised version of the scale has two factors, internal and external. Internal factors explain that teachers believe that they have personal influence on students' learning and external factors explain that teachers believe that factors outside the teacher have more influence on students' learning than the teachers. Sample items for the internal and external factors are "If there is an increase in students` grades, this is because of using more effective teaching methods by the teachers" and "If there is not enough discipline in the house, lack of discipline in the students' behavior will be observed at school too", respectively.

TES is a five-point Likert scale instrument and total scores in Turkish version range from 16 to 80. The original scale consisted of 21 items whereas Turkish version, as adapted by Diken (2004), had 16 items. The Cronbach alpha coefficient was .71 for the whole scale. Similar to Guskey and Passaro (1994), Diken (2004) also obtained the factors of internal (6 items) and external (9 items) factors. The analyses used these sub-scale scores rather than total scores because of the specific hypothesis related to the internal factors. Higher scores on the internal factor implies stronger teacher tendency to hold themselves and school-related factors responsible for success and failure. In other words, teacher self-efficacy is defined as teacher's personal capacity to influence students. Higher scores on external factor imply teacher's belief in greater role of factors outside the school.

Creativity Fostering Teacher Index (CFTI). CFTI developed by the Soh (2000) as a 6-point Likert type scale. It consisted of 45 items and 9 factors. The Cronbach alpha coefficient of the original version of the scale was .96. The scale adapted into Turkish by Dikici (2013). Turkish version is a 5-point Likert type scale with 33 items. The scale has the same factor structure with the original scale (i.e. independence, integration, motivation, judgment, flexibility, evaluation, question, opportunity, and frustration). Sample items for the factors are "I asked open-ended questions to my students to find the answers on their own" for independence, "My students has an opportunity to share their ideas in the class" for integration, "I always focused on the importance of basic knowledge and skills in the class" for motivation, "I encourage my students to try new things even if it takes more time" for judgement, "I like the students who ask for more time to think from a different perspective" for flexibility, "I give opportunities to my students to share their strengths and weaknesses with their classmates" for evaluation, "When students have questions, I listen them carefully" for question, "I encourage my students to try new things with the information that I

provide them" for opportunity, and "If my students have unsuccessful experiences, I encourage them to find alternative solutions to the problem" for frustration. Cronbach alpha coefficient of the overall scale was .94 for Turkish version. Scores for Turkish version ranges between 33 and 165. Higher scores imply teachers' superior demonstration of creativity-supporting teaching practices.

Results

Before running analyses, internal reliability was examined for all the three scales (creative self-efficacy, creativity-fostering teacher index, teacher-self-efficacy) along with their subscales. Because one item (#16) in Internal factors subscale of Teacher Efficacy Scale and one item (#28) in Opportunity subscale of Creativity Fostering Teacher Index diminished the alpha, subscales were used without them. Coefficient alpha values were provided along with the descriptive values (Table 1).

Tests of normality (i.e., Shapiro-Wilk) on the respective measures indicated that they do not demonstrate a perfect normal distribution, which is not surprising because Shapiro-Wilk is not useful for large sample sizes (D'Agostino, Belanger, & D'Agostino, 1990). The skew and kurtosis values were analyzed for each of the variables. Skew values were smaller than +/-2 and kurtosis values were smaller than +/-3, which are within the acceptable range (Byrne, 2010; West, Finsh, & Curran, 1995).

Table 1
Descriptive Statistics and Internal Reliability (N=320)

	M	*SD*	alpha
1.Creativity Fostering Teacher Index (CFTIndex)	127.35	27.59	.98
2. Independence	8.17	2.05	.87
3. Integration	16.13	3.80	.89
4. Motivation	12.47	3.02	.93
5. Judgment	14.91	3.24	.80
6. Flexibility	15.82	3.68	.89
7. Evaluation	11.34	2.71	.81
8. Question	15.96	3.85	.90
9. Opportunities	12.44	3.03	.92
10. Frustration	20.20	4.97	.93
11. Teacher efficacy (TES)	53.77	8.45	.79
12. Internal factors	21.61	4.45	.85
13. External factors	29.44	5.62	.73
14. Creative self-efficacy	11.03	2.72	.87

Then, hierarchical regression analyses were conducted with demographic variables including gender, level of school (pre-k, elementary, middle, high), type of school (public vs. private), level of education (graduate degree vs. no graduate degree), educational background (degree in education vs. no degree in education), and years of teaching experience (less than 5, 6 to 10, 11 to 15, 16 to 20, 21 or more years)

at Step 1, and creative self-efficacy, internal factors of TE and external factors of TE at Step 2. Creativity supporting teaching was held as the dependent variable. Multicollinearity was not an issue because variance inflation factor (VIF) was smaller than 1.70.

Results indicated that demographic variables explained 5% of variance ($p = .014$) but none of the individual demographic variables was significant (See Table 2 for details). Creative self-efficacy, internal factors and external factors explained 65% of unique variance. Creative self-efficacy ($B = .16$, $SE = .01$, $p < .01$) and internal factors ($B = .44$, $SE = .05$, $p < .01$) were significant but the weight associated with external factors was not significant ($B = .09$, $SE = .05$, $p = .07$). Beta values for all variables were presented on Table 2.

Table 2

Bivariate Correlations among Creativity Fostering Teacher Index, Teacher Efficacy, and Creative Self-efficacy and the Subscales

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Creativity Fostering Teacher Index (CFTIndex)													
2. Independence	.91												
3. Integration	.91	.80											
4. Motivation	.90	.78	.82										
5. Judgment	.88	.76	.74	.76									
6. Flexibility	.94	.83	.81	.79	.81								
7. Evaluation	.85	.69	.74	.70	.71	.80							
8. Question	.89	.80	.81	.77	.76	.87	.77						
9. Opportunities	.93	.83	.81	.81	.78	.86	.76	.85					
10. Frustration	.86	.75	.78	.81	.73	.80	.72	.82	.83				
11. Teacher efficacy (TE)	.67	.63	.58	.60	.61	.63	.56	.61	.60	.62			
12. Internal factors	.71	.65	.61	.65	.63	.67	.59	.66	.64	.69	.85		
13. External factors	.35	.35	.31	.31	.33	.33	.31	.31	.31	.29	.78	.32	
14. Creative self-efficacy	.76	.71	.65	.69	.68	.72	.62	.67	.69	.64	.58	.59	.33

All Pearson correlations (rs) $p < .01$.

Follow-up regression analyses focused on individual subscales of CFTIndex as the dependent variable. So, independence, integration, motivation, judgment, flexibility, evaluation, question, opportunity, and frustration scales were regressed on the same set of variables in the same two steps to investigate if this overall pattern is consistently observed for the specific subscales. Teacher efficacy and creative self-efficacy explained 58% of unique variance in Independence ($p < .001$) after controlling for demographic variables ($\Delta R^2 = .03$, $p < .20$). Similar pattern was found for Integration ($\Delta R^2 = .48$, $p < .001$), Motivation ($\Delta R^2 = .55$, $p < .001$), Judgment ($\Delta R^2 = .53$, $p < .001$), Flexibility ($\Delta R^2 = .58$, $p < .001$), Evaluation ($\Delta R^2 = .45$, $p < .001$), Question ($\Delta R^2 = .53$, $p < .001$), Opportunity ($\Delta R^2 = .55$, $p < .001$), and Frustration ($\Delta R^2 = .54$, $p < .001$). Internal factors and creative self-efficacy were significant and

external factors was not significant in all of these analyses (Table 3). Additionally, years of teaching experience was negatively related with Question, Opportunity, and Frustration scales. Teachers were less likely to take students' inquiry and input seriously, provide students with opportunities to utilize various materials, and help them cope with frustration and failure for them to try new and unusual things.

Table 3

Hierarchical Regression Model Predicting Creativity Fostering Teacher Index (N = 301)

	CFTIndex			Independence			Integration			Motivation			Judgment		
	B	*SE*	*P*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Step 1															
Constant	3.16	0.38	.01	3.38	0.47	.00	2.94	0.43	.00	2.75	0.46	.00	3.01	0.37	.00
Gender	-0.16	0.11	.13	-0.15	0.13	.26	-0.13	0.12	.27	-0.10	0.13	.42	-0.15	0.10	.13
Type of school	0.35	0.25	.17	0.19	0.31	.53	0.43	0.28	.13	0.54	0.30	.08	0.18	0.24	.45
Graduate degree	0.24	0.15	.10	0.16	0.18	.37	0.17	0.16	.31	0.28	0.17	.11	0.28	0.14	.05
Degree in education	0.08	0.15	.60	0.03	0.18	.87	0.13	0.17	.42	0.17	0.18	.34	0.14	0.14	.31
School level	0.15	0.08	.06	0.20	0.10	.04	0.22	0.09	.01	0.20	0.10	.04	0.13	0.08	.09
Years of teaching experience	-0.06	0.04	.16	-0.04	0.05	.48	-0.06	0.05	.19	-0.03	0.05	.53	-0.05	0.04	.20
Step 2															
Constant	-0.04	0.28	.90	-0.25	0.38	.51	-0.15	0.38	.69	-0.71	0.38	.06	0.23	0.31	.46
Gender	-0.05	0.06	.43	-0.01	0.08	.88	-0.02	0.08	.81	0.02	0.08	.83	-0.06	0.07	.40
Type of school	0.21	0.14	.14	0.03	0.20	.86	0.30	0.20	.13	0.39	0.20	.05	0.07	0.16	.68
Graduate degree	0.01	0.08	.88	-0.10	0.12	.38	-0.05	0.12	.65	0.02	0.12	.85	0.08	0.09	.39
Degree in education	0.10	0.09	.23	0.06	0.12	.59	0.16	0.12	.17	0.19	0.12	.11	0.17	0.10	.08
School level	0.08	0.05	.10	0.11	0.06	.08	0.15	0.06	.02	0.11	0.06	.07	0.07	0.05	.20
Years of teaching experience	-0.04	0.03	.12	-0.02	0.04	.66	-0.05	0.04	.20	-0.01	0.04	.85	-0.04	0.03	.19
External factors	0.09	0.05	.07	0.10	0.07	.14	0.10	0.07	.14	0.07	0.07	.31	0.10	0.06	.08
Internal factors	0.44	0.05	.01	0.47	0.07	.00	0.40	0.07	.00	0.51	0.07	.00	0.36	0.06	.00
Creative self-efficacy	0.16	0.01	.01	0.19	0.02	.00	0.16	0.02	.00	0.17	0.02	.00	0.14	0.02	.00

Table 3 (Continued)
Hierarchical Regression Model Predicting Creativity Fostering Teacher Index (N = 301)

	Flexibility			Evaluation			Question			Opportunity			Frustration		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Step 1															
Constant	3.48	0.41	.00	3.11	0.41	.00	3.02	0.43	.00	3.57	0.45	.00	3.66	0.44	.00
Gender	-0.26	0.11	.02	-0.15	0.11	.19	-0.11	0.12	.33	-0.17	0.12	.17	-0.17	0.12	.17
Type of school	0.26	0.27	.33	0.43	0.27	.11	0.52	0.28	.07	0.33	0.30	.27	0.35	0.29	.23
Graduate degree	0.37	0.16	.02	0.25	0.16	.11	0.25	0.16	.13	0.18	0.17	.29	0.26	0.17	.13
Degree in education	0.02	0.16	.91	-0.06	0.16	.70	0.04	0.17	.79	0.08	0.18	.64	0.19	0.17	.26
School level	0.09	0.09	.28	0.09	0.09	.30	0.15	0.09	.10	0.16	0.09	.09	0.00	0.09	1.00
Years of teaching experience	-0.08	0.05	.10	-0.03	0.05	.55	-0.09	0.05	.06	-0.14	0.05	.01	-0.13	0.05	.01
Step 2															
Constant	0.20	0.33	.55	0.15	0.38	.69	-0.23	0.36	.53	0.21	0.37	.58	0.29	0.37	.43
Gender	-0.15	0.07	.04	-0.06	0.08	.50	-0.01	0.08	.95	-0.04	0.08	.59	-0.07	0.08	.39
Type of school	0.13	0.17	.45	0.33	0.20	.10	0.38	0.19	.04	0.17	0.19	.38	0.22	0.19	.26
Graduate degree	0.14	0.10	.17	0.06	0.12	.61	0.02	0.11	.88	-0.07	0.11	.51	0.01	0.11	.91
Degree in education	0.04	0.10	.68	-0.05	0.12	.67	0.06	0.11	.59	0.11	0.11	.34	0.19	0.11	.10
School level	0.02	0.05	.76	0.02	0.06	.70	0.07	0.06	.22	0.08	0.06	.20	-0.08	0.06	.21
Years of teaching experience	-0.06	0.03	.06	-0.01	0.04	.81	-0.07	0.03	.04	-0.11	0.03	.00	-0.10	0.03	.00
External factors	0.10	0.06	.09	0.12	0.07	.07	0.08	0.07	.21	0.06	0.07	.39	0.04	0.07	.53
Internal factors	0.44	0.06	.00	0.42	0.07	.00	0.48	0.06	.00	0.47	0.07	.00	0.63	0.07	.00
Creative self-efficacy	0.16	0.02	.00	0.13	0.02	.00	0.15	0.02	.00	0.18	0.02	.00	0.13	0.02	.00

Discussion

As hypothesized, both creative self-efficacy and teacher efficacy with an internal locus of control were strongly related with creativity fostering teacher behaviors after controlling for demographic factors. As expected, teacher efficacy as it relates to external locus of control was not significant.

These findings echo what Torrance (1981) found in his study with 220 creative adults who were asked views of the teachers who made a difference in their lives. One of the emergent ideas was the fact that teachers who got their students to become deeply interested in a subject made the most difference. Renzulli and De Wet (2010)

argued that selection of teachers could be more important than training the teachers because certain characteristics such as openness to experience, flexibility, non-authoritative personality, optimism and high energy are the "starting material" and these are hard to cultivate with training. When we apply this to the concept of teacher efficacy, all of such factors are more about teachers' personal qualities rather than external factors. Teachers need such characteristics the most under the conditions in which creativity is of secondary importance. We propose that selection of teachers who are expected to cultivate creativity in their students should have a strong sense of personal creative self-efficacy and who take personal responsibility to improve their capability to foster students' creativity and to teach creatively.

One particular way that teachers could take more responsibility is to foster creativity when there is a standard curriculum, standardized tests, and even standard way of content delivery. Baer and Garrett (2010) argued that the accountability and standardization do not have to hinder creativity. They further suggested that there could be a synergistic relationship between the two: Teaching for creativity may facilitate meeting content standards and teaching content knowledge can foster creativity. They recommended teachers balance intrinsic and extrinsic motivation, teach divergent thinking by implementing brainstorming, and implement both student and teacher-centered approaches of teaching. Creativity may survive in the accountability era unless teachers mistakenly subscribe to the idea that teaching content and academic skills implies ignoring creativity in classroom and rote memorization is the only way to teach the content. Baer (2003) found that improved knowledge base does not diminish students' creativity and may even increase it. Beghetto and Kaufman (2010) also recognized the value in curricular standards for creativity as creativity is not simply about originality without usefulness. That requires taking initiative for creativity deliberately and having more internal locus of control.

Presence of structural and policy-based constraints does not diminish the responsibility of teachers to foster students' creativity. Our findings supported the view that teachers should serve as creativity role models (Chambers, 1973; Simonton, 1984; Sternberg, 1996). As social cognitive theory proposed, people tend to exhibit behaviors that they observe in their context (Bandura, 1986) and creativity is not an exception to this (Zhou, 2003). Jaussi and Dionne (2003) indicated that leaders' unconventional behaviors inspire the followers' creativity even when intrinsic motivation and transformational leadership were controlled. This finding applies to teachers as the classroom leaders of their students as followers. Teachers with greater creative self-efficacy will communicate this crucial message probably in the most effective way.

Negative relationships between teachers' experience and Question, Opportunity, and Frustration can be related to the possibility that old generations of teachers

were mostly trained with the teacher-centered instructional perspective whereas the new generation of teachers are more equipped with student-centered instructional perspectives, at least in the Turkish context. It could also be argued that teaching experience by itself may cause rigidity among teachers (Felker, Goering, & Linden, 1971; Felker & Smith, 1966) and less experienced teachers have a better view of creativity than the more experienced teachers (Lee & Seo, 2006).

Implications, Limitations, and Future Studies

The present findings have important implications. First, they highlight the importance of internal locus of control and teachers' personal creativity. Teachers who take more initiative against the constraints and adversity are more likely to demonstrate creativity-supporting teaching behaviors because they are less likely to accept and work within these constraints rather than reversing or challenging them. This finding features internal locus of control as a crucial teacher quality to look for when creative teaching and creativity-fostering teaching are the primary educational objectives.

Another important implication is related to teacher training programs that help teachers learn about creativity in education and develop awareness about their personal creativity. Teachers who find themselves as more creative are more likely to teach creatively than others. Teachers should attend training programs about the importance of "modeling the way" for creativity and demonstrate creativity as they teacher. This is important because teachers often feel constrained when there is too much structure and set goals imposed on them. As they embrace their personal creativity, they will inspire their students to be more creative.

In spite of important results, this study has limitations. For example, the sample is from Turkey and may not be generalized to other cultures. Specifically, teacher-training programs have significantly evolved recently and teacher attitudes toward creativity may be more discrepant between old and young generation of Turkish teachers than in other cultures. Second, classroom sizes are still large in Turkey and classroom management and standard content delivery are often the primary concern for teachers rather than creativity. Third, the role of additional factors such as teachers' demonstrated creativity (rather than perceived) and its impact on actual creative performance of the students could be explored in the future studies. Using a more systematic and ecological approach, a model of creative teaching could be tested by taking other stake-holders (i.e., parents and administrators) into consideration using structural equation modeling.

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