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Pre-Service Primary School and Pre-School Teachers' Perception of Individual Entrepreneurship and Opinions about Their Creative Thinking Tendency

Canses Tican*
Mugla Sitki Kocman University, TURKEY

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Abstract: The purpose of the current study is to determine pre-service teachers' perception of individual entrepreneurship and opinions about their critical thinking tendency. As the data collection tools, the Individual Entrepreneurship Perception Scale and the Marmara Creative Thinking Tendencies Scale were used in the current study. The participants of the study are 469 freshman, sophomore, junior and senior students attending the Departments of Pre-school Teacher Education and Primary School Teacher Education. In the analysis of the collected data, frequencies, percentages, independent samples t-test, Mann Whitney U test and correlation analysis were employed. The findings obtained from the analyses have revealed that the pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies vary significantly depending on the variables of gender and whether they took a course/seminar on entrepreneurship. The pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies were found to be not varying significantly depending on the department attended. The pre-service teachers' personal entrepreneurship perceptions and creative thinking tendencies were found to be above medium. A highly positive and significant correlation was found between the pre-service teachers' individual entrepreneurship perception and creative thinking tendency total scores. The pre-service teachers can be encouraged to take the course "Economics and Entrepreneurship" and to participate in certificate programs on entrepreneurship.

Keywords: *Individual entrepreneurship, creative thinking, pre-service teacher, teacher education.*

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Introduction

Changes arising from globalization, technological developments and labour market dynamics in the 21st century have influenced education. Countries' educational systems are seeking best teaching practices to educate children and young people in their daily and professional lives according to the requirements of the 21st century (Cretu, 2017). Many countries have carried out extensive curriculum reforms in the 21st century to better prepare children for the demands of life and work from higher education. Different frameworks have been developed for students to be more successful and to teach these skills better (Schleicher, 2012). In the 21st century, in order to be successful in both school and work, individuals must have critical thinking, problem solving, creative thinking, entrepreneurship, communication, collaboration and teamwork skills and the skills and competences needed to use information and communication technologies.

As of 2018-2019 academic year, an updated teacher training undergraduate program has been in effect in Turkey. It is stated that the 21st century skills and competences are taken into consideration in this teacher training program (Council *of* Higher Education [CoHE], 2019). Future teachers are expected to have the skills of the 21st century, to be able to apply them and impart them to their students.

In addition, the number of faculties of education has increased from 63 to 92 in the last 15 years and the number of students has increased from 141,000 to 228,000 (Ministry of National Education [MoNE], 2017). Since the number of teaching posts is limited, it is not possible for all graduates to work in the schools of the Ministry of National Education.

* **Correspondence:**
Canses Tican , Mugla Sitki Kocman University, Faculty of Education, Mugla, Turkey. ✉ ctican@hotmail.com

Pre-service teachers should have creative thinking and entrepreneurship skills in order to find jobs in other fields if they cannot be appointed. For this reason, it is very important to determine the creative thinking and entrepreneurship skills of pre-service teachers.

Literature Review

Entrepreneurship

Entrepreneurship is defined as "all the activities involved in the establishment and execution of a business, such as the establishment of a business, the operation of managerial processes, and the undertaking of all risks for production and marketing" (Kucuk, 2017, p. 30). Entrepreneurship is the practice that leads to the creation of a new enterprise and the creation of a new business and value (Watts & Wray, 2012). Entrepreneurship also includes the exploration of opportunity resources, discovery processes, the utilization of opportunities, and the individuals who discover and make use of them (Shane & Venkataraman, 2000).

The sense of entrepreneurship and enterprise is the ability of an individual to turn his/her ideas into actions. It includes creativity, innovation and risk-taking as well as project planning and managing skills to achieve goals (European Commission, 2016). Entrepreneurship education refers to formation of the ability of students to transform their creative ideas into entrepreneurial activities. It is a core competence supporting students' personal development, active citizenship, social participation and employability (European Commission, 2016). The EU 2020 strategy set the incorporation of creativity, innovation and entrepreneurship into education to foster entrepreneurial spirit and perspectives among young people as one of the important goals (GISEP, 2015).

Through entrepreneurship education, it is intended to equip individuals with some features. According to Burdus (2010), an entrepreneur is a person who has the leadership characteristics, takes risks to use certain opportunities, acts on the basis of his own forces and develops his/her strategy based on almost entirely his/her personal interests. According to Deveci and Cepni (2015a), entrepreneurial characteristics include taking risk, being innovative, self-confidence, seeing opportunities and desire for success, being motivated, controlling emotions, decision-making and self-control. According to Ince, Erdem, Deniz and Baglar (2015), the characteristics of an entrepreneur include innovation, tolerance to uncertainty, self-confidence, need for success, locus of control and risk taking.

In recent years, entrepreneurship skills have come to the forefront in the educational policies of our country. Efforts are being invested to develop entrepreneurship skills in students from primary to higher education. MoNE (2018) In Turkey, competences and skills, referred to as the 21st century skills, have been incorporated into the curriculums. "Taking initiatives and entrepreneurship" are among the competencies and skills that are aimed to be imparted to students in the curriculums.

In Turkey, the teacher training programs of education faculties were updated by the Higher Education Council in 2018. They were put into effect in 2018-2019 academic year. The "Economics and Entrepreneurship" course was put into the program as an elective course (CoHE, 2019). This is an important development in terms of inculcation of entrepreneurship skills in future teachers and their training their prospective students as equipped with these skills.

In order for personal development, creativity and entrepreneurship skills to be imparted to students, the entrepreneurial spirit must first be possessed by teachers. In addition, an entrepreneurial society can only be created with teachers having high entrepreneurial spirit (Onel, 2018). The entrepreneurial teacher should be passionate, positive in attitudes, self-confident, rule-breaking, action-oriented, inspiring, with a good vision, thinking focused on creative solutions, open-minded, good communicator, responsible and able to sell ideas (Borase, 2014).

Teacher training institutions should provide rich contexts for learning about entrepreneurship. Teacher training programs should encourage pre-service teachers to explore and develop a range of pedagogical techniques that underlie active learning approaches, to develop the willingness to experience and experiment with new things, and to benefit from a wide range of learning contexts within and outside the institution (European Commission, 2011).

Creative Thinking

Etymologically originated from the Latin world "creare", the word creativity means; in general, generating, giving birth, forming, finding, discovering, making innovation (Memduhoglu, Ucar & Ucar, 2017). Creative thinking is a cognitive process used to develop ideas that are unique, useful, and worth exploring further (Chaffee, 2000). Creative thinking is to relate things or ideas that were previously unrelated (Rawlinson, 2017). Creative thinking is the process of identifying difficulties, problems and information deficiencies, missing elements, things that are wrong, making predictions and hypotheses about these deficiencies, evaluating these estimates and hypotheses, reviewing and re-testing them and reporting the results (Torrance, 1993). Creative thinking is a way of thinking that yields new and valuable ideas (Sternberg, 2003).

Wallas (1926) described the process of being creative in four stages. These are the preparation, incubation, enlightenment and review stages. However, before proceeding to these stages, it is necessary to detect the need and deficiency and identify the problem (as cited in Yildirim, 2015). According to Torrance (1972), creative thinking

consists of four dimensions: fluency, flexibility, innovativeness level and clarifying. Fluency refers to the number of related answers. Flexibility refers to the variety of the categories of answers. Innovativeness level refers to the discovery of inventions representing a progress towards future, creative power, something extraordinary, remarkable or surprising, innovation brought about by practice, previous error and even scepticism. Clarifying refers to the amount of details used to describe how ideas will be implemented.

Creative individuals have the ability to adapt to virtually any desirable situation and make use of most of what they have to achieve their goals (Czikszentmihalyi, 2011). A person's personality facilitates or hinders creativity. According to some experts, willingness to take risks, curiosity and desire for inquiry, independence in thought, patience, courage, independence in decision making, being an initiator and entrepreneur, sense of humour, asking questions about surprising things and trying to deal with challenging things are among the most facilitating features. Anything done to foster such behaviours helps one to be more creative (Shaughnessy, 1998).

According to Meintjes and Grosser (2010), teachers themselves must be creative to develop the creative thinking skills of learners. Teachers should organize relevant, challenging and learner-centered teaching environments. They must guide process of formation of creative learners and be model for them. According to Davies et al. (2013), in order to develop creativity, the physical and pedagogical environment should be flexible, students should take ownership of their own learning and activities, there should be various physical environments such as museums at school and elsewhere, and students should be allowed to work at their own pace. In a pedagogical environment that promotes creativity, the relationship between teachers and students should be built on mutual respect, modelling creative attitudes, flexibility and creativity.

When the national literature is reviewed, it is seen that there are studies investigation pre-service teachers' entrepreneurship skills (Arpaci, 2015; Armut & Kilinc, 2018; Aydin & Oner, 2016; Celik, 2014; Deveci & Cepni, 2015b; Deveci & Cepni, 2017; Karademir, Balbag & Cemrek, 2018; Konokman & Yelken, 2014; Kostekci, 2016; Memduhoglu & Sahin, 2017; Ocak & Su, 2016; Pan & Akay, 2015; Senel & Kocaalan, 2018) creative thinking skills (Bakir & Oztekin, 2014; Cenberci & Yavuz, 2018; Cenberci, 2018; Demir Kacan, 2015; Gok & Erdogan, 2011; Gulel, 2006; Isleyen & Kucuk, 2013; Toyran, 2015; Topoglu, 2015; Yenice & Yavasoglu, 2018; Yildiz, 2018). However, there is no research examining the pre-service teachers' perceptions of entrepreneurship and creative thinking tendencies in relation to some variables and looking at the degree of the relationship between these two sets of skills. In this regard, answers to the following questions were sought:

1. What are the pre-service teachers' perceptions of their individual entrepreneurship?
2. Do the pre-service teachers' perceptions of their individual entrepreneurship vary significantly depending on gender, having taken a course/ seminar on the entrepreneurship and the department attended?
3. What are the pre-service teachers' creative thinking tendencies?
4. Do the pre-service teachers' creative thinking tendencies vary significantly depending on gender, having taken a course/ seminar on the entrepreneurship and the department attended?
5. Is there a significant correlation between the pre-service teachers' perceptions of personal entrepreneurship and creative thinking tendencies?

Methodology

Research Model

In the current study conducted in line with quantitative research approach, a model in accordance with single survey, relational survey and causal comparison designs was employed. In order to find answers to the first and third research questions, the single survey model was employed, to find answers to the second and fourth questions, the causal comparison research design was used and to find an answer to the fifth research question, the relational survey model was used.

Universe and Sampling of the Study

The universe of the current study is comprised of the Education Faculty students of Mugla Sitki Kocman University and the sampling consists of 815 freshman, sophomore, junior and senior students attending the Departments of Primary School Teacher Education and Pre-school Teacher Education in the same faculty. From among these students, with 95% likelihood and $\pm$3% acceptable error margin, at least 416 should be included in the sampling (Yazicioglu & Erdogan, 2007). Thus, a total of 469 students were included in the current study. As a result, it can be argued that the sampling can represent the universe of the study. In this sampling group, the students from the four grade levels were included at similar rates by using the proportional cluster sampling method. The sampling in which all clusters in the universe have an equal probability to be selected individually (with all elements) is called cluster sampling (Karasar, 2017). The distribution of the pre-service teachers across the variables is given in Table 1.

Table 1. Frequency and Percentage Distribution of the Pre-service Teachers across the Variables

		f	%
Gender	Female	350	74.6
	Male	119	25.4
	Total	469	100
Department	Primary School Teacher Education	295	62.9
	Pre-school Teacher Education	174	37.1
	Total	469	100
Having taken a course/seminar on entrepreneurship	Yes	79	16.8
	No	390	83.2
	Total	469	100

As can be seen in Table 1, of the participating pre-service teachers, 74.6% are females and 25.4% are males; 62.9% of them are from the department of primary school teacher education and 37.1% are from the department of pre-school teacher education; 83.2% have not taken a course/seminar on entrepreneurship while 16.8% have.

Data Collection Tools

1. The Individual Entrepreneur Perception Scale: In the current study, the individual entrepreneurship scale developed by Incik and Uzun (2017) was used. The scale consists of 6 factors that are planning, locus of control, self-confidence, communication, motivation and self-discipline and 31 items. The highest score to be obtained from the individual entrepreneurship scale is 155 (31x5) while the lowest score to be taken is 31. It is a Likert-type scale of "strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1)". The six factors explain 53.32% of the total variance. The Cronbach's Alpha internal consistency coefficient of the scale was found to be 0.92. The Cronbach's Apha internal consistency coefficient calculated for the sub-dimensions are as follows; planning 0.80, locus of control 0.84, self-confidence 0.75, communication 0.72, motivation 0.75, self-discipline 0.60. In the current study, the Cronbach's Alpha internal consistency coefficient of the scale was calculated to be 0.90. For the sub-dimensions, it was found to be as follows; planning 0.69, locus of control 0.73, self-confidence 0.70, communication 0.64, motivation 0.72, self-discipline 0.61.

2. The Marmara Creative Thinking Tendencies Scale: In the current study, the Marmara Creative Thinking Tendencies Scale developed by Ozgenel and Cetin (2017) was employed. The scale consists of 6 factors that are self-discipline, looking for innovation, courage, curiosity, doubting, flexibility and 25 items. The highest score to be taken from the Marmara Creative Thinking Tendencies Scale is 125 (25x5) while the lowest score is 25. The response options in the scale are "never (1), rarely (2), sometimes (3), usually (4), always (5)". The six factors in the scale explain 55.904% of the total variance. For the whole scale, the Cronbach's Alpha internal consistency coefficient was calculated to be 0.87. The Cronbach's Alpha internal consistency coefficients calculated for the factors were found to be varying between 0.62 and 0.83. In the current study, the Cronbach's Alpha internal consistency coefficient was found to be 0.89 for the whole scale. For the sub-dimensions, it was found to be as follows: self-discipline 0.67, looking for innovation 0.79, courage 0.63, curiosity 0.58, doubting 0.44, flexibility 0.55. In the current study, the scale was administered in the spring term of 2017-2018 academic year.

3. Personal Information Form: In the personal information form developed by the researcher, there are items related to gender, department, grade level, the state of having taken a course/seminar on entrepreneurship.

Data Analysis: In order to obtain the quantitative findings, the data collected with the individual entrepreneurship perception scale and the creative thinking tendencies scale were analyzed. The data collected in the current study were analyzed in SPSS 22 (Statistical Package for the Social Sciences) program package. Firstly, in order to determine the statistical tests to be conducted, whether the data are distributed normally was checked. According to Huck (2008), Skewness value should be between +1 and -1 and Kurtosis value should be between +2 and -1 (as cited in Secer, 2015).

The normality values of the distribution (Kurtosis (Krt) and Skewness (Skw)) are presented and here it seen that there is a normal distribution for the "planning" sub-dimension (Krt_{Female}=.388<2, Skw_{Female}=.320<1; Krt_{Male}=.530<2, Skw_{Male}=-.126<1); the "locus of control" sub-dimension (Krt_{Female}=-.194<2, Skw_{Female}=.182<1; Krt_{Male}=.772<2, Skw_{Male}=-.335<1); the "self-confidence" sub-dimension (Krt_{Female}=-.229<2, Skw_{Female}=-.016<1; Krt_{Male}=.599<2, Skw_{Male}=-.712<1), the "communication" sub-dimension (Krt_{Female}=.890<2, Skw_{Female}=-.270<1; Krt_{Male}=-.905<2, Skw_{Male}=.019<1), the "motivation" sub-dimension (Krt_{Female}=.105<2, Skw_{Female}=-.106<1; Krt_{Male}=-.175<2, Skw_{Male}=-.462<1), the "self-discipline" sub-dimension (Krt_{Female}=.368<2, Skw_{Female}=-.231<1; Krt_{Male}=-.093<2, Skw_{Male}=-.302<1) and for the whole scale (Krt_{Female}=.194<2, Skw_{Female}=.201<1; Krt_{Male}=-.438<2, Skw_{Male}=-.085<1).

A normal distribution was found for the "planning" sub-dimension (Krt_{Yes}=-.081<2, Skw_{Yes}=-.346<1; Krt_{No}=.847<2, Skw_{No}=.255<1), the "locus of control" sub-dimension (Krt_{Yes}=-.661<2, Skw_{Yes}=.080<1; Krt_{No}=.294<2, Skw_{No}=.105<1), for the "self-confidence" sub-dimension (Krt_{Yes}=.585<2, Skw_{Yes}=-.814<1; Krt_{No}=.000<2, Skw_{No}=-.094<1), for the

"communication" sub-dimension (Krt_{Yes}=-1.045<2, Skw_{Yes}=.221<1; Krt_{No}=.579<2, Skw_{No}=-.199<1), for the "motivation" sub-dimension (Krt_{Yes}=-.649<2, Skw_{Yes}=-.046<1; Krt_{No}=.045<2, Skw_{No}=-.192<1), for the "self-discipline" sub-dimension (Krt_{Yes}=-.146<2, Skw_{Yes}=-.374<1; Krt_{No}=.330<2, Skw_{No}=-.235<1) and for the whole scale (Krt_{Yes}=-.702<2, Skw_{Yes}=-.051<1; Krt_{No}=.174<2, Skw_{No}=.159<1).

A normal distribution was found for the "planning" sub-dimension ($Krt_{Primaryschool}$=.649<2, $Skw_{Primaryschool}$=.097<1; $Krt_{Pre-school}$=.230<2, $Skw_{Pre-school}$=.266<1), for the "locus of control" sub-dimension ($Krt_{Primaryschool}$=.322<2, $Skw_{Primaryschool}$=.144<1; $Krt_{Pre-school}$=-.223<2, $Skw_{Pre-school}$=-.020<1), for the "self-confidence" sub-dimension ($Krt_{Primaryschool}$=-.254<2, $Skw_{Primaryschool}$=.071<1; $Krt_{Pre-school}$=.418<2, $Skw_{Pre-school}$=-.635<1), for the "communication" sub-dimension ($Krt_{Primaryschool}$=.187<2, $Skw_{Primaryschool}$=-.016<1; $Krt_{Pre-school}$=.898<2, $Skw_{Pre-school}$=-.427<1), for the "motivation" sub-dimension ($Krt_{Primaryschool}$=.027<2, $Skw_{Primaryschool}$=-.207<1; $Krt_{Pre-school}$=-.113<2, $Skw_{Pre-school}$=-.129<1), for the "self-discipline" sub-dimension ($Krt_{Primaryschool}$=.494<2, $Skw_{Primaryschool}$=-.299<1; $Krt_{Pre-school}$=-.189<2, $Skw_{Pre-school}$=-.167<1) and for the whole scale ($Krt_{Primaryschool}$=.107<2, $Skw_{Primaryschool}$=.204<1; $Krt_{Pre-school}$=-.231<2, $Skw_{Pre-schoool}$=.077<1).

A normal distribution was found for the "self-discipline" sub-dimension (Krt_{Female}=.579<2, Skw_{Female}=-.260<1; Krt_{Male}=-.091<2, Skw_{Male}=-.176<1), the "looking for innovation" sub-dimension (Krt_{Female}=.394<2, Skw_{Female}=-.201<1; Krt_{Male}=-.023<2, Skw_{Male}=-.317<1), the "courage" sub-dimension (Krt_{Female}=.042<2, Skw_{Female}=-.333<1; Krt_{Male}=-.584<2, Skw_{Male}=-.118<1), the "doubting" sub-dimension (Krt_{Female}=1.515<2, Skw_{Female}=-.506<1; Krt_{Male}=-.242<2, Skw_{Male}=-.203<1), the "flexibility" sub-dimension (Krt_{Female}=.574<2, Skw_{Female}=-.521<1; Krt_{Male}=.279<2, Skw_{Male}=-.582<1) and for the whole scale (Krt_{Female}=.430<2, Skw_{Female}=-.124<1; Krt_{Male}=-.715<2, Skw_{Male}=-.166<1). For the "curiosity" sub-dimension (Krt_{Female}=.829<2, Skw_{Female}=-.576<1; Krt_{Male}=2.178<2, Skw_{Male}=-1.104<1), a normal distribution wasn't found.

A normal distribution was found for the "self-discipline" sub-dimension (Krt_{Yes}=.956<2, Skw_{Yes}=-.310<1; Krt_{No}=.324<2, Skw_{No}=-.205<1), for the "looking for innovation" sub-dimension (Krt_{Yes}=-.359<2, Skw_{Yes}=-.137<1; Krt_{No}=.383<2, Skw_{No}=-.232<1), for the "courage" sub-dimension (Krt_{Yes}=-.516<2, Skw_{Yes}=-.359<1; Krt_{No}=-.008<2, Skw_{No}=-.248<1), for the "curiosity" sub-dimension (Krt_{Yes}=.624<2, Skw_{Yes}=-.921<1; Krt_{No}=1.936<2, Skw_{No}=-.824<1), for the "doubting" sub-dimension (Krt_{Yes}=-.731<2, Skw_{Yes}=-.312<1; Krt_{No}=1.306<2, Skw_{No}=-.554<1), for the "flexibility" sub-dimension (Krt_{Yes}=.721<2, Skw_{Yes}=-.718<1; Krt_{No}=.581<2, Skw_{No}=-.543<1) and for the whole scale (Krt_{Yes}=-.648<2, Skw_{Yes}=-.082<1; Krt_{No}=.132<2, Skw_{No}=-.123<1).

A normal distribution was found for the "self-discipline" sub-dimension ($Krt_{Primaryschool}$=.295<2, $Skw_{Primary\ school}$=-.164<1; $Krt_{Pre-school}$=.456<2, $Skw_{Pre-school}$=-.300<1), for the "looking for innovation" sub-dimension ($Krt_{Primaryschool}$=.272<2, $Skw_{Primaryschool}$=-.221<1; $Krt_{Pre-school}$=.348<2, $Skw_{Pre-school}$=-.221<1), for the "courage" sub-dimension ($Krt_{Primaryschool}$=.006<2, $Skw_{Primaryschool}$=-.273<1; $Krt_{Pre-school}$=-.186<2, $Skw_{Pre-school}$=-.294<1), for the "curiosity" sub-dimension ($Krt_{Primaryschool}$=1.859<2, $Skw_{Primaryschool}$=-.901<1; $Krt_{Pre-school}$=.507<2, $Skw_{Pre-school}$=-.509<1), for the "doubting" sub-dimension ($Krt_{Primaryschool}$=.217<2, $Skw_{Primaryschool}$=-.161<1; $Krt_{Pre-school}$=1.911<2, $Skw_{Pre-school}$=-.842<1), for the "flexibility" sub-dimension ($Krt_{Primaryschool}$=.290<2, $Skw_{Primary\ school}$=-.483<1; $Krt_{Pre-school}$=1.181<2, $Skw_{Pre-school}$=-.698<1) and for the whole scale ($Krt_{Primaryschool}$=-.089<2, $Skw_{Primaryschool}$=-.034<1; $Krt_{Pre-school}$=.373<2, $Skw_{Pre-school}$=-.284<1).

A normal distribution was found for the whole individual entrepreneurship perception scale ($Krt_{Entrepreneurship=}$-.044<2, $Skw_{Entrepreneurship=}$.156<1 and for the whole creative thinking tendencies scale ($Krt_{Creativethinking=}$.027<2, $Skw_{Creativethinking=}$-.126<1).

In the analysis of the collected data, frequencies, percentages, independent samples t-test, Mann Whitney U test and correlation analysis were employed. When data were normally distributed, independent samples t-test was used and when the data were not normally distributed, Mann Whitney U test was employed.

When significant differences were determined as a result of independent samples t-test and one-way variance analysis, the effect size value was also calculated. According to Green and Salkind (2005), the effect size value in independent samples t-test is calculated by dividing the mean difference into the combined standard deviation. The values that can be taken by d such as 0.2, 0.5, 0.8 can be evaluated as small, medium and high effect (as cited in Can, 2014).

Findings / Results

In this section, findings of the current study are presented within the frameworks of the sub-problems. The findings related to the first sub-problem: Findings related to the pre-service teachers' individual entrepreneurship perceptions are presented in Table 2.

Table 2. Pre-service Teachers' Individual Entrepreneurship Perceptions

Dimensions	N	$\bar{X}$	SD
Planning	469	23.17	2.83
Locus of control	469	32.09	3.62
Self-confidence	469	24.56	2.85
Communication	469	16.36	1.99
Motivation	469	15.63	2.46
Self-discipline	469	11.66	1.82
Total	469	123.51	12.22

In Table 2, the individual entrepreneurship perception scale is a five-point Likert scale ranging from "strongly agree" to "strongly disagree". The highest score to be taken from this 31-item scale is 155 while the lowest score is 31. The medium score to be taken from this scale was set to be 93. In the current study, the mean score to be taken from the scale by the participating pre-service teachers was found to be 123.51. Thus, their individual entrepreneurship perception is above the medium ($\bar{X}$=123.51; SD:12.22).

The findings related to the second sub-problem: The findings related to gender-based comparison of the pre-service teachers' individual entrepreneurship perceptions are presented in Table 3.

Table 3. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Individual Entrepreneurship Perceptions Vary Significantly Depending on Gender

Dimensions	Gender	N	$\bar{X}$	SD	dF	t	p	Cohen's d
Planning	Female	350	23.08	2.67	175.408	-1.079	0.282	-
	Male	119	23.44	3.25				
Locus of control	Female	350	31.81	3.4	176.596	-2.66	.009*	0.29
	Male	119	32.92	4.09				
Self-confidence	Female	350	24.46	2.82	467	-1.291	0.197	-
	Male	119	24.85	2.93				
Communication	Female	350	16.19	1.96	467	-3.298	.001*	0.35
	Male	119	16.88	1.98				
Motivation	Female	350	15.48	2.32	176.881	-2.14	.034*	0.23
	Male	119	16.08	2.78				
Self-discipline	Female	350	11.59	1.79	467	-1.41	0.159	-
	Male	119	11.87	1.92				
Personal entrepreneurship (Total)	Female	350	122.64	11.57	178.704	-2.449	.015*	0.27
	Male	119	126.07	13.7				

(*p<0.05)

In Table 3, the homogeneity of variance of the measures was checked with Levene's test and for the "planning" (F=6.798; p=.009<.05) sub-dimension, for the "locus of control" (F=4.688; p=.031<.05) sub-dimension, for the "motivation" (F=6.707; p=.010<.05) sub-dimension and for the whole scale (F=7.404; p=.007<.05), the condition of the homogeneity of variance was found to be not satisfied. Therefore, interpretations were made on the basis of "equal variance not assumed" t value. For the "self-confidence" (F=.072; p=.789>.05) sub-dimension, for the "communication" (F=2.430; p=.120>.05) sub-dimension and for the "self-discipline" (F=1.420; p=.234>.05) sub-dimension, the condition of the homogeneity of variance was found to be satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' individual entrepreneurship perceptions vary significantly depending on gender, there is a significant difference in the "locus of control" [$t_{(176.596)}$=-2.660, p<.05], "communication" [$t_{(467)}$=-3.298, p<.05)], "motivation" [$t_{(176.881)}$=-2.140, p<.05)] sub-dimensions and in the whole scale [$t_{(178.704)}$=-2.449, p<.05)] in favour of the male students. There is no gender-based significant difference in the "planning" [$t_{(175.408)}$=-1.079, p>.05], "self-confidence" [$t_{(467)}$=-1.291, p>.05], "self-discipline" [$t_{(467)}$=-1.410, p>.05] sub-dimensions. The effect size calculated according to the results of the independent samples t-test was found to be as follows: d=.29 for the "locus of control" sub-dimension, d=35 for the "communication" sub-dimension, d=23 for the "motivation" sub-dimension and d=27 for the total individual entrepreneurship. These effect sizes calculated for the "locus of control", "communication" and "motivation" sub-dimensions and for the whole scale can be interpreted as small. The findings related to the effect of having taken a course/seminar on the pre-service teachers' individual entrepreneurship perceptions are presented in Table 4.

Table 4. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Individual Entrepreneurship Perceptions Vary Significantly Depending on Having Taken a Course/Seminar on Entrepreneurship

Dimensions	Having a course/seminar on entrepreneurship	N	$\bar{X}$	SD	dF	t	p	Cohen's d
Planning	Yes	79	24.17	3.41	98.027	2.953	.004*	0.39
	No	390	22.97	2.66				
Locus of control	Yes	79	33.74	3.22	467	4.543	.000*	0.57
	No	390	31.76	3.6				
Self-confidence	Yes	79	25.59	2.78	467	3.56	.000*	0.44
	No	390	24.35	2.82				
Communication	Yes	79	17.14	1.75	467	3.834	.000*	0.49
	No	390	16.21	2				
Motivation	Yes	79	16.1	2.35	467	1.853	0.065	-
	No	390	15.54	2.47				
Self-discipline	Yes	79	11.96	2.1	101.53	1.387	0.169	-
	No	390	11.6	1.76				
Individual entrepreneurship (Total)	Yes	79	128.72	12.84	467	4.229	.000*	0.5
	No	390	122.45	11.84				

(*p<0.05)

In Table 4, the homogeneity of variance was tested with Levene's test. For the "planning" (F=9.772; p=.002<.05) sub-dimension and "self-discipline" sub-dimension (F=4.451; p=.035<.05), the condition of the homogeneity of variance was not satisfied. Therefore, the interpretations were made on the basis of "equal variance not assumed" t value. For the "locus of control" (F=.133; p=.716>.05) sub-dimension, "self-confidence" (F=.019; p=.890>.05) sub-dimension, "communication" (F=.021; p=.886>.05) sub-dimension, "motivation" (F=.135; p=.714>.05) sub-dimension and the whole scale (F=2.864; p=.091>.05), the condition of the homogeneity of variance was satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' individual entrepreneurship perceptions vary significantly depending on having taken a course/seminar on entrepreneurship, there is a significant difference in the "planning" [$t_{(98.027)}$=2.953, p<.05] sub-dimension, "locus of control" [$t_{(467)}$=4.543, p<.05] sub-dimension, "self-confidence" [$t_{(467)}$=3.560, p<.05] sub-dimension, "communication" [$t_{(467)}$=3.834, p<.05] sub-dimension and the whole scale [$t_{(467)}$=4.229, p<.05] in favour of the students having taken a course/seminar. On the other hand, there is no significant difference in the "motivation" [$t_{(467)}$=1.853, p>.05] and "self-discipline" [$t_{(101.527)}$=1.387, p>.05] sub-dimensions. The effect size calculated according to the results of the independent samples t-test was found to be as follows: d=.39 for the "planning" sub-dimension, d=.57 for the "locus of control" sub-dimension, d=.44 for the "self-confidence" sub-dimension, d=.49 for the "communication" and d=.50 for the total personal entrepreneurship. The effect size value was found to be small for the "planning" sub-dimension, "self-confidence" sub-dimension and "communication" sub-dimension while for the "locus of control" sub-dimension and the whole scale, it was found to be medium. Findings related to the effect of the department attended on the pre-service teachers' individual entrepreneurship perceptions are presented in Table 5.

Table 5. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Individual Entrepreneurship Perceptions Vary Significantly depending on the Department Attended

Dimensions	Department	n	$\bar{X}$	SD	dF	t	p	Cohen's d
Planning	Primary school	295	22.99	2.75	467	-1.82	0.069	-
	Pre-school	174	23.48	2.95				
Locus of control	Primary school	295	31.98	3.7	467	-0.841	0.401	-
	Pre-school	174	32.27	3.48				
Self-confidence	Primary school	295	24.42	2.81	467	-1.399	0.163	-
	Pre-school	174	24.8	2.91				
Communication	Primary school	295	16.3	1.92	467	-0.893	0.372	-
	Pre-school	174	16.47	2.09				
Motivation	Primary school	295	15.66	2.48	467	0.326	0.745	-
	Pre-school	174	15.58	2.43				
Self-discipline	Primary school	295	11.6	1.79	467	-0.923	0.357	-
	Pre-school	174	11.77	1.89				
Personal entrepreneurship (Total)	Primary school	295	122.98	12.2	467	-1.214	0.225	-
	Pre-school	174	124.4	12.25				

(*p<0.05)

In Table 5, the homogeneity of variance was tested with Levene's test. For the "planning" (F=1.198; p=.274>.05) sub-dimension, "locus of control" (F=.251; p=.617>.05) sub-dimension, "self-confidence" (F=.239; p=.625>.05) sub-dimension, "communication" (F=.959; p=.328>.05) sub-dimension, "motivation" (F=.040; p=.841>.05) sub-dimension, "self-discipline" (F=.222; p=.638>.05) sub-dimension and for the whole scale (F=.108; p=.743>.05), the condition of the homogeneity of variance was satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' individual entrepreneurship perceptions vary significantly depending on the department attended, there is no significant difference in the "planning" [$t_{(467)}$=-1.820, p>.05] sub-dimension, "locus of control" [$t_{(467)}$= -.841, p>.05] sub-dimension, "self-confidence" [$t_{(467)}$= -1.399, p>.05] sub-dimension, "communication" [$t_{(467)}$= -.893, p>.05] sub-dimension "motivation" [$t_{(467)}$=.326, p>.05] sub-dimension, "self-discipline" [$t_{(467)}$= -.923, p>.05] sub-dimension and the whole scale [$t_{(467)}$= -1.214, p>.05].

Findings related to the third sub-problem: Findings related to the pre-service teachers' creative thinking tendencies are presented in Table 6.

Table 6. Pre-service Teachers' Creative Thinking Tendencies

Dimensions	N	$\bar{X}$	SD
Self-discipline	469	18.78	2.73
Looking for innovation	469	31.67	3.85
Courage	469	15.48	2.42
Curiosity	469	12.43	1.65
Doubting	469	8.10	1.15
Flexibility	469	12.26	1.68
Total	469	98.74	10.61

In Table 6, the creative thinking tendencies scale is a five-point Likert scale ranging from "never" to "always". The highest score to be taken from this 25-item scale is 125 while the lowest score is 25. The medium score to be taken from this scale was set to be 75. The mean score taken from the scale by the pre-service teachers in the current study is 98.74. Thus, their mean score for creative thinking tendencies ($\bar{X}$=98.74; Ss:10.61) was found to be above the medium.

Findings related to the fourth research problem: The findings obtained from the gender-based comparison of the pre-service teachers' creative thinking tendencies are given in Table 7.

Table 7. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Creative Thinking Tendencies Vary Significantly Depending on Gender

Dimensions	Gender	N	$\bar{X}$	SD	dF	t	p	Cohen's d
Self-discipline	Female	350	18.71	2.63	467	-0.84	0.401	-
	Male	119	18.96	3.02				
Looking for innovation	Female	350	31.63	3.64	175.026	-0.409	0.683	-
	Male	119	31.81	4.44				
Courage	Female	350	15.32	2.42	467	-2.479	.014*	0.26
	Male	119	15.95	2.38				
Curiosity	Female	350	12.46	1.57	467	0.642	0.521	-
	Male	119	12.35	1.88				
Doubting	Female	350	8.15	1.09	177.174	1.525	0.129	-
	Male	119	7.95	1.31				
Flexibility	Female	350	12.28	1.6	177.468	0.573	0.567	-
	Male	119	12.17	1.91				
Creative thinking (Total)	Female	119	98.58	10.01	174.613	-0.51	0.61	-
	Male	350	99.21	12.25				

(*p<0.05)

In Table 7, the homogeneity of variance was tested with Levene's test. For the "looking for innovation" (F=9.644; p=.002<.05) sub-dimension, "doubting" (F=5.387; p=.021<.05) sub-dimension, "flexibility" (F=5.233; p=.023<.05) sub-dimension and for the whole scale (F=11.960; p=.001<.05), the condition of the homogeneity of variance was not satisfied. Therefore, interpretations were made on the basis of "equal variance not assumed" t value. For the "self-discipline" (F=3.287; p=.070>.05) and "courage" (F=.000; p=.991>.05) sub-dimensions, the condition of the homogeneity of variance was satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' creative thinking tendencies vary significantly depending on gender, there is a significant difference in the "courage" sub-dimension [$t_{(467)}$=-2.479, p<.05] in favour of the male students. However, there is no significant difference in the "self-discipline" [$t_{(467)}$=-.840, p>.05], "looking for innovation" [$t_{(175.026)}$=-.409, p>.05], "doubting" [$t_{(177.174)}$=1.525, p>.05], "flexibility" [$t_{(177.468)}$=.573, p>.05] sub-dimensions and in the whole scale [$t_{(174.613)}$=-.510, p>.05]. The effect size calculated according to the results of the independent samples t-test was found to

be d=.26 for the "courage" sub-dimension. This value found for the "courage" sub-dimension is interpreted as small effect size.

As no normal distribution was found for the "courage" sub-dimension, Mann Whitney U test was used to analyze the data. The obtained findings are presented in Table 8.

Table 8. Results of Mann Whitney U Test Conducted to Determine Whether the Pre-service Teachers' Creative Thinking Tendencies Vary Significantly Depending on Gender

Dimensions	Gender	N	Mean Rank	Rank Sum	M.W.U	p
Curiosity	Female	350	234.98	82244	20819	0.996
	Male	119	235.05	27971		

As can be seen in Table 8, there is no gender-based significant difference between the female pre-service teachers' critical thinking tendencies (SO=234.98) and the male students' critical thinking tendencies (SO=235.05) in the "curiosity" sub-dimension. Findings related to whether the pre-service teachers' creative thinking tendencies vary significantly depending on the variable of having taken a course/seminar on entrepreneurship are presented in Table 9.

Table 9. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Creative Thinking Tendencies Vary Significantly Depending on the Variable of Having Taken a Course/Seminar on Entrepreneurship

Dimensions	Having taken a course/seminar	N	$\bar{X}$	SD	dF	t	p	Cohen's d
Self-discipline	Yes	79	19.64	2.67	467	3.097	.002*	0.38
	No	390	18.6	2.71				
Looking for innovation	Yes	79	33.16	3.51	467	3.804	.000*	0.48
	No	390	31.37	3.85				
Courage	Yes	79	16.11	2.21	467	2.544	.011*	0.32
	No	390	15.35	2.45				
Curiosity	Yes	79	12.87	1.85	102.923	2.339	.021*	0.3
	No	390	12.34	1.6				
Doubting	Yes	79	8.54	1.23	105.451	3.53	.001*	0.45
	No	390	8.01	1.12				
Flexibility	Yes	79	12.72	1.64	467	2.692	.007*	0.33
	No	390	12.16	1.67				
Creative thinking (Total)	Yes	79	103.05	9.91	467	4.026	.000*	0.5
	No	390	97.86	10.55				

(*p<0.05)

In Table 9, the homogeneity of variance was tested with Levene's test. For the "curiosity" (F=4.828; p=.028<.05) sub-dimension and the "doubting" (F=10.041; p=.002<.05) sub-dimension, the condition of the homogeneity of variance was not satisfied. Therefore, interpretations were made on the basis of "equal variance not assumed" t value. For the "self-discipline" (F=.154; p=.695>.05) sub-dimension, for the "looking for innovation" (F=.086; p=.770>.05) sub-dimension, for the "courage" (F=1.234; p=.267>.05) sub-dimension, for the "flexibility" F=.030; p=.862>.05) sub-dimension and for the whole scale (F=.000; p=.996>.05), the condition of the homogeneity of variance was satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' creative thinking tendencies vary significantly depending on having taken a course/seminar, there is a significant difference in the "self-discipline" [$t_{(467)}$=3.097, p<.05], "looking for innovation" [$t_{(467)}$=3.804, p<.05], "courage" [$t_{(467)}$=2.544, p<.05], "curiosity" [$t_{(102.923)}$=2.339, p<.05], "doubting" [$t_{(105.451)}$=3.530, p<.05], "flexibility" [$t_{(467)}$=2.692, p<.05] sub-dimensions and the whole scale [$t_{(467)}$=4.026, p<.05] in favour of the students having taken a course/seminar. The size effect was found to be d=.38 for the "self-discipline" sub-dimension, d=.48 for the "looking for innovation" sub-dimension, d=.32 for the "courage" sub-dimension, d=.30 for the curiosity" sub-dimension, d=.45 for the doubting" sub-dimension, d=.33 for the "flexibility" sub-dimension and d=.50 for the whole scale. Thus, the effect size was interpreted as small for the "self-discipline", "looking for innovation", "courage", "curiosity", "doubting" and "flexibility" sub-dimensions and medium for the whole scale. Findings related to whether the pre-service teachers' creative thinking tendencies vary significantly depending on the department attended are presented in Table 10.

Table 10. Results of the Independent Samples t-Test Conducted to Determine Whether the Pre-service Teachers' Creative Thinking Tendencies Vary Significantly Depending on the Department Attended

Dimensions	Department	N	$\bar{X}$	SD	dF	t	p	Cohen's d
Self-discipline	Primary school	295	18.73	2.64	467	-0.511	0.61	-
	Pre-school	174	18.86	2.89				
Looking for innovation	Primary school	295	31.42	3.94	467	-1.865	0.063	-
	Pre-school	174	32.1	3.68				
Courage	Primary school	295	15.48	2.45	467	0.048	0.962	-
	Pre-school	174	15.47	2.38				
Curiosity	Primary school	295	12.38	1.71	467	-0.808	0.419	-
	Pre-school	174	12.51	1.56				
Doubting	Primary school	295	8.04	1.11	467	-1.424	0.155	-
	Pre-school	174	8.2	1.21				
Flexibility	Primary school	295	12.17	1.71	467	-1.467	0.143	-
	Pre-school	174	12.4	1.62				
Creative thinking (Total)	Primary school	295	98.24	10.86	467	-1.312	0.19	-
	Pre-school	174	99.57	10.16				

(*p<0.05)

In Table 10, the homogeneity of variance was tested with Levene's test. For the "self-discipline" (F=.653; p=.419>.05) sub-dimension, for the "looking for innovation" (F=1.383; p=.240>.05) sub-dimension, for the "courage" (F=.112; p=.738>.05) sub-dimension, for the "curiosity" (F=.292; p=.589>.05) sub-dimension, for the "doubting" (F=1.040; p=.308>.05) sub-dimension, for the "flexibility" sub-dimension and for the whole scale (F=.306; p=.219>.05), the condition of the homogeneity of variance was satisfied. According to the results of the independent samples t-test conducted to determine whether the pre-service teachers' creative thinking tendencies vary significantly depending on the department attended, there is no significant difference in the "self-discipline" [$t_{(467)}$= -.511, p>.05], "looking for innovation" [$t_{(467)}$= -1.865, p>.05], "courage" [$t_{(467)}$=.048, p>.05], "curiosity" [$t_{(467)}$= -.808, p>.05], "doubting" [$t_{(467)}$= -1.424, p>.05], "flexibility" [$t_{(467)}$= -1.467, p>.05] sub-dimensions and the whole scale [$t_{(467)}$= -1.312, p>.05].

Findings related to the fifth sub-problem: the results of the correlation analysis conducted to determine the correlation between the pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies are given in Table 11.

Table 11. Correlation between the Pre-service Teachers' Individual Entrepreneurship Perceptions and Creative Thinking Tendencies

	Creative Thinking
Personal Entrepreneurship	0.72*

* p<0.05

In Table 11, Pearson product-moment correlation was used for the analysis. The results of this analysis showed that there is a high, positive and significant correlation between the pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies (r=0.72; p<0.05). This value is interpreted as a very big value in terms of effect size.

Discussion and Conclusion

In the current study, it was intended to reveal the pre-service teachers' individual entrepreneurship perceptions, creative thinking tendencies and the relationships between them. The pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies were examined in relation to gender, having taken a course/seminar on entrepreneurship and the department attended and then the obtained findings were presented.

The pre-service teachers' individual entrepreneurship perception mean score was found to be above the medium. Karademir et al., (2018) also found that the pre-service teachers' entrepreneurship is above the medium. Akhtar, Keith and Riaz (2009); Aydin and Oner (2016); Armut and Kilinc (2018); Konokman and Yelken (2014); Kostekci (2016); Memduhoglu and Sahin (2017); Pan and Akay (2015); Senel and Kocaalan (2018); Ocak and Su (2016) also reported that the pre-service teachers' level of entrepreneurship is high. Setiani and Novendra (2017) determined the entrepreneurship attitude of the education faculty students as good. These findings reported in the literature are parallel to the findings of the current study. The pre-service teachers' level of individual entrepreneurship found to be above the medium in the current study can be interpreted as these pre-service teachers' being able to impart entrepreneurship skills to their prospective students in the future.

When the pre-service teachers' personal entrepreneurship perceptions were examined in relation to gender, the male pre-service teachers' entrepreneurship perceptions were found to be higher than those of the female pre-service teachers in the "locus of control", "communication", "motivation" sub-dimensions and in the whole scale. No gender-

based significant difference was found in the "planning", "self-confidence" and "self-discipline" sub-dimensions. Parallel to the findings of the current study, Deveci and Cepni (2015b) found that the male pre-service teachers are better than the female pre-service teachers at risk taking and being innovative. Karademir et al. (2018) found a significant difference in the "risk taking" sub-dimension in favour of the male pre-service teachers. The reason for the male pre-service teachers' having better perceptions of entrepreneurship in the current study can be because they do not see teaching as their only occupational alternative thus they may want to develop themselves in other fields.

When the pre-service teachers' individual entrepreneurship perceptions were examined in relation to their having taken a course/seminar on entrepreneurship, the perceptions of the pre-service teachers having taken such a course/seminar were found to be higher than those of the pre-service teachers not having taken such a course/seminar in the "planning", "locus of control", "self-confidence", "communication" sub-dimension and the whole scale. No significant difference on the other hand was found in the "motivation" and "self-discipline" sub-dimensions. Incik and Uzun (2017) conducted a study on the students of education faculty and pedagogical formation program and they found a significant difference between the individual entrepreneurship mean scores of the students having taken a course/seminar on entrepreneurship and the students not having taken a course/seminar on entrepreneurship in favour of the students having taken a course/seminar. Arpaci (2015) found that the pre-service teachers' entrepreneurship consciousness and awareness developed through the applications having been conducted within the context of the entrepreneurship course. In a study done by Deveci and Cepni (2017), it was determined that the entrepreneurship education modules had positive effects on the pre-service teachers' perceptions of "entrepreneurship", "characteristics of an entrepreneur" and self-efficacy perception of transferring their understanding of the concept of entrepreneurship into practice. Morselli (2017) determined that the master's students enrolled in the Education Faculty of a Finnish university and taking a course on entrepreneurship developed more entrepreneurial attitudes. These findings reported in the literature concur with the findings of the current study. The fact that the pre-service teachers having taken a course/seminar on entrepreneurship had a higher entrepreneurship mean score may indicate that the education they had was useful and developed their entrepreneurial characteristics.

When the pre-service teachers' individual entrepreneurship perceptions were examined in relation to the department attended, no significant difference was found in the "planning", "locus of control", "self-confidence", "communication", "motivation", "self-discipline" sub-dimensions and the whole scale. Parallel to the findings of the current study, Aydin and Oner (2016); Memduhoglu and Sahin (2017); Pan and Akay (2015) also found no significant difference between departments. In a study carried out by Celik (2014), it was found that the entrepreneurship skill mean score of the pre-service social studies teachers is higher than that of the pre-service primary school teachers. Thus, this finding reported in the literature does not concur with the finding of the current study. In the current study, no significant difference was found depending on the department, which can be because there is no course on entrepreneurship in the curriculums of both departments as a result they have a similar level of entrepreneurship skill.

The pre-service teachers' creative thinking tendencies were found to be above the medium. Yenice and Yavasoglu (2018) found the creative thinking tendencies as medium. Aydogdu and Yuksel (2013); Yildiz (2018) also found that the pre-service teachers' level of creative thinking is above the medium. Cenberci (2018); Cenberci and Yavuz (2018) found that the pre-service math teachers' creative thinking tendency is above the medium. Yilmaz and Guven (2019); Zeytun (2010) found that the pre-service pre-school teachers' level of creative thinking is high. These findings reported in the literature concur with the findings of the current study.

Erbas, Batdal Karaduman and Yavuz (2018) found the pre-service primary school teachers' level of creative thinking as low. Demir Kacan (2015) reported that the pre-service science teachers do not find themselves competent enough in terms of creative thinking. These findings reported in the literature do not support the findings of the current study. As the pre-service teachers' level of creative thinking was found to be above the medium in the current study, it can be argued the pre-service teachers see themselves as creatively thinking individuals.

When the pre-service teachers' creative thinking tendencies were examined in relation to gender, the mean score of the male pre-service teachers was found to be higher than that of the female pre-service teachers in the "courage" sub-dimension. No significant difference was found in the "self-discipline", "looking for innovation", "curiosity", "doubting", "flexibility" sub-dimensions and the whole scale. Similarly, in a study by Cenberci (2018), the mean score of the male pre-service teachers was found to be higher than that of the female pre-service teachers in the "courage" sub-dimension.

Gok and Erdogan (2011); Gulel (2006); Inceoglu and Kosar (2008); Kose, Ercoskun and Balci (2016) found significant differences in favour the female pre-service teachers. These findings reported in the literature contradict with the findings of the current study. In the current study, the reason for the male pre-service teachers' seeing themselves more courageous can be because of the natural disposition of men who are naturally more fearless than women.

When the pre-service teachers' creative thinking tendencies were examined in relation to having taken a course/seminar on entrepreneurship, the creative thinking tendencies of the pre-service teachers having taken a course/seminar on entrepreneurship were found to be higher than those of the pre-service teachers not having taken a course/seminar in the "self-discipline", "looking for innovation", "courage", "curiosity", "doubting", "flexibility" sub-

dimensions and the whole scale. Arpaci (2015) stated that having taken a course on entrepreneurship had imparted the skills of creative thinking and being innovative to the pre-service teachers. In a study by Deveci and Cepni (2017), after the application of entrepreneurship training modules, the pre-service teachers became more creative and innovative. Thus, it can be argued that taking a course/seminar on entrepreneurship can foster students' creative thinking skills.

When the pre-service teachers' creative thinking tendencies were examined in relation to the department attended, no significant difference was found in the "self-discipline", "looking for innovation", "courage", "curiosity", "doubting", "flexibility" sub-dimensions and the whole scale. In a study by Kose et al. (2016), a significant difference was found between the creative thinking mean scores of the pre-service pre-school teachers and pre-service primary school teachers in favour of the pre-service pre-school teachers. Isleyen and Kucuk (2013) also found that there is a significant difference between the verbal fluency, verbal flexibility and verbal originality scores of the pre-service science teachers and pre-service primary school teachers in favour of the pre-service primary school teachers. In a study by Topoglu (2015), when compared to the students of other departments, the pre-service primary school teachers' level of creative thinking was found to be the lowest. These findings do not support the findings of the current study. The fact that no significant difference was found between the pre-service pre-school teachers and the pre-service primary school teachers' creative thinking tendencies is because similar emphasis is put on the subject of creative thinking in their curriculums.

In the current study, a high, positive and significant correlation was found between the pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies ($r=0.72$; $p<0.05$). Thus, it can be said that with the pre-service teachers' developing entrepreneurship skills, their creative thinking skills develop as well.

As a conclusion, the pre-service teachers' individual entrepreneurship perception is above the medium. The male pre-service teachers' individual entrepreneurship perception is higher than that of the female pre-service teachers in the "locus of control", "communication", "motivation" sub-dimensions and the whole scale. The personal entrepreneurship perception of the pre-service teachers having taken a course/seminar on entrepreneurship is higher than that of the pre-service teachers not having in the "planning", "locus of control", "self-confidence" and "communication" sub-dimensions and the whole scale. The pre-service teachers' personal entrepreneurship perception was found to be not varying significantly depending on the department attended in the "planning", "locus of control", "self-confidence", "communication", "motivation", "self-discipline" sub-dimensions and the whole scale. The pre-service teachers' creative thinking tendencies are above the medium. The male pre-service teachers' creative thinking tendencies are higher than those of the female pre-service teachers in the "courage" sub-dimension. The creative thinking tendencies of the pre-service teachers having taken a course/seminar on entrepreneurship were found to be higher than those of the pre-service teachers not having in the "self-discipline", "looking for innovation", "courage", "curiosity", "doubting", "flexibility" and the whole scale. The pre-service teachers' creative thinking tendencies were found to be not varying significantly depending on the department attended in the "self-discipline", "looking for innovation", "courage", "curiosity", "doubting", "flexibility" sub-dimensions and the whole scale. A high, positive and significant correlation was found between the pre-service teachers' individual entrepreneurship perceptions and creative thinking tendencies.

Suggestions

In order to foster female pre-service teachers' personal entrepreneurship skills, supportive and effective learning-teaching activities can be organized within the context of the "Economics and Entrepreneurship" course. Pre-service teachers can be encouraged to take the "Economics and Entrepreneurship" course offered as elective in education faculties and to participate in certificate programs on entrepreneurship.

When the literature is reviewed, it is seen that the relevant studies are mostly descriptive studies focusing on the determination of pre-service teachers' level of entrepreneurship and creative thinking. There is a small number of experimental studies investigating both of these subjects. Experimental studies can be conducted to enhance pre-service teachers' entrepreneurship and creative thinking skills.

The entrepreneurship and creative thinking skills of pre-service teachers attending education faculties located in different regions of Turkey can be compared. The current study was conducted on pre-service pre-school teachers and primary school teachers. With students from different grade levels and departments, studies can be conducted. Entrepreneurship and creative thinking skills of the pre-service teachers trained according to the new teacher training program can be investigated.

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