

Prediction of Entrepreneurship of Pre-service Teachers based on Cognitive Flexibility and Self-Efficacy Belief

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Abstract

The aim of this study is to determine whether or not pre-service teachers' self-efficacy belief and cognitive flexibility predict their entrepreneurship. Study group of this research consists of a total of 374 pre-service teachers, 265 females (71%) and 109 males (29%), who are undergraduate students in various education departments from an university's faculty of education in Turkey during 2017-2018 school year and participated in this study voluntarily. During the data collection process, Entrepreneurship Scale (ES) for measuring pre-service teachers' entrepreneurship, Cognitive Flexibility Inventory (CFI) for measuring cognitive flexibility and General Self-Efficacy Scale (GSE) for measuring the self-efficacy belief were used. In the research multiple regression analysis, which is a relational screening model, was used. According to the obtained data, cognitive flexibility and self-efficacy belief variables predict entrepreneurship in a meaningful way ($R=.708$, $R^2=.502$, $p=.00$). Also cognitive flexibility and self-efficacy belief variables combined explain approximately 50% of total variance in entrepreneurship of pre-service teachers. Therefore it can be said that supporting entrepreneurial intentions of teacher candidates in education faculties might be realized by situations aimed at increasing their cognitive flexibilities and general self-efficacy belief regarding this subject. Because it is believed that by supporting these aforesaid intentions, teacher candidates might be helped to participate in important educational activities and projects that require entrepreneurship in their professional lives.

Keywords: Entrepreneurship, Cognitive Flexibility, Self-Efficacy Belief, Pre-Service Teachers

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Introduction

Nowadays entrepreneurship is accepted as a professional characteristic. Such that, entrepreneurship is considered as “an important strength, which enables a nation to grow and improve socially and economically (Aytaç & İlhan, 2007)”. Within this context while developing their curriculums, countries aim for plans to win individuals, who are open-minded, able to take risks, equipped with readiness to produce, highly motivated and able to think creatively and flexibly. For example, in Finland teachers are able to use materials and tools aimed at primary and high school education, in order to carry out entrepreneurship education and entrepreneurship is also brought into the forefront in teacher education (Opinkirjo, 2012). In addition to that Iran took action to establish entrepreneurship centers in colleges and universities (Zarafshani, Cano, Sharafi, Rajabi & Sulaimani, 2011). In Turkey entrepreneurship is added to the curriculums by Ministry of National Education (MoNE, 2018) and Council of Higher Education (CoHE). This action of CoHE is realized as a result of February 22nd, 2011 dated cooperation protocol (KOSGEB, 2011) signed between CoHE and SMIDO in order to provide “University- Business world” cooperation, to spread entrepreneurship culture in universities and to encourage young people to enterprise. As is seen entrepreneurship has become an important part of politics and curriculums in different countries (Faltin, 2001) and entrepreneurship education comes into prominence.

Entrepreneurship blankets goods or service production acts by bringing the factors of production, which are the labor, technology, capital and natural resources, together (Yılmaz & Sünbül, 2009). On that sense it can be claimed that entrepreneurship is a process. As a general definition entrepreneurship is to detect an opportunity and to create an organization in order to seize the opportunity, to examine the alternative production processes, optimize them and to create value by finding new product, service, resource, technology and markets using creative abilities (Yılmaz & Sünbül, 2009). From this aspect an entrepreneur can be described as a person, who has tendencies to create a new product or service, and to that end takes affective and/or psychomotor action and is able to seize the opportunities.

Some attributed characteristics to entrepreneurs are; sense of responsibility, strong interpersonal relationships, competence in communication, motivation, need for power, self-management, ambition, being diligent, positive reaction to failure, will to accept challenge (Carland, Hoy, Boulton & Carland, 1984), toleration towards uncertainty, confidence, need for independence and autonomy (Carland, Hoy, Boulton & Carland, 1984; Ward, 2005; Özer & Topaloğlu, 2007; İGİAD, 2008; Maltepe Üniversitesi Girişimcilik & İş Geliştirme Merkezi-MÜĞİM, 2018), patience and hard work (Özer & Topaloğlu, 2007; İGİAD, 2008), high need for success (Carland, Hoy, Boulton & Carland, 1984; Koh, 1996; Özer & Topaloğlu, 2007), internal focus of control, tendency to take risks, need for control, type A behavior (Koh, 1996; Özer & Topaloğlu, 2007), being proactive (Ward,

2005; Özer & Topaloğlu, 2007). Entrepreneurs are also defined by characteristics such as being a good observer, intuitive, imaginative, flexible, having the ability to think independently and versatile, having the connections for reaching the resources, having ability to convince, (İĞİAD, 2008), being creative (İĞİAD, 2008; MÜĞİM, 2018). Entrepreneurship is basically characterized with innovative behavior and uses strategic management methods. Essentially three basic factors for entrepreneurship are talent, courage and knowledge (MÜĞİM, 2018). Entrepreneurs differentiate from other people by these specific characteristics. These differences enable them to realize and follow the opportunities (Baron, 1998).

In the related literature entrepreneurship is also explained based on the concept of intention. In this regard entrepreneurial intention is based on the Theory of Planned Behavior (TPB) (Fishbein & Ajzen, 1975; as cited in Çetinkaya Bozkurt, 2014; Krueger, Reilly & Carsrud, 2000; Liñán, 2004; Şeşen & Basım, 2012). According to this theory individuals' social behaviors are controlled by some factors, caused by specific reasons and occur in a planned way. This theory claims that in order for any behavior to occur, first the intention or the aim of this behavior should form. The stronger the intention for this behavior, the higher the probability of this behavior to occur (Frey, Stahlberg & Gollwitzer, 1993, as cited in Mercan, 2015). But approaching this situation from the practice framework, in addition to form a strong intention to embark on an enterprise, the environment should also be suitable for this entrepreneurial intention. Thus it is important that organizations create necessary environments to support entrepreneurship of their personnel. So it is also important to support the entrepreneurial intentions of pre-service teachers, who are the potential entrepreneurs in schools. This duty should initially be the responsibility of Education Faculties, where teachers are educated. This situation emphasizes that entrepreneurship should especially be addressed in these faculties and the necessary research should be done, since Education Faculties are responsible for the national teacher education (Çelik, 2014).

Entrepreneurship Education for Pre-service Teachers

Lately MoNE have especially been emphasizing about teachers and pre-service teachers having the entrepreneurial characteristics given the general sufficiency of this profession and making decisions to support this process (Pan & Akay, 2015). Regarding this subject MoNE (2013) states that teachers are one of the most important elements within a society and they need entrepreneurial characteristics in every sufficiency field (knowing the student, professional development, teaching and learning process, observing and evaluating development, school-family and society relationships, curriculum and content knowledge) within the scope of general sufficiency of teaching profession. In their studies Deveci and Çepni (2014), mentioned entrepreneurship oriented methods that can be used in teacher education programs. Jones and Iredale (2010) listed the main points of entrepreneurship education as; how to plan and start up a new enterprise, how to grow and manage a business and

necessary skills and behaviors for managing a business. Smith, Collins and Hannon (2006) also conducted an action research to understand the thoughts and the difficulties regarding the ways to incorporate entrepreneurship education into British higher education institutions. Results of this study showed that it would be hard to incorporate such a program into higher education institutions due to limited resources and problems regarding finding the right entrepreneurs to participate in the program and placing it into the curriculum. Although Zahra, Kiani and Narges'e (2012) stated that the key to a successful entrepreneurship education is to manage the educability skills and find the most effective way to determine the best match between the student needs and teaching methods; there is no universal pedagogic receipt for teaching entrepreneurship. In addition to these researchers have listed the possible teaching methods for entrepreneurship education as group project, case study, individual project, developing a new enterprise project and problem solving.

There are various studies conducted with teachers and pre-service teachers. For example in one study teachers learning entrepreneurship education and reflecting themselves regarding this subject was examined (Seikkula-Leino, Ruskovaara, Ikavalko, Mattila & Rytkola, 2010). Data was collected by 29 primary school, high school and vocational education teachers writing reflecting content. The focus of the study was how and what the teachers reflect, while writing about entrepreneurship education. Findings based on teachers' reflections are in the direction of changes in application such as developing a curriculum reform in basic and in-service education of teachers and the necessity of a connection between goals and results in terms of entrepreneurship education. Another study examined entrepreneurship knowledge and skill levels of pre-service teachers and found out that entrepreneurship education is not sufficient in education faculties (Çelik, 2014). Çermik and Şahin (2015) found out that the level of social entrepreneurship characteristics of pre-service teachers meaningfully differs based on variables of being aware about social, global and environmental problems and being a member of an NGO; but does not differ meaningfully based on age variable. Another study examined teachers' entrepreneurship characteristics and found out that gender and work place variables do not affect the entrepreneurship characteristics (Uygun & Er, 2016). Pan and Akay (2015) reached the conclusion that pre-service teachers have high levels of entrepreneurship and only family income variable affects their entrepreneurship in a meaningful way. Yavuz Konokman and Yanpar Yelken (2014) examined the effects of pre-service teachers' attitudes towards learning on their entrepreneurship levels and found out that their attitudes towards learning are positive, their perception regarding entrepreneurship level is high but attitude towards learning is not a variable that affects entrepreneurship level. Another study conducted by Geri (2013) showed that there is a meaningful difference between tolerance towards uncertainty, risk taking and focus of control dimensions, which are sub-dimensions of entrepreneurship characteristics, in favor of the Department of Physical Training and Sports. Examining these studies, it can be seen that some variables like class level, family income affect entrepreneurship. It can also be seen that there is a

meaningful difference between gender variable and entrepreneurship sub-dimension tolerance towards uncertainty, and a meaningful difference between entrepreneurship sub-dimensions tolerance towards uncertainty, risk taking and control focus in favor of the Department of Physical Training and Sports. It was also found out that attitude towards learning is not a variable that affects entrepreneurship level.

Characteristics that Affect Entrepreneurship

In this study two characteristics that are assumed to predict entrepreneurship of pre-service teachers; competency (self-efficacy) belief and cognitive flexibility were discussed.

A.Competency (Self-Efficacy) Belief

Competency concept, which is defined as an individuals' belief regarding the ability to perform a specific task, is a key element in Social Learning Theory (Marakas, Yi & Johnson, 1998) and plays a central role in Social Cognitive Theory (Bandura, Barbaranelli, Caprara & Pastorelli, 2001). Bandura (1986) defined competency belief as "individuals' belief regarding their confidence for organizing necessary behaviors to realize a performance and their capacity to realize these behaviors" (as cited in Çelikkaleli & Çapri, 2008) and "individuals' beliefs regarding their competency to attempt for special goals and successfully completing tasks" (as cited in Kim & Omizo, 2005). In terms of these features it can be claimed that competency belief is a precondition of entrepreneurship. One of the elements that generate entrepreneurial motivation is self-efficacy (Gürbüz, 2011). In other words self-efficacy, which is individuals' perception regarding their competency expectations, affects their determination for fighting with problems and also action taking process (Basım, Korkmazıyürek & Tokat, 2008). According to Çetin (2011) one of the most important effects that are created by self-efficacy perception is that this concept has the power of explaining individuals' future work performance with an even higher probability than the past work performance. From this point of view self-efficacy perception can be viewed as an explanatory factor of individuals' supposed high performance during the entrepreneurship process.

Many studies in the related literature (Abbitt, 2011; Akkoyunlu & Kurbanođlu, 2003; Elkatmıř, Demirbař & Ertuđrul, 2013; Elkatmıř, 2014; Erdem & Demirel, 2007; Eryaman et al.; Hoy & Spero, 2005; Miller, Ramirez & Murdock, 2017; Skaalvik & Skaalvik, 2010; Tschannen-Moran, Hoy & Hoy, 1998; Wang, Ertmer & Newby, 2004; Yenice & Alpak Tunç, 2017) examined the teachers or pre-service teachers' self- efficacy belief regarding various subjects. But limited and mostly current studies that examine competency belief and entrepreneurship together were found. For example in their study Çolakođlu and Çolakođlu (2016), by addressing the concepts of self-efficacy perception, entrepreneurship potential and entrepreneurship education, examined the differences between university students who participate and who do not participate in entrepreneurship educations in terms of self-efficacy perception and entrepreneurship potential. Yener and Salur (2017) emphasized entrepreneurial self-efficacy as the determinant of entrepreneurship in their study. Çankır

(2016) studied pre-service teachers' self- efficacy, resistance towards change and relationship with entrepreneurship. In addition to that Akkan and Sünyür (2016) examined the effects of undergraduate students' self-efficacy perceptions and drive for success on their entrepreneurial tendencies. Özgül and Yücel (2018) examined the intermediary role of entrepreneurial self-efficacy in the relationship between innovativeness and entrepreneurial curiosity. Ergun Özler, Giderler and Baran (2017) aimed to determine the effect of self-efficacy and focus of control on individuals' entrepreneurial intentions. Another study (Akar & Üstüner, 2017) examined the relationship between pre-service teachers' emotional intelligence levels, self-efficacy perceptions and social entrepreneurial features. Pihie and Bagheri (2011) studied entrepreneurial self-efficacy of teachers and students. Findings show a meaningful difference between the entrepreneurial self-efficacy of teachers and students. More specifically, entrepreneurial self-efficacy of teachers was found meaningfully high in six dimensions, while students perceived their entrepreneurial self-efficacy on a medium level. Piperopoulos and Dimov (2014) conducted a study at a British university with students, who are registered in different entrepreneurship courses. In this study they found that higher self-efficacy is related with higher entrepreneurial intentions in practice based courses. The common point of all these studies is that they all acted upon the assumption that entrepreneurship and self-efficacy is related, even more so self-efficacy perception affects entrepreneurial potential in a positive way (Akar & Üstüner, 2017; Akkan & Sünyür, 2016; Çankır, 2016; Çolakoğlu & Çolakoğlu, 2016; Ergun Özler, Giderler & Baran, 2017; Piperopoulos & Dimov, 2014; Yener & Salur, 2017).

Studies conducted regarding the existence of a general competency belief, are based on findings about theoretical generalizability of competency belief. Because competency belief level that increases in a specific field due to the accomplished performance can be transferred to other similar fields (Çelikkaleli & Çapri, 2008). Thus it can be claimed that in order to improve teachers' competency beliefs, ensuring pre-service teachers in education faculties to have this belief and providing situations to strengthen it, is necessary.

B.Cognitive Flexibility

Flexibility is a complementary element of communication skill. Individuals should be cognitively flexible, before they display flexibility. Cognitive flexibility is defined as individuals' awareness of a specific situation with alternatives and opportunities, willingness for complying and being flexible and self-efficacy in flexibility (Martin & Rubin, 1995). The concept of cognitive flexibility was first defined by Spiro and Jeng (1990) as "individuals' ability to construct the reaction knowledge, which is suitable for demands caused by changing situations" (as cited in Çelikkaleli, 2014). Based on many studies, Çelikkaleli (2014) stated that cognitive flexibility shows a positive relationship with positive psychological features like not being aggressive, tolerance, social self-efficacy belief, problem solving skills and a negative relationship with negative psychological features

like depression and verbal aggression. It was also stated that cognitive flexibility is related to many cognitive skills such as language and arithmetical skills. According to profitability expert Jain (2016) flexibility is a necessary entrepreneurial feature and when things take an unexpected turn flexibility is highly necessary. Cognitive flexibility refers to a way to think about various possibilities and thoughts in an open-minded and curious way. With more cognitive flexibility, problem solving becomes easier. Anson (2017) also claimed that being cognitively more flexible causes being more open to experiences and thus trying new things, hearing new ideas and diversifying the knowledge network has a vital importance for entrepreneurship. Also according to World Economic Forum (2016) cognitive flexibility skill is predicted to be one of the ten most important skills for being successful during 2020s, when Fourth Industrial Revolution will happen. Thus cognitive flexibility with all its' features can be defined as a necessary element for entrepreneurship.

Going through the related literature, it was found out that the number of studies, which directly examines cognitive flexibility and entrepreneurship is very low. Initially a current project called "the role of cognitive flexibility in entrepreneurial opportunity furnishing" attracts the attention. In this project, researchers recommend to entrepreneurs to act with a high level of cognitive flexibility, which allows them to switch between different knowledge pieces, which contradicts and connects with each other at the same time and triggers the entrepreneurial opportunity furnishing process (Marxt, Kraus & Zagorac-Uremovic, 2018). Another study about cognitive flexibility and entrepreneurship found out that "cognitive flexibility" hypothesis has a positive effect on intentional learning effort of "entrepreneurial strategical stand" (Clercq, Sapienza & Zhou, 2014). Some related studies claim that cognitive factors or cognitive maps affect entrepreneurship and cognitive flexibility is related to entrepreneurship. For example, Baron (2007), who examined behavioral and cognitive factors in entrepreneurship, stated that successful entrepreneurs might have outstanding self organizatory and metacognitive mechanisms or are able to develop them; and this becomes possible by them to watch their own performances and being aware of the mechanisms that help them to reform and develop their performances and also increasing their awareness about their own cognitive strengths and limitations. Baron (2004) also emphasized that cognitive flexibility might affect their abilities to change their cognitive styles and the relationship between entrepreneurship and cognitive flexibility. In their study about cognitive maps during early entrepreneurship stages Santos, Curren and Caetano (2010) found out that entrepreneurship experience develops the structure, clarity and richness of cognitive maps and also improves features based on experiences. In their study organizational flexibility and entrepreneurship about organizational limitations on entrepreneurship Eesley, Roberts, Tian and Yang (2014) addressed cognitive flexibility as a skill that assists entrepreneurial activity. Based on these studies it can be claimed that entrepreneurship can be developed by cognitive mechanisms, affected by cognitive flexibility and thus is related to cognitive flexibility.

Considering the possible benefits of keeping in mind the entrepreneurship of pre-service teachers in education faculties in conjunction with self-efficacy belief and cognitive flexibility features that support it, it is believed to be important to examine this situation in this study for having entrepreneurial teachers at schools. Accordingly the aim of this study is to examine whether or not pre-service teachers' entrepreneurship can be predicted by self-efficacy belief and cognitive flexibility variables. Thus this study seeks the answer for the question of "Do self-efficacy belief and cognitive flexibility variables meaningfully predict the entrepreneurship of pre-service teachers?" Within the scope of this research question, the following hypotheses were tried:

- H1. Self-efficacy belief predicts the pre-service teachers' entrepreneurship.
- H2. Cognitive flexibility predicts the pre-service teachers' entrepreneurship.

Method

Research Design

In this research, with the aim of examining whether or not cognitive flexibility and self-efficacy belief predict pre-service teachers' entrepreneurship, relational survey model, which is a descriptive survey model, was used. With relational survey model, it is aimed to determine the differences between individuals, objects or cases (Karasar, 2012). Thus in this research multiple regression analysis method was used.

Research Group

Research group of this study consist of 374 voluntary pre-service teachers, 265 female (71%) and 109 (29%) male. Participants were undergraduate students in various education departments from a university's faculty of education during 2017-2018 school years. 253 (67.6%) of pre-service teachers, who participated in the study were third year and 121 (32.4%) of them were fourth year students. Addressing the education level of the mothers of the pre-service teachers; 60 (16%) of them are illiterate, 235 (62.8%) of them are primary school graduates, 44 (11.8%) of them are secondary school graduates, 20 (5.3%) of them are high school graduates and 15 (4%) of them are university graduates. Addressing the education level of the fathers of the pre-service teachers; 12 (3.2%) of them are illiterate, 155 (41.4%) of them are primary school graduates, 103 (27.5%) of them are secondary school graduates, 56 (15%) of them are high school graduates and 48 (12.9%) of them are university graduates.

Data Collection Tools

University Students Entrepreneurship Scale (USES)

USES was developed by Yılmaz and Sünbül (2009), in order to present entrepreneurial characteristics of university students. Containing 36 points, the scale is a 5 point Likert type scale

ranging from “Very often” (5) to “Never” (1). After factor analyses (validity analyses), it was found out that the scale is one dimensional and as the result of confidence analysis Cronbach Alfa coefficient was found .90. For this study the general internal confidence coefficient was found .96. Statements such as “I can create options during hard times” “My own decisions are important for my work” “I do not refrain from taking risks” can be shown as examples of scale points. High scores from the scale show students entrepreneurship characteristics.

Cognitive Flexibility Inventory (CFI)

Cognitive Flexibility Inventory (CFI), which was developed by Dennis and Vander Wal (2010) in order to measure individuals’ ability to produce alternative, coherent, suitable, balanced thoughts in the face of hard situations, was adapted to Turkish by Gülüm and Dağ (2012). Consists of 20 points and two sub-scales as “Alternatives” and “Control”, this is a 5 point Likert type scale ranging from “Not suitable” (1) to “Completely Suitable” (5). Cronbach alfa coefficient for first and last measurements of alternatives sub-scale is 0.91. Cronbach alfa coefficient for first measurement of control sub-scale is 0.86 and for the last measurement of control sub-scale is 0.84. Being cognitive flexibility score, “alternatives” sub-dimension score and “control” sub-dimension score, three different types of scores can be obtained from this scale. A high score from the Cognitive Flexibility Inventory points to a high cognitive flexibility. For this study the internal confidence coefficient for the scale in general was found .89. Statements such as “I have trouble making decisions in the face of hardships.”, “It is important to look at hard situations from different points of views.”, “I consider many options before making a decision.” can be shown as examples of scale points.

General Self-Efficacy Scale (GSE)

Validity and reliability studies of GSE, which was developed by Jerusalem and Schwarzer (1992) for measuring individuals’ self-efficacy beliefs, were conducted by Çelikkaleli and Çapri (2008). Having 10 points, it is a 4 point Likert type scale, ranging from “Not true” (1) to Completely true” (4). A high score from this scale points to a high self-efficacy belief. Validity and reliability studies for the original scale was conducted in different cultures and Cronbach alfa coefficient was respectively calculated as .84, .81 and .91. Within the scope of reliability study conducted in Turkey, test- retest reliability was measured $r = .83$; internal consistency coefficient was measured .90. Statements such as “Realizing my plans and reaching my goals are not difficult for me.”, “I believe I can cope with instantaneous situations.”, “I can overcome anything.” can be shown as examples of scale points.

Data Analysis

After obtaining permission from respective departments at the Education Faculty in order to collect data, applications were made directly by the researcher during course hours. After explaining

the importance of the study, scales were filled by voluntary students within approximately 15 minutes. The collected data were made suitable for analysis in computer environment. Regression analysis is a strong statistics that aims to determine the predicted variable and predictor variables among two or more correlated variables and to explain the correlation between these variables with a mathematical equation (Çokluk, Şekercioğlu & Büyüköztürk, 2012, p.274, 275). Within this framework extreme values, sample size, normality analyses and whether or not regression analyses corresponds to “collinearity” and “multivariate normality” assumptions were examined. This information is reported in the findings section.

Findings

Mahalanobis, Cook’s and Centered Leverage distances were examined to determine the extreme values in the research data. Since the two predicting variables are considered in the study, Mahalanobis distances should be less than 13.82, Cook’s distances should be less than 1, and Centered Leverage values should be less than 0.05 (Akbulut, 2010, p.69). In the light of this information, it was determined that 14 values were extreme values in the data set examined and excluded from the analysis. At least $n > 50 + 8M$ formula was used to determine the sample size. M represents predictive variable number (Tabachnick & Fidell, 1996, p.132). Since there are two predictive variables in this study, analysis can be conducted with a data set consisting of at least 66 participants according to the related formula. The data set, which is free of extreme values, consists of 360 participants and this number seems to be sufficient for analysis.

Examining the skewness and kurtosis coefficients, due to the fact that skewness values are between -.522 and -.089, and kurtosis values are between -.159 and -.577, it was accepted that the data distribution is normal. These values are between +-1 as Kline (2011) stated. In order to see if there is autocorrelation between variables Durbin-Watson statistic was examined ($DW=1.995 < 4$) and no autocorrelation between variables was found. At the same time by checking the tolerance and variance inflation factors (VIF) (highest = $1.097 < 5$), the assumptions of regression analysis were controlled. It was found out that there is no multicollinearity between variables (Gravetter & Wallnau, 2007). Whether or not there is a meaningful relationship between entrepreneurship, which is the dependent variable of the study and cognitive flexibility and self-efficacy belief, which are the independent variables of the study, was calculated by Pearson correlation coefficient and in order to determine the predictors of entrepreneurship multiple regression analysis was carried out. Findings regarding the correlation between pre-service teachers’ entrepreneurship and cognitive flexibility and self-efficacy belief variables are presented in Table 1.

Table 1. Findings regarding the correlation between pre-service teachers' entrepreneurship and cognitive flexibility and self-efficacy belief variables

Variable	1	2	3
Entrepreneurship	1		
Self-Efficacy Belief	.679	1	
Cognitive Flexibility	.595	.297	1

$p < .05$

Examining the basic correlation coefficients in Table 1, it can be seen that there is a meaningful relationship on the $p < .05$ level between Entrepreneurship and Self-Efficacy Belief ($r = .679$), Entrepreneurship and Cognitive Flexibility ($r = .595$) and Self-Efficacy Belief and Cognitive Flexibility ($r = .297$). Correlation coefficient values being between 0.50-0.69 shows a medium level relationship (Nakip, 2003). Based on this it can be claimed that relationship between variables has an acceptable relationship level. In the light of all this information, it was seen that the prerequisites of the regression analysis to be carried out in order to test whether the relationships which are reasonable in the theoretical context are statistically significant or not, and the research hypotheses were tested with the regression model. As the regression analysis method, the standard multiple regression (Enter) method was used because the number of predicting variables was limited to two and a coherent analysis of all variables revealed a more consistent model. ANOVA findings regarding whether the model is significant are presented in Table 2.

Table 2. ANOVA results of multiple regression analysis for predicting pre-service teachers' entrepreneurship

Model	Sum of Squares	Df	Mean of Squares	F	p
Regression	81381.252	2	40690.626	179.805	.000
Residuals	80790.748	357	226.305		
Total	162172.0	359			

*As shown in Table 2, the model subject to analysis is statistically significant ($F = 179.805$; $p < 0.05$).

This is an indication that the regression explanatory and coefficients of the model are interpretable. Multiple regression analysis results regarding the prediction of pre-service teachers' entrepreneurship are presented in Table 3.

Table 3. Multiple regression analysis results regarding the prediction of pre-service teachers' entrepreneurship

Variable	B	Standard Error	Beta	T	P	r	Partial r
Constant	28.157	8.430	-	3.340	.001		
Cognitive Flexibility	.656	.121	.212	5.420	.000	.276	.202
Self-efficacy belief	2.193	.139	.616	15.738	.000	.640	.588
R =	.708	R ² =	.502				
F (2,357) =	179.805	p =	.000				

When the multiple regression analysis results in Table 3 are examined, entrepreneurship, cognitive flexibility and self-efficacy belief variables are in a meaningful relationship ($R=.708$, $R^2=.502$, $p=.00$). At the same time cognitive flexibility and self-efficacy belief variables combined, explain the 50% of the total variance in pre-service teachers' entrepreneurship. According to the standardized regression coefficient (Beta), the relative order of importance of predictive variables on entrepreneurship is self-efficacy belief and cognitive flexibility. Examining the t test results regarding the meaningfulness of regression coefficients, both cognitive flexibility and self-efficacy variables are meaningful predictive of entrepreneurship. At this point, the formula produced by using the coefficients shown in Table 3 can be examined in order to see the explanatories of the predictor variables on the predicted variable more clearly. The related formula is "entrepreneurship score_i = 28.157 + 0.656*cognitive flexibility_i + 2.193*competence belief_i". This formula means that, 0.656 times the cognitive flexibility score, 2.193 times the competence belief score, and adding 28.157 values of the model constant value constitute at least half of the entrepreneurship score". In the light of all these findings, it can be clearly stated that the research hypotheses are validated and it constitutes a model explaining the pre-service teachers' entrepreneurship by 0.50 percent.

Table 4. Hypotheses

Hypothesis	This study
H1. Self-efficacy belief is a predictor of the pre-service teachers' entrepreneurship.	Supported
H2. Cognitive flexibility is a predictor of the pre-service teachers' entrepreneurship.	Supported

Discussion and Conclusion

The findings of this study, whereby the prediction of entrepreneurship of pre-service teachers based on self-efficacy belief and cognitive flexibility variables, show that self-efficacy belief and cognitive flexibility variables predict the entrepreneurship of pre-service teachers in a meaningful way. Going through the related literature, very few studies, which addressed entrepreneurship alongside cognitive flexibility "or" self-efficacy belief were found. Within this context this study has the feature of being the first study, which addresses entrepreneurship alongside cognitive flexibility "and" self-efficacy belief.

First, it was seen that self-efficacy belief variable predicts entrepreneurship in a meaningful way. It can be claimed that this result is directly and indirectly in line with the results of studies in the related literature (Akar & Üstüner, 2017; Akkan & Sünyür, 2016; Basım, Korkmazıyürek & Tokat, 2008; Çankır, 2016; Çolakođlu & Çolakođlu, 2016; Ergun Özler, Giderler & Baran, 2017; Piperopoulos & Dimov, 2014; Yener & Salur, 2017). For example in Çolakođlu and Çolakođlus' (2016) studies, it was found out that university students, who receive entrepreneurship education, have a higher entrepreneurial potential and also self-efficacy perception effects entrepreneurial potential in a positive way. In studies of Yener and Salurs' (2017) entrepreneurial self-efficacy is pointed out as a

predictor of entrepreneurship. Çankır (2016), who examined pre-service teachers' self-efficacies, resistance to change and the relationship of these variables with entrepreneurship, found out that there is a meaningful and positive relationship between entrepreneurship and self-efficacy. In their study, whereby the relationship between innovativeness and interest in entrepreneurship was examined, Özgül and Yücel (2018) found out that entrepreneurial self-efficacy plays an intermediary role. While examining the effects of self-efficacy and focus of control on individuals' entrepreneurial intentions Ergun Özler, Giderler and Baran (2017) found out that self-efficacy and focus of control have a positive effect on entrepreneurial intentions. Çetin (2011) in his studies, which were focused on the role of self-efficacy and focus of control in entrepreneurship, found out that inner control oriented individuals with high self-efficacy perception might succeed more during entrepreneurial processes. Another study examining the relationship between pre-service teachers' emotional intelligence level, self-efficacy perception and social entrepreneurship characteristics, found out that social intelligence and self-efficacy perception are two important variables in raising entrepreneur teachers, who can create social value (Akar & Üstüner, 2017). It can be seen that in many studies entrepreneurship and self-efficacy was found related to each other and self-efficacy perception affects individuals' entrepreneurial potential in a positive way. In addition to that Akkan and Sünyür (2016) found out in their studies, whereby the effects of university students' self-efficacy perceptions and motive to succeed on their social entrepreneurship tendencies were examined, that university students' self-efficacy perceptions, social entrepreneurship tendencies affect the financial proceeds dimension. While examining the effect of self-efficacy perception on innovativeness and risk taking Basım, Korkmazyürek and Tokat (2008) found out that there is a meaningful relationship between self-efficacy perception and both innovativeness and risk-taking behavior. Thinking that innovativeness and risk-taking behavior as elements of entrepreneurship, it can clearly be seen that the findings of this study are in line with the findings of Basım, Korkmazyürek and Tokat's (2008) studies. Lastly Piperopoulos and Dimov (2015) claimed in their study that higher self-efficacy is related to higher entrepreneurial intentions in practice-oriented courses. Thus, as claimed in many studies, individuals with high self-efficacy (competency belief) have also high entrepreneurial characteristics, intentions or tendencies.

Cognitive flexibility variable, which was another variable addressed in this study, also predicts entrepreneurship in a meaningful way. It can also be said that this result is in line with direct and indirect results of the studies in the related literature. As Baron (2004) stated, cognitive flexibility of entrepreneurs improves individuals' cognitive styles. Baron (2007) also stated that successful entrepreneurs might have metacognitive mechanism. According to Santos, Curral and Caetano (2010) individuals' entrepreneurial experiences develop the structure, richness and openness of the structure of cognitive maps and improve experience-based characteristics. People, who are not cognitively flexible, tend to think long and hard, when they feel sad, because they have trouble finding alternative

ways. Within this context cognitive flexibility contributes to design a business (Davis & Nolen-Hoeksema, 2000). In their projects Marxt, Kraus and Zagorac-Uremovic (2018) suggest the entrepreneurs to take action with a high level of cognitive flexibility. Clercq, Sapienza and Zhou (2014) found out that cognitive flexibility positively affects the impact of “entrepreneurial strategic stand” on learning effort. Eesley, Roberts, Tian and Yang (2014) also claimed in their study that cognitive flexibility assists entrepreneurial activity and it is a skill related to entrepreneurship. Thus according to these statements, it can be understood that cognitive flexibility has the ability to positively affect the entrepreneurship, which is the “tendency of doing business, creating a new product or a service and taking action in cognitive, affective and/or psychomotor ways with this aim in mind”. Based on the results of all these studies, it can be said that entrepreneurship is an interactive feature, which is suitable for improving and being improved and is related to cognitive flexibility.

Lastly it can be said that supporting entrepreneurial intentions of pre-service teachers in education faculties might be realized by situations aimed at increasing their cognitive flexibilities and general self-efficacy belief regarding this subject. Because it is believed that by supporting these aforesaid intentions, pre-service teachers might be helped to participate in important educational activities and projects that require entrepreneurship in their professional lives.

Limitations of the Study and Recommendations

This study that shows pre-service teachers’ entrepreneurship is predicted by self-efficacy belief and cognitive flexibility variables has some limitations. One of these limitations is that the participants of this study were only pre-service teachers studying at the university of education faculty. Thus the study might be conducted again with pre-service teachers, who are studying at education faculties of different universities with same socio-cultural level. By doing so different education faculties can be compared in terms of entrepreneurship, self-efficacy belief and cognitive flexibility. Another limitation is that the study group consists of only pre-service teachers. Same subject can also be examined with teachers. In addition to these planning mixed studies by conducting this study with qualitative research methods might be more explanatory regarding entrepreneurship. It is also believed that providing courses or curriculums including features of cognitive flexibility and self-efficacy belief for supporting entrepreneurship courses at the Education Faculties might be beneficial. It can also be suggested for the future studies to examine entrepreneurship in combination with the personal characteristics like creativity, self-confidence, risk taking, autonomy, which are characteristics attributed to entrepreneurs in the related literature.

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