The Prediction Power of Pre-Service Classroom Teachers' Individual Innovativeness Characteristics on Entrepreneurship Skills[1]

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Abstract
Changes in science and technology and related developments,which have led to the formation of information societies, make significant contributions to every stage of the education process. Entrepreneurship is a 21st century skill expected from individuals in the information society; it is essential in increasing societies' development level. In this sense, raising individuals possessing "entrepreneurship" skills, which are included in both life skills and 21st-century skills, is one of the common goals of all countries. The innovativeness level of the individuals, who are at the center of innovation and system changes, and their ability to accept it are expressed as individual innovativeness. To give the characteristics covered by the entrepreneurship skill included in the primary school curriculum to the students in our schools, it is necessary first to equip the pre-service teachers and teachers with this skill and ensure that they gain knowledge and experience on this issue. This study examines the effect of primary school pre-service classroom teachers' innovativeness characteristics on their entrepreneurial skills. The study was designed using the quantitative research method. 420 pre-service teachers from a university's classroom teaching program in Central Anatolia participated in the research. Missing or empty forms were excluded from the study, and the data of 358 volunteer pre-service classroom teachers were used. The "individual innovativeness scale" adapted to Turkish by Kılıçer and Odabaşı (2010) and the "entrepreneurship" scale developed for pre-service teachers by Deveci and Çepni (2015) were used to collect the data. Simple linear regression was used to reveal the causality between variables. Resistance to change, opinion leadership, openness to experience, and risk-taking were analyzed separately as innovativeness characteristics, concluding that the prediction power of resistance to change is minimal, while other characteristics predicted entrepreneurship significantly. Overall, it was concluded that individual innovativeness characteristics could explain entrepreneurship.
Keywords: Individual Innovation, Entrepreneurship, Pre-Service Classroom Teacher, Primary School Curriculum, 21st Century Skills

Introduction

The characteristics that individuals should have in the 21st-century are expressed as follows: making a habit of lifelong learning, accessing and using the knowledge in different disciplines, having the ability to analyze and construct the knowledge, producing solutions to the problems they encounter, and also being open to new and different ideas and willing to implement them (Partnership for 21st Century Skills, 2010). In this context, individuals are expected to access knowledge under all conditions, solve problems, make innovations, and exhibit innovative features in today's conditions. Innovativeness is the degree to which individuals or institutions in a social system adopt an innovation earlier than others (Rogers, 1995). It is defined as the willingness to change or try new things by Hurt, Joseph, and Cook (1977); whereas

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Kılıçer and Odabaşı (2010) explain innovation using existing definitions, as an umbrella concept that includes risk-taking, openness to experience, creativity, and opinion leadership.

Innovative behavior is often expressed as creativity in the literature, and sometimes the concepts of creativity and innovation are even used interchangeably (Scott & Bruce, 1994). Innovation starts with creative thinking (Allen et al., 2013; Caniels & Rietzschel, 2015; Kanbur, 2015) and can be expressed as the apparent tangible and physical result of creativity (Çavuş & Akgemci, 2008). Innovation is a newly developed product or process significantly different from previous products or processes and is offered or made available by the process to potential users. Innovation must be implemented or made available to others;therefore, the necessity of implementation distinguishes innovation from other concepts such as invention (OECD, 2018). According to Rogers (1995), innovation is an idea, object, or practice perceived as new by the individual or other groups. In the case of human behavior, being "objectively" new for an idea, as measured by the time since its first use or discovery, matters little. The characteristics of the decision-making unit and previous cases can be effective in adopting innovation.

The most critical factor in the acceptance of an innovation is its expected utility and ease of use. An innovation that is easy to use is also perceived as beneficial (Usluel & Mazman, 2010). Rogers (1995) classified people in five categories of innovation as innovators, pioneers, questioners, skeptics, and traditionalists considering individual differences.

On the other hand, individual innovativeness is the willingness of the individual to innovate, adopt the innovation, have a positive perspective, use it or benefit from it (Kılıçer, 2011, p.23). Individuals with high individual innovativeness see innovation as valuable and important and are open to experiencing innovation. While looking for ways to improve themselves for different experiences, these individuals tend to use the new knowledge they encounter by adding to the existing ones. While doing this, they interpret the thoughts of other individuals objectively and construct them with the new knowledge they have learned (Leavitt & Walton, 1975). According to Gardner (1995), the characteristics of individual innovativeness may be different for each person. Some people possess the qualities serving to innovation, while others' qualities hinder innovation. Similarly, according to Dees (2017), innovation not only requires creating something new, but it is also about improving something, which involves applying the existing tools/knowledge in solving an existing problem. It is related to relearning already known or practiced aspects. It may mean using tried solutions as a starting point,adopting them to new scenarios, and/or addressing new cases. According to 21st-century skills, individuals are expected to possess many qualities and skills in addition to innovativeness,such as entrepreneurship; this skill is also included in the curriculum.

Entrepreneurship indicates an individual's ability to turn ideas into action. The qualities it covers are innovation, creativity, risk-taking, and planning and managing projects to achieve goals (EC, 2012). There is no consensus among scientists about defining entrepreneurship and how to approach it. Research has been done in many areas related to the concept of entrepreneurship. Entrepreneurship was initially conceptualized by the economists such as Cantillon (1730), Say (1803), Schumpeter (1934), and Kirzner (1979) in economic theory. Then, it became a concept that attracted the attention of scientists from other fields such as "sociology, psychology and management sciences," and it has been defined with different approaches (cited by, Curth, 2011). An entrepreneur's qualifications, skills, and values will differ according to how entrepreneurship is defined. Thus, while Schumpeter's (1934) entrepreneur is a risk-taker and an innovator, Wilken's (1979) entrepreneurial personality is expressed as daring, aggressive, and having a personal need for success. Stevenson and Jarillo's (1991) entrepreneurs identify and catch opportunities and use their skills (persuasion, strategic thinking, negotiation) to achieve their goals (cited by, Curth, 2011). The research on entrepreneurship goes to 60 years before, but a general understanding has not been found on defining it (Bridge, 2017, p. 741).

Some recent meta-analysis studies have shown that, contrary to the results obtained from

previous studies, entrepreneurs have a wide range of personality characteristics that differ from other groups (e.g., managers) (Zhao, Seibert & Lumpkin, 2010). For Mamman (2009), entrepreneurship is an organizational and managerial approach enabling a person to react to change and solve problems. From this perspective, entrepreneurship is related to various skills and attitudes, including innovation, creativity, leadership, risk-taking,initiative-taking, and passion (Curth, 2011). After a comprehensive analysis of the entrepreneurship concept, Yamada (2004) concluded that it should be considered with a multidimensional perspective that combines the traditional approach about the roles and functions of the entrepreneur with local social, civic, and cultural factors. The broad definition of entrepreneurship expresses being an entrepreneur with creativity, personal development, self-confidence,taking the initiative, and being action-oriented (Mwasalwiba, 2010; cited by. Lackéus 2015).

Entrepreneurial characteristics are present to a certain extent in each individual, and that these characteristics can be developed through education (Kuip & Verheul, 2003). Entrepreneurship education is a process allowing students to use and develop their creativity and take risks and responsibilities (UNESCO, 2008). The approach used in the process significantly affects the educational goals, course content design, target audiences, teaching methods, and student assessment methods, and a wide variety of approaches can be derived (Mwasalwiba, 2010; cited by Lackéus 2015). Many researchers have studied the relationship between entrepreneurship and innovation regarding the process, structure, and entrepreneurship or innovation strategy (Caird, 1988; Cornwall & Perlman, 1990; Littunen, 2000,).

Entrepreneurship can be taught or guided through entrepreneurship education, which aims to motivate and nurture students to become entrepreneurs. It is more effective when applied at the university level. Undergraduate students are at the stage of career choice; therefore, they have a more considerable potential to become entrepreneurs (Swarupa & Goyal, 2020). Entrepreneurs benefit from entrepreneurship education to acquire resources by integrating various knowledge and value systems, develop innovative talents and innovative personalities, and create multi-level learning channels for entrepreneurs (Wei, Liu & Sha, 2019). Entrepreneurship is also crucial in promoting creativity and innovation (Boldureanu et al., 2020). Researching education and training, learning innovative educational theories, and applying them in their lessons are beneficial for teachers' innovative thinking and practice skills (Xu & Chen, 2010). In entrepreneurship education, the talents of entrepreneurs are shaped through social interaction,where primary knowledge resources are observation or direct participation. It also includes new knowledge creation by gaining experience and practicing knowledge (Wei, Liu & Sha, 2019).

Entrepreneurship education for pre-service teachers is a critical competence that contributes to their personal and professional satisfaction by facilitating active citizens' comprehensive education, especially primary school students (Arruti& Castro, 2020). The definition of entrepreneurship expressed as a "competence" varies according to context, discipline, and questioning method. The multidisciplinary nature of the subject ranges from economics to social sciences and management (Komarkova, Gagliardi, Conrads & Collado, 2015). The so-called "entrepreneurial society," which has entered the education system since primary school, plays an essential role in the development of the qualifications and skills required to activate students' innovation potential and may affect various processes, including socialization and adaptation to change (Valenciano, Uribe-Toril & Ruiz-Real, 2019). In the 21stcentury, entrepreneurship characteristics have been accepted as one of the most critical skills for students, and each course contributes to the development of entrepreneurial characteristics (Drucker, 2014). Considering that the developments in all fields gain momentum in the information age, adapting to this situation is closely related to the individual's innovational characteristics and at the same time being able to use these features in practice and having entrepreneurship skills. This research conducted with pre-service classroom teachers aims to reveal the prediction power of individual innovativeness characteristics on entrepreneurship skills. For this purpose, the study addressed the following questions:

- What are the individual innovativeness levels and

characteristics of pre-service classroom teachers?
- Do pre-service classroom teachers' individual innovative characteristics significantly predict their entrepreneurial skills?

Method

This study used the screening method to reveal the relationships between innovativeness and entrepreneurship skills of pre-service classroom teachers. The screening method aims to reveal changes over time or give insight into a particular situation (Christensen et al., 2015). In this context, the relational survey model examined the relationship between individual innovativeness and entrepreneurship skills. Relational screening model aims to measure two or more variables and reveal the relationship between them. First, it is necessary to obtain the measurement of each variable defined in the research question for each person to examine the relationships between variables using relational screening (Lodico et al., 2010).

Study Group

The study group consists of 358 pre-service classroom teachers of all grades from a state university's Faculty of Education, Classroom Education Department in the Central Anatolia Region. As the entire study group was accessible, sampling was not used in the study. The principle of voluntariness was followed in data collection. Incomplete, empty, and invalid forms were excluded, and the final data consisted of 358 pre-service classroom teachers. The characteristics of the pre-service teachers are shown in Table 1.

Table 1 Gender and Grade of the Sample

Demographic Features		n	%
Gender	Female	285	80
	Male	73	20
Grade	1st Grade	83	23
	2nd Grade	97	27
	3rd Grade	96	27
	4th Grade	82	23
Total		358	

Regarding the pre-service primary school teachers' demographic information, 20% are male, 80% are female; 83 are from the 1st grade, 97 from the 2nd grade, 96 from the 3rd grade, and 82 from the 4th grade.

Data Collection Tools and Data Analysis

The data were collected using the "Individual Innovation Scale" and the "Entrepreneurship Scale for Pre-service Teachers." A personal information form was also used in the study to obtain demographic information of the study group.

The Individual Innovation Scale

The scale was developed to evaluate the general innovativeness of individuals. The original scale was developed by Hurt, Joseph, and Cook (1977), and adapted to Turkish by Kılıçer and Odabaşı (2010). The 20-item scale consists of four factors: "Resistance to change" reflects individuals' anxiety against change and innovation, "*Opinion leadership*" reflects the traits that putsome people ahead of others in the group they belong to, "*Openness to experience*" reflects individuals' willingness to seek and try innovation, and "*Risk-taking*" reflects individuals' undauntedness of the by uncertainties and their motivation. These four factors explain 52.521% of the variance in the scale's Turkish version. The internal consistency coefficient for the overall scale is 0.82, and the test-retest reliability is 0.87. Respondents can be categorized in terms of innovativeness according to the scores they got from the scale: individuals with a score above 80 are "*Innovative,*" "*Pioneer*" between 69-80, "*Interrogative*" between 57- 68, "*Skeptical*" between 46-56, and "*Traditional*" below 46. In addition, people can be grouped broadly in terms of innovativeness according to their scores. Hence, individuals having 68 and above are considered highly innovative, whereas the ones having 64 and below are taken as low in innovativeness (Kılıçer & Odabaşı, 2010).

Entrepreneurship Scale for Pre-service Teachers: The 38-item "*Entrepreneurship Scale for Pre-service Teachers,*" developed by Deveci and Çepni (2015), consists of five subscales: risk-taking, innovativeness, self-confidence, seeing opportunities, and emotional intelligence. The researchers validated the scale's reliability with the Cronbach Alpha and test-retest technique. The lowest Cronbach Alpha reliability

coefficient was.77, and the lowest correlation coefficient for the test-retest technique was .66. The Cronbach Alpha reliability coefficient of the data obtained from 358 participants within the scope of this study was.86.

Data Analysis

In analyzing the data, firstly, the researcher transferred the data to the computer environment. Then inappropriately filled data were excluded from the analysis process. Descriptive statistics were used for the research questions, and Pearson product-moment correlation and regression analysis were used to reveal the relationships. Correlation gives information about the size and direction of the relationship between two variables, whereas regression analysis allows the interpretation of the cause-and-effect relationship between variables (Büyüköztürk, 2012). Regression analysis is used to determine how pre-service classroom teachers' innovativeness characteristics predict their entrepreneurship characteristics. The independent variable in the study was pre-service classroom teachers' innovativeness characteristics, and the dependent variable was their entrepreneurial characteristics. The M3, M11, M20, M27, and M37 items in the entrepreneurship scale were reverse-coded, and simple linear analysis was performed using the items of the Individual Innovation Scale.

Findings

The findings of the research are given according to the sub-problems.

Findings Regarding the First Sub-Problem

Pre-service classroom teachers' scores from the Individual Innovation Scale were evaluated in the context of the given criteria, and they were classified as innovative, pioneer, interrogative, skeptical, and traditional. Pre-service teachers' classification is given in Table 2.

Table 2 Pre-service Classroom Teachers' Individual Innovativeness.

Individual Innovation Categories	n	%
Innovative	19	5.4
Pioneer	112	31.2
Interrogative	181	50.5
Skeptical	43	12.3
Traditional	3	0.6
Total	358	100

In Table 2, individual innovation styles of pre-service classroom teachers are given. Accordingly, nearly half of the study group (50.5%) is "interrogative," 31.2% "pioneer," 12.3% "skeptical," 5.4% "innovative" and 0.6% "traditional." Pre-service classroom teachers' descriptive statistics regarding their innovativeness characteristics are given in table 3.

Table 3 Means of Pre-Service Classroom Teachers' Individual Innovativeness Characteristics

Variable	n	k	$\bar{x}$	$\bar{x}$ /k	sd
Resistance to change	358	8	21.66	2.70	5.08
Opinion leadership	358	5	18.44	3.68	3.12
Openness to experience	358	5	19.74	3.94	2.76
Risk-taking	358	2	6.87	3.43	1.55
Individual innovation	358	20	65.33	3.26	8.57

Regarding Table 3, the means of pre-service teachers' innovation characteristics show that they are open to gaining experience (X/k = 3.94), they are opinion leaders (X/k =3.68), take risks (X/k= 3.43), and show resistance to change (X/k= 2.70), albeit at an average value.

Findings Regarding the Second Sub-Problem

The prediction power of pre-service classroom teachers' individual innovativeness characteristics (resistance to change, opinion leadership, openness to experience, risk-taking) on entrepreneurship is given in separate tables. Table 4 shows regression findings for the prediction power of pre-service classroom teachers' resistance to change on their entrepreneurship.

Table 4 The Prediction Power of "Resistance to Change" on Entrepreneurship

Variable	B	Standard Error	R2	Standardized β	t	F	p
Constant	156.831	3.493	.04	-.206	44.902	14.62	.000
Resistance to change	-.601	.157			-3.825		

According to the R^2 value, "resistance to change" from the individual innovation characteristics predicted 4% of entrepreneurship. In addition, F and p values showed that the prediction of entrepreneurship by "resistance to change" was statistically significant.

The regression findings for the prediction power of pre-service classroom teachers' opinion leadership on their entrepreneurship are shown in Table 5.

Table 5 The Prediction Power of "Opinion Leadership" on Entrepreneurship

Variable	B	Standard Error	R2	Standardized β	t	F	p
Constant	94.666	4.141	.303	.550	22.860	144.463	.000
Opinion leadership	2.657	.221			12.019		

According to the R^2 value, "*opinion leadership*" from the individual innovation characteristics predicted 30% of entrepreneurship. In addition, F and p values showed that the prediction of entrepreneurship by "*opinion leadership*" was statistically significant.

The regression findings for the prediction power of pre-service classroom teachers' openness to experience on their entrepreneurship are shown in Table 6.

Table 6 The Prediction Power of "Openness to Experience" on Entrepreneurship

Variable	B	Standard Error	R2	Standardized β	t	F	p
Constant	83.295	4.962	.313	. 559	16.786	151.278	.000
Openness to Experience	3.062	.249			12.300		

According to the R^2 value, "openness to experience" from the individual innovation characteristics predicted 31% of entrepreneurship. In addition, F and p values showed that the prediction of entrepreneurship by "openness to experience" was statistically significant.

The regression findings for the prediction power of pre-service classroom teachers' risk-taking on their entrepreneurship are shown in Table 7.

Table 7 The Prediction Power of "Risk-Taking" on Entrepreneurship

Variable	B	Standard Error	R2	Standardized β	t	F	p
Constant	117.582	3.327	.164	. 405	35.346	65.217	.000
Risk-taking	3.822	.473			8.076		

According to the R^2 value, "risk-taking" from the individual innovation characteristics predicted 16% of entrepreneurship. In addition, F and p values showed that the prediction of entrepreneurship by "risk-taking" was statistically significant.

The regression findings for the prediction power of pre-service classroom teachers' overall individual innovation characteristics on their entrepreneurship are shown in Table 8.

Table 8 The Prediction Power of "Individual Innovation Characteristics" on Entrepreneurship

Variable	B	Standard Error	R2	Standardized β	t	F	p
Constant	79.465	5.174	.321	.566	15.357	157.08	.000
Individual innovation	.983	.078			12.533		

According to the R^2 value, 32% of entrepreneurship was predicted. In addition, F and p values showed that the prediction of entrepreneurship by individual innovation was statistically significant.

Conclusion and Discussion

Based on the evaluation criteria of the scale scores in the study, nearly half of the pre-service classroom teachers fall in the "interrogative"

category. In this context, it can be said that the pre-service teachers participating in the research tend to question the information given or any situation they encounter, and they tend to accept it by questioning in terms of innovation. According to Kılıçer and Odabaşı (2010), interrogatives are cautious and prudent against innovations. Apart from this group, pre-service teachers have fallen into the "pioneer," "skeptical," "innovative," and "traditional" categories, respectively. Regarding the literature, pre-service teachers mostly were in the interrogative category (Adıgüzel, 2012; Çuhadar, Bülbül & Ilgaz, 2013; Kert & Tekdal, 2012; Kılıçer, 2011; Korucu & Olpak, 2015). Pre-service classroom teachers' individual innovation characteristics were found to be significantly predictive of entrepreneurship in general. When the individual innovation features of the pre-service teachers (resistance to change, opinion leadership, openness to experience, and risk-taking) are considered separately, the resistance to change feature predicted entrepreneurship very weakly. Individuals are expected to adapt to change rather than resist change to keep up with today's changing and developing situations. Therefore, this result is expected.

Entrepreneurial individuals' opinion leadership characteristics, openness to experience, and willingness to risk-taking predict their entrepreneurship significantly. In this context, it is known that teachers and pre-service teachers who are opinion leaders and can constructively express their ideas are more entrepreneurial. The characteristics that make individuals entrepreneurs are being involvedin practices aimed at gaining experience by participating in seminars and activities to improve themselves and taking risks in any situation.

Openness to experience is considered especially important because it is the variable that most distinguishes successful entrepreneurs from those in other management and business positions. Career counselors and educators put less emphasis on certain traditional "entrepreneurial personality traits," particularly in terms of risk propensity. Conscientiousness, emotional stability, and openness to experience should be emphasized more as traits associated with successful entrepreneurship (Zhao, Seibert & Lumpkin, 2010). Five major personality traits (openness to experience, extroversion, conscientiousness, compatibility, and neuroticism) affect individuals in becoming an entrepreneur and explain a considerable part of entrepreneurial disposition (Zhao et al., 2010); they also positively affect the entrepreneurial attitudes of individuals with these personality traits (Hu, 2008).

Contrary to popular belief (Zhao, Seibert & Lumpkin, 2010), risk propensity has little effect on entrepreneurial performance. The entrepreneur's classic image as a "risk-taker" or "extroverted" may dissuade some people from becoming entrepreneurs. Risk propensity, included as a separate personality dimension, is positively associated with entrepreneurship tendency (Zhao, Seibert & Lumpkin, 2010). In their study, Erden and Erden (2020) concluded that pre-service teachers whose individual innovation levels are higher see themselves as social entrepreneurs more and that individual innovation positively and significantly affects social entrepreneurship.

References

Adıgüzel, Abdullah. "The Relation between Candidate Teachers' Moral Maturity Levels and Their Individual Innovativeness Characteristics: A Case Study of Harran University Education Faculty." *Educational Research and Reviews*, vol. 7, no. 25, 2012, pp. 543-47.

Allen, Stephanie Lutz, et al. "Leadership Style in Relation to Organizational Change and Organizational Creativity: Perceptions from Nonprofit Organizational Members." *Nonprofit Management & Leadership*, vol. 24, no. 1, 2013, pp. 23-42.

Arruti, Arantza, and Jessica Panos-Castro. "International Entrepreneurship Education for Pre-Service Teachers: A Longitudinal Study." *Education + Training*, vol. 62, no. (7/8), 2020, pp. 825-41.

Bridge, Simon. "Is 'Entrepreneurship' the Problem in Entrepreneurship Education?." *Education + Training*, vol. 59, no. 7/8, 2017, pp. 740-50.

Boldureanu, Gabriela, et al. "Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions." *Sustainability*, vol. 12, 2020.

Caird, Sally. *A Review of Methods of Measuring Enterprising Attributes*. University of Durham, 1988.

Caniels, Marjolein C.J., and Eric F. Rietzschel. "Organizing Creativity: Creativity and Innovation under Constraints." *Creativity and Innovation Management*, vol. 24, no. 2, 2015, pp. 184-96.

Christensen. Larry B., et al. *Research Methods: Design and Analysis*, translated by Aypay, Ahmet, Ani Publishers, 2015.

Cornwall, Jeff R., and Baron Perlman. *Organizational Entrepreneurship*. Irwin, 1990.

Curth, Anette. *Mapping of Teachers' Preparation for Entrepreneurship Education*. 2011.

Çavuş, Mustafa Fedai and Tahir Akgemci. "The Effect of Employee Empowerment on Organizational Creativity and Innovation in Businesses: A Research in Manufacturing Industry." *Selcuk University Journal of Social Sciences Institute*, vol. 20, 2008, pp. 229-44.

Cuhadar, Cem, et al. "Exploring of the Relationship between Individual Innovativeness and Techno-pedagogical Education Competencies of Pre-service Teachers." *Elementary Education Online*, vol. 12, no.3, 2013, pp. 797-807.

Büyüköztürk, Şener. *Manual of Data Analysis for Social Sciences*. Pegem Publishers, 2012.

Dees, Gregory J. "The Meaning of Social Entrepreneurship." *Case Studies in Social Entrepreneurship and Sustainability*, edited by Hamschmidt, Jost, and Michael Pirson, Routledge, 2017.

Deveci, İsa, and Salih Çepni. "Development of Entrepreneurship Scale towards Student Teachers: A Validity and Reliability Study." *International Journal of Human Sciences*, vol. 12, no. 2, 2015, pp. 92-112.

Drucker, Peter. *Innovation and Entrepreneurship*. Routledge, 2014.

Erden, Ali, and Hale Erden. "The Relationship between Individual Innovation and Social Entrepreneurship Characteristics of Teacher Candidates." *International Journal of Curriculum and Instruction*, vol. 12, 2020, pp. 185-206.

European Commission. *Entrepreneurship Education at School in Europe*. Education. Audio visual and Culture Executive Agency, 2012.

Gardner, John. *Self-Renewal: The Individual and Innovative Society.* W.W. Norton & Company, 1995.

Hu, Meng-Lei. "A Study of the Personality Traits, Environment and Entrepreneurial Attitude of Technical Institute's Hospitality Management Students." *Journal of Hospitality and Home Economics*, vol. 5, no. 4, 2008, pp. 349-75.

Hurt, H. Thomas, et al. "Scales for the Measurement of Innovativeness." *Human Communication Research*, vol. 4, no. 1, 1977, pp. 58-65.

Kanbur, Aysun. "Innovative Behaviors in the Wake of Vitality." *Entrepreneurship and Innovation Management Journal*, vol. 3, no. 1, 2015, pp. 40-50.

Kert, Serhat Bahadir, and Mehmet Tekdal. "Comparison of Innovativeness Perceptions of Individuals Attending Different Education Faculties." *Gaziantep University Journal of Social Sciences*, vol. 11, no. 4, 2012, pp. 1150-61.

Kılıçer, Kerem, and Hatice Ferhan Odabaşı. "Individual Innovativeness Scale (IS): The Study of Adaptation to Turkish, Validity and Reliability." H.U. Journal of Education, 2010, pp. 150-64.

Kılıçer, Kerem. *Individual Innovativeness Profiles of Prospective Teachers in Computer Education and Instructional Technology*. Anadolu University, 2011.

Komarkova, Ivana, et al. *Entrepreneurship Competence: An Overview of Existing Concepts, Policies and Initiatives*. Publications Office of the European Union, 2015.

Korucu, Agah and Yusuf Olpak. "Examination of Teacher Candidates Individual Innovativeness Properties from the Different Variables." *Educational Technology: Theory and Practice*, vol. 5, no. 1, 2015, pp. 111-27.

Kuip, Isobel van der, and Ingrid Verheul. "Early Development of Entrepreneurial Qualities: The Role of Initial Education." *SCALES Paper N200311*, 2003.

Lackéus, Martın. *Entrepreneurship in Education: What, Why, When, How*. OECD Publishing, 2015.

Leavitt, Clark, and John Walton. "Development of a Scale for Innovativeness." *Advances in Consumer Research*, vol. 2, 1975, pp. 545-54.

Littunen, Hannu. "Entrepreneurship and the Characteristics of the Entrepreneurial Personality." *International Journal of Entrepreneurial Behaviour & Research*, vol. 6, no. 6, 2000, pp. 295-309.

Lodico, Marguerite G., et al. *Methods in Educational Research: From Theory to Practice*. John Wiley and Sons, 2010.

OECD. *The Future of Education and Skills: Education 2030: The Future We Want*. OECD Publishing, 2018.

Rogers, Everett M. *Diffusion of Innovations*. Free Press, 1995.

Scott, Susanne G., and Reginald A. Bruce. "Determinants of Innovative Behavior: A Path Model of Individual Innovation in the Workplace." *Academy of Management Journal*, vol. 37, no. 3, 1994, pp. 580-607.

Swarupa, S. Glory, and Ravi Kumar Goyal. "Entrepreneurial Intentions of Students: Review of Academic Literature." *International Journal of Scientific & Engineering Research*, vol. 11, no. 1, 2020, pp. 1146-68.

UNESCO. *Inter-Regional Seminar on Promoting Entrepreneurship Education in Secondary School*. Thailand National Commisssion for UNESCO, 2008.

Usluel, Yasemin Koçak, and Sacide Güzin Mazman. "Elements Involved in the Diffusion, Acceptance and Adoption of Innovations in Education: A Content Analysis Study." *Çukurova University Journal of Education Faculty*, vol. 39, no. 3, 2010, pp. 60-74.

Valenciano, Jaime de Pablo, et al. "Entrepreneurship and Education in the 21st Century: Analysis and Trends in Research." *Journal of Entrepreneurship Education*, vol. 22, no. 4, 2019.

Wei, Xingjian, et al. "How Does the Entrepreneurship Education Influence the Students' Innovation? Testing on the Multiple Mediation Model." *Frontiers in Psychology*, vol. 10, 2019.

Wilken, Paul H. *Entrepreneurship: A Comparative and Historical Study*. Ablex Publishers, 1979.

Xu, Zhenhui, and Hanlin Chen. "Research and Practice on Basic Composition and Cultivation Pattern of College Students' Innovative Ability." *International Education Studies*, vol. 3. no. 2, 2010, pp. 51-55.

Yamada, Jin-ichiro. "A Multi-Dimensional View of Entrepreneurship: Towards a Research Agenda on Organisation Emergence." *Journal of Management Development*, vol. 23, no. 4, 2004, pp. 289-320.

Zhao, Hao, et al. "The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review." *Journal of Management*, vol. 36, no. 2, 2010, pp. 381-404.

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