



## Yıldız Social Science Review

Web site information: <https://yssr.yildiz.edu.tr>  
DOI: 10.51803/yssr.1133006



### Original Article / Orijinal Makale

# The effects of Intrapreneurship Tendencies on Social Innovation in Organizations: A Practice on Employees in Cooling-Heating Sector in Istanbul Türkiye

## Kurum İçi Girişimcilik Eğilimlerinin Sosyal İnovasyona Etkileri Kuruluşlar: Soğutma-Isıtma Sektöründe Çalışanlar Üzerine Bir Uygulama İstanbul Türkiye

Nurullah PERGEN<sup>a</sup>, Ali RAZA<sup>b\*</sup>, Mumtaz ALİ<sup>b</sup>

<sup>a</sup>Department of Business Administration, Istanbul Okan University, Istanbul, Türkiye

<sup>b</sup>Department of Banking and Finance, Near East University, North Cyprus, Türkiye

<sup>a</sup>İşletme Bölümü, İstanbul Okan Üniversitesi, İstanbul, Türkiye

<sup>b</sup>Bankacılık ve Finans Bölümü, Yakın Doğu Üniversitesi, Kuzey Kıbrıs, Türkiye

### ARTICLE INFO

#### Article history

Received: 20 June, 2022

Revised: 25 October, 2023

Accepted: 25 October, 2023

#### Key words:

Entrepreneurship, Innovation,  
Social Innovation, Economy.

### MAKALE BİLGİSİ

#### Makale Hakkında

Geliş tarihi: 20 Haziran 2022

Revizyon tarihi: 25 Ekim 2023

Kabul tarihi: 25 Ekim 2023

#### Anahtar kelimeler:

Girişimcilik, İnovasyon, Sosyal  
İnovasyon, Ekonomi.

### ABSTRACT

The purpose of the study is to determine the effects of the entrepreneurship tendency of organizational employees on social innovation. A quantitative study is conducted with participants working in the cooling-heating sector in Istanbul. Survey technique is used for 390 individuals of the sample. In the current study, data collected from the managers in establishments for workers is analyzed using SPSS 23 package software. Reliability analysis of the data is conducted through the Cronbach Alpha coefficient. Skew and kurtosis values are analyzed to determine whether data in sub-dimensions are in the normal distribution. Data transformation is conducted by drawing squares for "Social Innovation" variance that did not distribute normally. Unpaired T-Test and One-Way Variance Analysis (ANOVA) are performed to determine whether Entrepreneurship Scale and Social Innovation Scale show significance in relation to demographic variables. Results show that there is a significance between all variables -except demographic gender- and the dimensions of entrepreneurship. There is a positive significance between social innovation level and entrepreneurship level. In other words, as the creativity level of employees and workers increases their entrepreneurship level rises.

**Cite this article as:** Pergen, N., Raza, A., & Ali, M. (2023). The effects of Intrapreneurship Tendencies on Social Innovation in Organizations: A Practice on Employees in Cooling-Heating Sector in Istanbul Türkiye. *Yıldız Social Science Review*, 9(1), 16–26.

### ÖZ

Araştırmanın amacı, örgütsel çalışanların girişimcilik eğilimlerinin sosyal inovasyon üzerindeki etkilerini belirlemektir. İstanbul'da soğutma-ısıtma sektöründe çalışan katılımcılarla nicel bir araştırma yapılmıştır. Örneklemin 390 bireyi için anket tekniği kullanılmıştır. Bu çalışma-

\*Corresponding author / Sorumlu yazar

\*E-mail: aliraza66688@yahoo.com



Published by Yıldız Technical University, İstanbul, Türkiye

This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

da, işletmelerde çalışanlar için yöneticilerden toplanan veriler SPSS 23 paket yazılımı kullanılarak analiz edilmiştir. Verilerin güvenilirlik analizi Cronbach Alpha katsayısı ile yapılmıştır. Alt boyutlardaki verilerin normal dağılımında olup olmadığını belirlemek için çarpıklık ve basıklık değerleri analiz edilmiştir. Normal dağılmayan “Sosyal İnovasyon” varyansı için kareler çizilerek veri dönüşümü yapılır. Girişimcilik Ölçeği ve Sosyal İnovasyon Ölçeğinin demografik değişkenlere göre anlamlılık gösterip göstermediğini belirlemek için Unpaired T-Testi ve Tek Yönlü Varyans Analizi (ANOVA) yapılmıştır. Sonuçlar, demografik cinsiyet dışındaki tüm değişkenler ile girişimciliğin boyutları arasında anlamlılık olduğunu göstermektedir. Sosyal inovasyon düzeyi ile girişimcilik düzeyi arasında pozitif bir anlamlılık vardır. Diğer bir deyişle, çalışanların ve çalışanların yaratıcılık düzeyi arttıkça girişimcilik düzeyleri de yükselmektedir.

**Atf için yazım şekli:** Delioğlu, N., Raza, A., & Hulio, M. (2023). The effects of Intrapreneurship Tendencies on Social Innovation in Organizations: A Practice on Employees in Cooling-Heating Sector in Istanbul Türkiye. *Yıldız Social Science Review*, 9(1), 16–26.

## 1. INTRODUCTION

All establishments have to survive in the present economy in order to maintain their survival in the world. Developments in the world all together have impacts on this survival process. The establishments that can renew, change or develop themselves are more likely to survive, which is only possible with entrepreneurship and social innovations.

Regardless of how those two concepts mentioned before seem to be different and independent from each other, experts in both groups are of creative and innovative character. Entrepreneurs make all necessary innovations where they work whereas social innovation experts attempt to remove off the communal barriers before these innovations (Agca and Buyukaslan, 2016).

The first actions in innovation, a function of entrepreneurship, took place in the socio-cultural leg. However, the focus of practices shifted to a point of view toward the economy and community as time passed. Due to failures and communal problems in previous economies, it is inevitable to consider these two events as a whole.

### 1.1. Entrepreneurship: Definition

In the most general sense, entrepreneurship is starting a business for profit by taking risks, which remains at the forefront of the world and is a dynamic that is blended with technology. Having harsh working conditions and thoughts of earning more money, workers are encouraged to make new attempts.

There has been complexity in the definition of entrepreneurship since some individuals are more able to observe or create new opportunities while some are more successful in realizing their ideas and dreams than others (Arikan, 2004).

Reviewing the studies on entrepreneurship, it is seen there is a conflict between the concepts of management and entrepreneurship. Upon investigating entrepreneur models, individuals are seen to be going on an independent, short-term, dynamic, and opportunist path. It is normal for them to behave professionally within the establishment they started and run during growth. In this sense, they are

of Professional characteristics rather than any managers (Berber, 2000).

Another dynamic that is studied with entrepreneurship is leadership. The general sense is that entrepreneurs must be leaders. The leadership characteristics that entrepreneurs have is seen to be one of the most significant factors for executive success. The responsibility of a manager is defined as directing all people in an establishment toward the same vision, motivating and supporting them for success (Arikan, 2002).

Establishments are much trying to be more corporate in the present global world system. As a result of increasing attempts in terms of entrepreneurship in establishments, competition within a market has risen (Cetindamar and Fis, 2007). Establishments have developed two separate theories as “establishment entrepreneurship” and “corporate entrepreneurship” for defining entrepreneur behaviors (Alpkan et al. 2005; Danisman and Erkocaoglan, 2007). The goal of corporate entrepreneurship is to benefit from opportunities in fast-changing markets, create a dynamic competitive atmosphere, maintain an innovative and competitive organizational structure, and be flexible (Covin and Covin, 1990).

Having lots of definitions, entrepreneurship is defined as the actions of individuals having entrepreneurial qualities in an establishment by Drucker and as the individuals who take responsibility implement any ideas in an establishment by Pinchot (Sharma and Chrisman, 1999; Agca and Yoruk, 2006). Differently, Markoysa (2008: 374) defined intrapreneurship as those who are energetic, creative, risk-taking, flexible, and innovative characteristics. Taking all these into consideration, it would be possible to define intrapreneurship as helping an establishment to compete in the related sector by one who has or must have the qualities of an entrepreneur and his or her behaviors of taking risks to increase profits.

Entrepreneurs enable any candidates of entrepreneurial characteristics in an establishment. Those who are discovered by work and organization networks and particularly

previous entrepreneurs are defined as entrepreneurs. When viewed from this aspect, the first entrepreneurs seem to be a catalyzer, who take responsibilities with the new entrepreneurs and then fade themselves to make new ones independent.

### 1.2. Entrepreneurship: Dimensions

**Making Changes/Innovation:** The process of creating new products, services, processes, Technologies, and methods (Lumpkin and Dess 1996).

**Risk Taking:** Despite the possibility to lose, deciding on investment and taking strategic actions to evaluate new opportunities in an atmosphere of uncertainty (Lumpkin and Dess 1996-2001).

**Pro activeness:** Top management's and establishment's tendency to be a leader and to make new attempts (Lumpkin and Dess 1996-2001).

**Autonomy:** Independence that an individual, group, or establishment shows during expressing an idea or a vision (Lumpkin and Dess, 1996).

**Starting a New Business:** Creating new products, works, and new autonomous units or semi-autonomous firms in the present establishment (Antoncic and Hisrich, 2001-2003).

**Self-Renewal/Strategical Renewal:** Re-formulating the goals and strategies, re-defining work concepts, and re-organizational and organizational change (Antoncic, 2000).

**Competitive Initiative:** Positioning toward the rivals or challenging them in the market directly and intensely (Lumpkin and Dess, 1996; Antoncic, 2000).

### 1.3. Innovation: Definition

Innovation is defined as implementing products, new marketing styles, organizational management or processes, which are considerably developed, in in-establishment practices, establishments or external affairs (Yavuz, 2000).

#### 1.3.1. Social Innovation

Social innovation is defined as creating innovative solutions to cultural, economic, communal, and environmental problems and implementing them in real life for people, the community, and the planet themselves. Lots of social entrepreneurs today benefit from social innovations for solutions to present problems that people face. Thanks to social innovation, solutions are possible for such problems as lack of energy and resources, economic crisis, poverty, discrimination, health problems, educational problems, and demographic instabilities (Özdemir and Ar, 2015).

## 2. METHOD

The study employed general survey model based on quantitative data. The universe is the individuals living in İstanbul city while the sample consisted of 390 individuals randomly chosen and volunteered in participating in the

study. The study is limited to İstanbul city and results are only used for the survey. Presumptively, the participants did not misunderstand the questions and answers them right.

### 2.1. Data Collection and Analysis

The survey form consisted of 3 sections. The first section is formed for collecting data on their demographic characteristics. "Entrepreneurship Scale" developed by Naktiyok is used in the second section. The scale is developed for evaluating 4 dimensions of innovation, proactive behaviors, new entrepreneurship, and renewal tendency, which included 18 questions. In addition, a comprehensive literature review is conducted, and it is seen that risk-taking, autonomy, and competition are actively used in entrepreneurship. All in all, these 3 dimensions are included in 4 dimensions, and an entrepreneurship scale of 7 dimensions and 33 questions is formed. Factor analysis made by Arat stresses on factor load to be over 0.40 in the entrepreneurship scale. Factor analysis show that there are 7 factors and 29 variables in the Entrepreneurship Scale. It is found that 7 factors revealed 71% of the total variance. Reliability analysis show Cronbach Alpha value is 0.933. In the third section, the "Social Innovation Scale" developed by Eren (2010) is performed. As a result of factor analysis, the 7th question of 9 show the factor load range is 0.559-0.777 and Cronbach Alpha coefficient is 0.858 and revealed 51.382% of the total variance.

In the current study, quantitative data collected from the managers in establishments for workers are analyzed using SPSS 23 package software. Reliability analysis of the data is conducted through the Cronbach Alpha coefficient. Skew and kurtosis values are analyzed to determine whether data in sub-dimensions are in the normal distribution. Data transformation is conducted by drawing squares for the "Social Innovation" variance that did not distribute normally. Unpaired T-Test and One-Way Variance Analysis (ANOVA) are conducted to determine whether Entrepreneurship Scale and Social Innovation Scale show significance in relation to demographic variables. Simple Linear Regression and Multiple Regression Analyses are performed to find out the predictor effect of entrepreneurship on social innovation. All analyses are performed at 95% reliability.

## 3. RESULTS

Reviewing demographic characteristics of the participants, 74.87% are male, 36.92% are between 31-37 years and 61.28% are married. 66.15% had bachelor's degrees and 22.82% has working experience between 6 to 8 years presented in Table 1.

### 3.1. Reliability Analysis of Scale Dimensions

Reliability criteria in accordance with the Cronbach alpha coefficient are as follows (Ozdamar, 1999).

**Table 1.** Distribution of Demographic Characteristics of Participants

	<i>f</i>	%
Gender		
Female	98	25.13
Male	292	74.87
Age		
24-30	141	36.15
31-37	144	36.92
38 years and more	105	26.92
Marital Status		
Married	239	61.28
Single	151	38.72
Education		
Primary school	8	2.05
High school	18	4.62
Associate degree	17	4.36
Bachelor's degree	258	66.15
Master's degree	89	22.82
Professional seniority		
Less than 2 years	27	6.92
3-5 years	62	15.90
6-8 years	89	22.82
9-12 years	79	20.26
13-16 years	72	18.46
More than 16 years	61	15.64

0.00 <  $\alpha$  < 0.40, scale is not reliable.

0.40 <  $\alpha$  < 0.60, scale is of low reliability.

0.60 <  $\alpha$  < 0.80, scale is moderately reliable.

0.80 <  $\alpha$  < 1.00, scale is highly reliable.

Table 2 shows “Renewal period” (0.719), “Autonomy” (0.780), “Competitive entertainment” (0.632), “Proactive behavior” (0.785), “Innovation” (0.787) and “Risk-taking” (0.746) are moderately reliable while “Competitive entrepreneur” (0.825) is highly reliable. The total Reliability calculation of the entrepreneurship Scale is 0.940 (highly reliable). The total Reliability calculation of the Social Innovation Scale is 0.911 (highly reliable).

### 3.2. Comparison of Sub-dimensions of Entrepreneurship Scale and Social Innovation Scale and Demographic Variables

**Research question:** Do sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with gender?

Table 3 shows “Inter-personal” (=0.512), “Autonomy” (=0.251), “Competitive entrepreneurship” (=0.248), “Proactive behavior” (=0.386), “Innovation” (=0.898), “Risk taking” (= 0.244), and “Intrapreneurship” (=0.544) do not show significance in relation to gender. In other words,

**Table 2.** Reliability Analysis

Dimensions	Cronbach's Alpha	<i>f</i>
Entrepreneurship Scale	0.940	29
Novel entrepreneur	0.825	7
Renewal period	0.719	4
Autonomy	0.780	4
Competitive entrepreneur	0.632	4
Proactive behavior	0.785	4
Innovation	0.787	3
Risk taking	0.746	3
Social Innovation Scale	0.911	8

new entrepreneurship, autonomy, competition power, proactive behavior, innovation, risk taking, and intrapreneurship levels of both genders show similarity. Different from this, it is found out that “Renewal period” (=0.001) show significance in accordance with gender. Moreover, it is seen that renewal duration of women (=3.88) is higher than men (=3.62).

It is seen that “Social innovation” (=0.015) show significance, also. Social innovation level of women (=4.21) is higher than men's (=3.98).

**Research question:** Do sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with age?

Table 4 shows ANOVA results “New Entrepreneurship” (=0.000), “autonomy” (=0.000), competitive entrepreneurship” (=0.000), “innovation” (=0.000), “risk taking” (=0.001), “entrepreneurship” (=0.000), and “social innovation” (=0.000) are significant in accordance with age. Paired comparison results show new entrepreneurship level of the participants between 31-37 years is considerably lower than those between 24-30 (=3.47; =0.000) and over 38 years (=3.30; =0.038). It is found out that autonomy level of the participants between 31-37 years (=3.11) is higher than those between 24-30 (=3.53; =0.000) and over 38 years (=3.71; =0.000). Entrepreneurship level of those over 38 (= 3.86) is higher than those between 24-30 (=3.53; =0.002) and 31-37 (=3.36; =0.000). Proactive behavior level of participants 31-37 (=3.21) is lower than those 24-30 (=3.74; =0.005) and over 38 (=4). Innovation level of participants between 31-37 years (=3.42) is lower than those between 24-30 (=3.53; =0.025) and over 38 (=3.73; =0.000). Risk taking level of the participants 31-37 (=2.5) is lower than those over 38 (=3.15; =0.003). Entrepreneurship level of those 31-37 (=3.21) is lower than those 24-30 (=3.49; =0.002) and over 38 (=3.66; =0.000). In innovation dimension, social innovation level of those over 38 (=4.30) is significantly higher than those 24-30 (=4.07; =0.005) and between. 31-37 (=3.81)

**Research Question:** Do sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with education history?

**Table 3.** Unpaired T Test Results to determine whether sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with gender?

	<i>f</i>	$\bar{X}$	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
New entrepreneurship						
Female	98	3.31	0.93	0.656	388	0.512
Male	292	3.24	0.86			
Renewal period						
Female	98	3.88	0.61	3.469	206.249	0.001
Male	292	3.62	0.76			
Autonomy						
Female	98	3.33	0.88	-1.149	388	0.251
Male	292	3.45	0.90			
Competitive entrepreneurship						
Female	98	3.63	0.75	1.156	388	0.248
Male	292	3.53	0.74			
Proactive Behavior						
Female	98	3.80	0.63	0.868	233.089	0.386
Male	292	3.73	0.88			
Innovation						
Female	98	3.48	0.98	0.129	388	0.898
Male	292	3.46	1.00			
Risk taking						
Female	98	2.83	0.95	-1.167	388	0.244
Male	292	2.94	0.80			
Entrepreneurship						
Female	98	3.47	0.71	0.607	388	0.544
Male	292	3.42	0.69			
Social Innovation						
Female	98	4.21	0.34	2.451	334.102	0.015
Male	292	3.98	0.93			

Table 5 shows that “Competitive entrepreneurship” (0.272), “Proactive behavior” (=0.121), “Innovation” (=0.407), “Entrepreneurship” (0.514) and “social innovation” (0.234) are not significant in relation to education history. On the contrary, “new entrepreneurship” (=0.010), “autonomy” (=0.000), and “risk taking” (=0.000) show significance in accordance with education history. New entrepreneurship level of participants with bachelor’s degree (=3.02) is lower than those with below associate degree (=3.42; =0.049) and master’s degree (=3.31; =0.023). In the autonomy dimension, the autonomy level of those with master’s degrees (=3.92) is significantly higher than those with associate degrees (=3.41; =0.007) and bachelor’s degrees (=3.26) risk-taking level of those with master’s degrees (=3.26) is higher than those with below associate degrees (=2.50; =0.030) and bachelor’s degrees (=2.87).

**Research Question:** Do sub-dimensions of entrepre-

neurship scale and social innovation scale show significance in accordance with Professional seniority?

Table 6 shows that “new entrepreneurship” (=0.086), “renewal period” (=0.087), “autonomy” (=0.233), “competitive entrepreneurship” (=0.0169), and “entrepreneurship” (=0.248) dimensions are not significant in relation to professional seniority. On the contrary, “proactive behavior” (=0.000), “innovation”, “risk taking” (=0.004), and “social innovation” (=0.014) are significant in relation to professional seniority. Proactive behaviors of the participants with 9-12 years of professional seniority level is lower than those with 6-8 years (=3.72; =0.032) and more than 13 years (=4.00; =0.000). The Innovation level of those 13 years and more (=3.67) is significantly higher than those with 9-12 years (=3.23; =0.020) of professional seniority. Risk taking level of the participants with less than 5 years of professional seniority (=3.12) is higher than those with 6-8 years of professional seniority (=2.71; =0.003).

**Table 4.** ANOVA results to determine whether sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with age

Score	f	$\bar{X}$	SD	ANOVA Results					
				Variance Source	Sum of squares	df	Mean Square	f	p
New entrepreneurship									
24-30	141	3.47	0.74	Inter-groups	15.711	2	7.855	10.661	0.000
31-37	144	3.01	0.95	In-group	285.162	387	0.737		
38 and more	105	3.30	0.87	Total	300.873	389			
Renewal period									
24-30	141	3.60	0.71	Inter-groups	4.388	2	2.194	4.108	0.017
31-37	144	3.64	0.77	In-group	206.694	387	0.534		
38 and more	105	3.86	0.69	Total	211.083	389			
Autonomy									
24-30	141	3.53	0.73	Inter-groups	24.511	2	12.255	16.404	0.000
31-37	144	3.11	0.96	In-group	289.133	387	0.747		
38 and more	105	3.71	0.89	Total	313.644	389			
Competitive entrepreneurship									
24-30	141	3.53	0.74	Inter-groups	15.348	2	7.674	14.926	0.000
31-37	144	3.36	0.75	In-group	198.967	387	0.514		
38 and more	105	3.86	0.65	Total	214.315	389			
Proactive Behavior									
24-30	141	3.74	0.89	Inter-groups	35.878	2	17.939	30.662	0.000
31-37	144	3.42	0.77	In-group	226.415	387	0.585		
38 and more	105	4.19	0.54	Total	262.293	389			
Innovation									
24-30	141	3.53	0.89	Inter-groups	17.592	2	8.796	9.225	0.000
31-37	144	3.21	1.13	In-group	368.985	387	0.953		
38 and more	105	3.73	0.86	Total	386.577	389			
Risk taking									
24-30	141	2.91	0.66	Inter-groups	9.526	2	4.763	6.987	0.001
31-37	144	2.75	0.86	In-group	263.793	387	0.682		
38 and more	105	3.15	0.97	Total	273.319	389			
Entrepreneurship									
24-30	141	3.49	0.65	Inter-groups	13.223	2	6.611	14.561	0.000
31-37	144	3.21	0.74	In-group	175.724	387	0.454		
38 and more	105	3.66	0.62	Total	188.947	389			
Social Innovation									
24-30	141	4.07	0.62	Inter-groups	638.434	2	319.217	11.657	0.000
31-37	144	3.81	1.04	In-group	10597.621	387	27.384		
38 and more	105	4.30	0.63	Total	11236.054	389			

**Research Question:** Do sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with a working year in the establishment?

Table 7 shows that working time had significance in accordance with all dimensions in the study. It is seen that new entrepreneurship level of the participants with 3-5

years of working time (=2.71) is lower than those with 2 years and less (=3.53; =0.000). In terms of “renewal time” (=0.000), the renewal time level of those with 3-5 years of working time (=3.32) is lower than those with 2 years and less (=3.74; =0.002) and 6-12 years. Autonomy level of those with 3-5 years of working time (=2.82) is lower than

**Table 5.** ANOVA results to determine whether sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with education

Score	f	$\bar{X}$	SD	ANOVA Results					
				Variance Source	Sum of squares	df	Mean Square	f	p
New entrepreneurship									
Below associate degree	43	3.42	1.26	Inter-groups	7.017	2	3.508	4.620	0.010
Bachelor's degree	258	3.31	0.85	In-group	293.856	387	0.759		
Master's degree	89	3.02	0.68	Total	300.873	389			
Renewal period									
Below associate degree	43	3.88	0.43	Inter-groups	8.432	2	4.216	8.051	0.000
Bachelor's degree	258	3.58	0.77	In-group	202.651	387	0.524		
Master's degree	89	3.89	0.70	Total	211.083	389			
Autonomy									
Below associate degree	43	3.41	1.01	Inter-groups	28.663	2	14.332	19.462	0.000
Bachelor's degree	258	3.26	0.90	In-group	284.980	387	0.736		
Master's degree	89	3.92	0.60	Total	313.644	389			
Competitive entrepreneurship									
Below associate degree	43	3.38	0.60	Inter-groups	1.436	2	0.718	1.306	0.272
Bachelor's degree	258	3.58	0.79	In-group	212.878	387	0.550		
Master's degree	89	3.56	0.66	Total	214.315	389			
Proactive Behavior									
Below associate degree	43	3.92	0.48	Inter-groups	2.849	2	1.424	2.125	0.121
Bachelor's degree	258	3.76	0.91	In-group	259.444	387	0.670		
Master's degree	89	3.62	0.65	Total	262.293	389			
Innovation									
Below associate degree	43	3.60	1.55	Inter-groups	1.792	2	0.896	0.901	0.407
Bachelor's degree	258	3.42	0.93	In-group	384.785	387	0.994		
Master's degree	89	3.53	0.86	Total	386.577	389			
Risk taking									
Below associate degree	43	2.50	0.82	Inter-groups	18.394	2	9.197	13.962	0.000
Bachelor's degree	258	2.87	0.86	In-group	254.925	387	0.659		
Master's degree	89	3.26	0.63	Total	273.319	389			
Entrepreneurship									
Below associate degree	43	3.47	0.80	Inter-groups	0.648	2	0.324	0.666	0.514
Bachelor's degree	258	3.40	0.73	In-group	188.299	387	0.487		
Master's degree	89	3.50	0.54	Total	188.947	389			
Social Innovation									
Below associate degree	43	4.18	0.39	Inter-groups	84.089	2	42.044	1.459	0.234
Bachelor's degree	258	3.97	0.94	In-group	11151.965	387	28.816		
Master's degree	89	4.16	0.56	Total	11236.054	389			

those with 2 years and less ( $=3.61$ ;  $=0.000$ ), 6-12 years ( $=3.63$ ;  $=0.000$ ) and 13 years and more ( $=3.65$ ;  $=0.000$ ). It is found that the level of "competitive entrepreneurship" of those with 3-5 years of working time ( $=3.23$ ) is lower than those with 2 years ( $=3.59$ ;  $=0.010$ ), 6-12 years ( $=3.63$ ;  $=0.000$ ) and 13 years and more ( $=3.82$ ;  $=0.000$ ). Proactive

behavior level of the participants with 13 years and more of working time ( $=4.20$ ) is higher than those with 2 years and less ( $=3.65$ ;  $=0.000$ ), 3-5 years ( $=3.41$ ;  $=0.000$ ) and 6-12 years ( $=3.80$ ;  $=0.000$ ). Innovation level of the participants with 13 years and more of working time ( $=4.06$ ) in the establishment is higher than those with 2 years and less

**Table 6.** ANOVA results to determine whether sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with professional seniority

Score	f	$\bar{X}$	SD	ANOVA Results					
				Variance Source	Sum of squares	df	Mean Square	f	p
New entrepreneurship									
5 years and less	89	3.35	0.77	Inter-groups	5.085	3	1.695	2.212	0.086
6-8 years	89	3.06	0.98	In-group	295.788	386	0.766		
9-12 years	79	3.24	0.85	Total	300.873	389			
13 years and more	133	3.33	0.88						
Renewal period									
5 years and less	89	3.62	0.89	Inter-groups	3.550	3	1.183	2.201	0.087
6-8 years	89	3.80	0.69	In-group	207.33	386	0.538		
9-12 years	79	3.54	0.69	Total	211.083	389			
13 years and more	133	3.74	0.67						
Autonomy									
5 years and less	89	3.49	0.84	Inter-groups	3.456	3	1.152	1.434	0.233
6-8 years	89	3.39	0.90	In-group	310.188	386	0.804		
9-12 years	79	3.56	0.92	Total	313.644	389			
13 years and more	133	3.32	0.92						
Competitive entrepreneurship									
5 years and less	89	3.57	0.84	Inter-groups	2.775	3	0.925	1.688	0.169
6-8 years	89	3.44	0.68	In-group	211.540	386	0.548		
9-12 years	79	3.49	0.88	Total	214.315	389			
13 years and more	133	3.66	0.60						
Proactive behavior									
5 years and less	89	3.69	1.02	Inter-groups	18.941	3	6.314	10.015	0.000
6-8 years	89	3.72	0.64	In-group	243.352	386	0.630		
9-12 years	79	3.39	0.86	Total	262.293	389			
13 years and more	133	4.00	0.66						
Innovation									
5 years and less	89	3.46	0.95	Inter-groups	10.966	3	3.655	3.756	0.011
6-8 years	89	3.37	1.06	In-group	375.611	386	0.973		
9-12 years	79	3.23	1.08	Total	386.577	389			
13 years and more	133	3.67	0.90						
Risk taking									
5 years and less	89	3.12	0.72	Inter-groups	9.106	3	3.035	4.434	0.004
6-8 years	89	2.71	0.86	In-group	264.213	386	0.684		
9-12 years	79	3.02	0.77	Total	273.319	389			
13 years and more	133	2.85	0.91						
Entrepreneurship									
5 years and less	89	3.47	0.80	Inter-groups	2.009	3	0.670	1.383	0.248
6-8 years	89	3.35	0.66	In-group	186.938	386	0.484		
9-12 years	79	3.36	0.69	Total	188.947	389			
13 years and more	133	3.51	0.65						
Social Innovation									
5 years and less	89	4.01	0.71	Inter-groups	303.046	3	101.015	3.566	0.014
6-8 years	89	4.12	0.56	In-group	10933.009	386	28.324		
9-12 years	79	3.71	1.35	Total	11236.054	389			
13 years and more	133	4.20	0.54						



**Table 7.** ANOVA results to determine whether sub-dimensions of entrepreneurship scale and social innovation scale show significance in accordance with working year

Score	<i>f</i>	$\bar{X}$	<i>SD</i>	ANOVA Results					
				Variance Source	Sum of squares	df	Mean Square	<i>f</i>	<i>p</i>
New entrepreneurship									
2 years and less	98	3.53	0.84	Inter-groups	41.373	3	13.791	20.514	0.000
3-5 years	99	2.71	0.83	In-group	259.500	386	0.672		
6-12 years	114	3.33	0.80	Total	300.873	389			
13 years and more	79	3.50	0.81						
Renewal period									
2 years and less	98	3.74	0.94	Inter-groups	20.255	3	6.752	13.657	0.000
3-5 years	99	3.32	0.69	In-group	190.827	386	0.494		
6-12 years	114	3.76	0.57	Total	211.083	389			
13 years and more	79	3.96	0.53						
Autonomy									
2 years and less	98	3.61	0.90	Inter-groups	48.833	3	16.278	23.727	0.000
3-5 years	99	2.82	0.77	In-group	264.810	386	0.686		
6-12 years	114	3.63	0.85	Total	313.644	389			
13 years and more	79	3.65	0.76						
Competitive entrepreneurship									
2 years and less	98	3.59	0.81	Inter-groups	16.894	3	5.631	11.011	0.000
3-5 years	99	3.23	0.77	In-group	197.420	386	0.511		
6-12 years	114	3.63	0.60	Total	214315	389			
13 years and more	79	3.82	0.66						
Proactive behavior									
2 years and less	98	3.65	1.04	Inter-groups	28.651	3	9.550	15.778	0.000
3-5 years	99	3.41	0.80	In-group	233.642	386	0.605		
6-12 years	114	3.80	0.60	Total	262.293	389			
13 years and more	79	4.20	0.58						
Innovation									
2 years and less	98	3.57	1.00	Inter-groups	56.491	3	18.830	22.020	0.000
3-5 years	99	2.94	0.95	In-group	330.086	386	0.855		
6-12 years	114	3.42	0.99	Total	386.577	389			
13 years and more	79	4.06	0.67						
Risk taking									
2 years and less	98	3.08	0.70	Inter-groups	10.433	3	3.478	5.106	0.002
3-5 years	99	2.67	0.89	In-group	262.886	386	0.681		
6-12 years	114	2.89	0.84	Total	273.319	389			
13 years and more	79	3.05	0.85						
Entrepreneurship									
2 years and less	98	3.55	0.81	Inter-groups	27.961	3	9.320	22.347	0.000
3-5 years	99	3.00	0.66	In-group	160.986	386	0.417		
6-12 years	114	3.50	0.53	Total	188.947	389			
13 years and more	79	3.74	0.55						
Social Innovation									
2 years and less	98	4.12	0.74	Inter-groups	1089.317	3	363.106	13.813	0.000
3-5 years	99	3.73	0.77	In-group	10146.738	386	26.287		
6-12 years	114	3.99	1.06	Total	11236.054	389			
13 years and more	79	4.39	0.30						

(=3.57; =0.001), 3-5 years (=2.94; =0.000) and 6-12 years (=3.42; =0.000). Risk taking level of the participants with 3-5 years of working time (=2.67) is lower than those with 2 years and less (=3.08; =0.002) and 13 years and more of working time (=3.05; =0.021). Entrepreneurship level of those with 3-5 years of working time (=3.00) is lower than those with 2 years and less (=3.55; =0.000) 6-12 years (=3.50; =0.000) and 13 years and more (=3.74; =0.000). Social innovation level of the participants with 13 years and more of working time in the establishment (=3.73) is higher than the participants with 2 years and less (=4.12; =0.016) 3-5 years (=3.99; =0.000) and 6-12 years (=4.39; =0.005).

#### 4. CONCLUSION

The purpose of the study is to determine the effects of the entrepreneurship tendency of organizational employees on social innovation. The study employed scales the reliability and validity of which are conducted in previous research. Factor analysis is performed to determine their structure validity. As a result, it is seen the factors are effectively explained. The study is conducted with 390 participants working in Demirdöküm Factories. The Innovation Scale includes 29 and the Social Innovation Scale consists of 8 questions.

The total reliability analysis calculation of entrepreneurship scale is 0,940 (highly reliable) and of social innovation scale is 0,911 (highly reliable). The results of the study are as follows:

- It is seen that the dimensions of renewal and social innovation show significance level in accordance with gender. Renewal and social innovation levels of women are higher than men.
- The levels of new entrepreneurship and renewal of the participants between 31-37 years are lower than those between 24-30 and 38.
- Competition levels of those over 38 years are lower than those between 24-30 and 31-37.
- The levels of proactive behavior and innovation of the participants 31-37 are lower than those 24-30 and 38 and more.
- Risk taking level of the participants between 31-37 years is lower than those 38 years and more.
- Entrepreneurship level of the participants between 31-37 years is lower than those between 24-30 years and 38 years and more.
- Innovation level of the participants who are 38 and more years is higher than those between 24-30 and 31-37.
- New entrepreneurship level of the participants with master's degree is lower than those with bachelor's degree and below.
- Innovation level of the participants with associate degree and below is significantly lower than those with bachelor's degree.
- Autonomy and risk-taking levels of those with master's

degree are significantly higher than those with associate degree and bachelor's degree.

- Proactive behavior level of the participants with 9-12 years of professional seniority is significantly lower than those with 6-8 years and 13 years and more of professional seniority.
- Innovation level of the participants with 13 years of professional seniority is higher than those with between 9-12 years.
- Risk taking level of the participants with 5 years and less is higher than those with 6-8 years of professional seniority.
- New entrepreneurship level of the participants with 3-5 years of working time in the establishment is significantly lower than those with 2 years, 6-12 years and 13 years and more.
- Innovation level of those with 13 years and more of professional seniority is higher than those with 2 years and less, 3-5 years and 6-12 years of professional seniority.
- Autonomy and competitive entrepreneurship levels of those with 3-5 years of working history in the establishment is lower than those with 2 years and less, 6-12 years and 13 years and more.
- Proactive behavior level of the participants with 13 years and more of working time in the establishment is significantly higher than those with 2 years and less.
- Innovation level of the participants with 13 years and more of working time in the establishment is significantly higher than those with 2 years and less, 3-5 years and 6-12 years.
- Risk taking level of the participants with 3-5 years of working time in the establishment is significantly lower than those with 2 years and less, 3-5 years and 6-12 years and 13 years and more.
- Social innovation taking level of the participants with 13 years of working time in the establishment is significantly higher than those with 2 years and less, 3-5 years and 6-12 years
- It is found that there is a positive and significant association between social innovation level and entrepreneurship. In other words, as creativity level of employees and workers increase, their entrepreneurship level rises.

In general, the study is conducted to determine the effects of entrepreneurship tendencies on social innovation. The dimensions of entrepreneurship affect social innovation dimensions that can develop via social entrepreneurs. In a community, if the individuals are of social innovation qualities, that community will develop in a fast way.

The literature review shows that there are only a handful of studies conducted on entrepreneurship and social innovation. Thus, it is thought the current study is of a high significance for future research.

**Ethics:** There are no ethical issues with the publication of this manuscript.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Authorship Contributions:** Concept: A.R.; Design: N.P.; Supervision: N.P.; Resources: M.A.; Data collection and/or processing: A.R.; Analysis and/or interpretation: A.R.; Literature search: M.A.; Writing Manuscript: N.P.; Critical review: A.R.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

- Ağca, V., & Büyükaslan, H. D. (2016). Aile işletmelerinde iç girişimciliğin sosyal girişimcilğe etkisi: Afyonkarahisar'da bir araştırma. *Kastamonu Üniversitesi İktisadi ve İdari Bilimler Fakültesi*, 13(3), 55–65. [Turkish]
- Ağca, V. & Yörük, D. (2006). Bağımsız girişimcilik ve iç girişimcilik arasındaki farklar: Kavramsal bir çerçeve. *Afyon Kocatepe Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 8(2), 155–173. [Turkish]
- Antoncic, B. (2007). Intrapreneurship: A comparative structural equation modeling study. *Industrial Management & Data Systems*, 17(3), 309–325. [Turkish]
- Arıkan, S. (2002-2004). *Girişimcilik temel kavramlar ve bazı güncel konular*. Siyasal Kitabevi.
- Berber, A. (2000). Girişimci ile yönetici profilinin karşılaştırılması ve girişimcilikten yöneticiliğe geçiş süreci. *İ. Ü. İşletme Fakültesi Dergisi*, 29(1), 23–44. [Turkish]
- Covin, J. G. & Covin, T. J. (1990). Competitive aggressiveness, environmental context and small firm performance. *Entrepreneurship Theory and Practice*, 14(4), 35–50.
- Çetindamar, D., & Fiş, A. M. (2007). *Schumpeter's Twins: Entrepreneur and Intrapreneur*. In Carayannis, E. G., & Ziemnowicz, C. (Eds.), *Re-Discovering Schumpeter Four Score Years Later: Creative Destruction Evolving into 'Mode3'*, Macmillan Palgrave Press.
- Danışman, A. & Erkocaoğlu, E. (2007). Kurumsal girişimcilik ve firma performansı: İMKB'de işlem gören firmalar üzerinde bir araştırma. *İktisat İşletme ve Finans*, 22(11), 82–101. [Turkish]
- Eren, H. (2010). *Üniversite öğrencilerinin sosyal inovasyon kapasitelerinin teknolojik yenilikçilik eğilimlerine etkisini ölçmeye yönelik bir model önerisi* [Yayımlanmamış Doktora Tezi]. Ankara Kara Harp Okulu Savunma Bilimleri Enstitüsü Teknoloji Yönetimi Ana Bilim Dalı, [Turkish]
- Lumpkin, G. T. & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172.
- Markovska, M. (2008). Entrepreneurship-way of work in organizations for improvement of working quality. 5th International Scientific Conference, *Business and Management*, 372–377.
- Özdemir, F., Ar, M. (2015). Sosyal yenilik üzerine bir alan araştırması. *Girişimcilik ve İnovasyon Yönetimi Dergisi*, 4(1), 35–45. [Turkish]
- Yavuz, Ç. (2010). İşletmelerde inovasyon-performans ilişkisinin incelenmesine dönük bir çalışma. *Girişimcilik ve Kalkınma Dergisi*, 5(2), 141–150. [Turkish]