

Social Innovation And Lateral Thinking Tendencies Of Preservice Social Studies Teachers

Arcan Aydemirⁱ
Artvin Çoruh University

Abstract

Changes in various areas of life have increased the need for individuals who can think differently and are open to innovation. Education and training activities are important in meeting this need. This study aimed to investigate the social innovation and lateral thinking tendencies of preservice social studies teachers, who will be among the important components of educational activities in the future, in relation to various variables (gender, year of study, grand point average, and level of openness to innovation). The study used a survey research design. The working group consisted of 272 preservice social studies teachers from two different universities who volunteered to participate in the study. The data were collected using the “Social Innovation Scale” and the “Lateral Thinking Disposition Scale”. As a result of the Kolmogorov-Smirnov test conducted to check the normality of the data, the data were found to be not normally distributed. Thus, the data were analysed using the nonparametric measures including Mann-Whitney U test, Kruskal-Wallis H test, and Spearman’s rank correlation coefficient. The analysis results showed that the preservice social studies teachers’ social innovation and lateral thinking tendencies did not significantly differ according to their gender and grade point average (GPA). In contrast, their social innovation tendencies differed statistically significantly according to the year of study, while both social innovation and lateral thinking tendencies differed statistically significantly according to their level of openness to innovation. The analysis results also showed a positive significant correlation between social innovation and lateral thinking, where lateral thinking is a predictor of social Innovation. Accordingly, to promote individuals’ social innovation tendencies, the relationship between different thinking and social innovation can be explored and strategies focused on thinking skills can be developed.

Keywords: Innovation, Social Innovation, Thinking, Lateral Thinking, Social Studies

DOI: 10.29329/ijpe.2021.346.16

ⁱ **Arcan Aydemir**, Research Assist Dr., Education Faculty, Artvin Çoruh University, ORCID: 0000-0001-8110-954X

Email: arcan.aydemir@hotmail.com

INTRODUCTION

Individuals with innovative and different thinking skills have become an essential need at every stage of life. In particular, educational activities should be restructured to address this need. As a result of this restructuring process, innovation and various thinking skills can become more involved and dispersed in social life. Being open to social innovations and developing a different perspective on a number of events in society can contribute to accelerating this dispersed.

The concept of innovation entered the agenda of countries in the 1980s and has become an important factor that shapes national policies since the 1990s. Technological advances have accelerated the production of information, thereby causing problems and needs to change faster. This has led to more innovation (Eren, 2010, pp. 9, 22). The dissemination of mass media has increased the interaction among individuals despite their differences in language, religion, and status. Worldwide changes in the physical and political geography constructions have also necessitated a number of innovations (Yahyagil, 2001, p. 7). Thus, it is of critical importance to identify critical key concepts that play a role in solving problems that are diversifying day by day. In producing solutions to emerging problems, it is necessary to look for accurate and relevant information and avoid irrelevant information. Creativity is needed, especially when problems cannot be solved using traditional means. Here, lateral thinking comes into play (Yılmaz, 2017, p. 18). It can be said that lateral thinking is crucial in the development of innovative thinking.

Social Innovation

The concept of innovation has two dimensions. The first is the individual dimension, which involves the emergence of innovation as a result of an individual's creativity. The second is the pluralistic dimension. This dimension includes the transformation of interaction arising from pluralistic effort into innovation (Yahyagil, 2001, p.10). Innovation has several forms and social innovation is one of them. The concept of social innovation has been discussed by scholars from different disciplines, referring to various aspects. Some argue that social innovation cannot go beyond being a fashionable concept, while others treat the concept as a critical type of innovation (Pol & Ville, 2009, p. 878).

Social innovation encompasses innovative activities expanded through social organizations with the goal of meeting a social need (Mulgan, 2006, p. 146). Social innovation has no strict limit. Thus, it exists in many sectors including public, private, and non-profit organisations (Murray, Caulier-Grice, & Mulgan, 2010, p. 3). Social innovation creates social change that is not produced in stereotypical practices (Cajaiba Santana, 2014, p. 43). Social innovation is driven by social development (Martin, 2006, p. 41). As social innovations are implemented through entrepreneurial practices, social innovators must have social entrepreneurship skills (Uslu & Mansur, 2017, p. 59).

Social innovation can be achieved in two ways. These are social intrapreneurship and social entrepreneurship. While social intrapreneurship is defined as the place where innovation is designed and implemented within the formation, social entrepreneurship is considered as the process in which a new formation is established in a new social innovation (Pitt-Catsoupes & Berzin, 2015, p. 407). Embodying creative actions or ideas is always necessary for social innovation. Before that, since not every idea can be embodied, a choice should be made between ideas (Krlev, Bund & Mildemberger, 2014, p.203).

Lateral Thinking

With the reflection of findings that cognitive psychology highlight on educational practices, theoretical frameworks underpinning the objectives of education have changed, thereby changing the structure of curricula. High-order thinking skills such as reflective thinking, problem-solving, and metacognitive thinking have been incorporated into curricula. Lateral thinking is also a high-order

thinking skill. Lateral thinking, also referred to as comprehensive thinking, is a skill that allows people to reflect on an event from different angles (Ünveren Kapanadze, 2019, pp. 84, 85, 88).

Lateral thinking, proposed by Edward de Bono, can be defined as processing data that everyone has in different ways and drawing distinct conclusions (Gökalp, 2019, p. 261). Lateral thinking, described as multi-alternative thinking, entails breaking out of traditional thinking patterns. Different ways are sought in problem-solving through lateral thinking. The six thinking hats approach is an example of lateral thinking (Yılmaz, 2019, p. 2).

Lateral thinking can be expressed as a student who can generate new ideas from a known idea (Arsad, Sanusi, Majid, Ali, & Husain, 2012, p.15). Lateral thinking is mainly about generating ideas and approaches that focus on the process as well as the final results. Lateral thinking, a tool for reconstructing thinking structures and enabling new ideas to emerge, is one of the ways to handle knowledge (Waks, 1997, p.246). Lateral thinking is a gradual thinking method (Hernandez & Varkey, 2008, p.27). Lateral thinking will help students use their imaginations and develop different and creative perspectives on problems or situations (Srikongchan, Kaewkuekool, & Mejaleurn, 2020, p.234; Chatsuwan, Koraneekij, & Na-Songkhla, 2020, p.16).

Relationship Between Social Innovation and Lateral Thinking

Lateral thinking, which embodies productivity, is about the creation of new ideas. Thinking forwards rather than thinking backwards is essential before addressing innovation (de Bono, 1970, pp. 7, 8, 74). Fixed ideas are among the major obstacles to social innovation (Martin, 2006, p. 41). One of the most major ways to get rid of fixed ideas is to have different thinking skills. Thus, it is of utmost importance to think about alternatives or approach problems creatively to pave the way for innovation.

Changes in the social sphere also cause a number of changes in the thinking structure. Social innovation is also needed to keep up with such changes (Esen, Esen, & Kaya-Özbağ, 2020, p. 23). In this regard, innovation is also needed to develop different thinking skills. Innovation and thinking skills have become more included in recently revised curricula and textbooks. In particular, the Social Studies Curriculum published in 2018 incorporated both innovation and various thinking skills (critical, reflective, etc.) in learning areas at different grade levels, aiming to help learners acquire these skills. The concept of innovation was treated as innovative thinking and incorporated into basic skills (MoNE [Ministry of National Education], 2018, p.7). The incorporation of innovative thinking skills into curricula shows that the concepts of innovation and thinking are interrelated.

The literature includes a number of studies focusing on social innovation (Hillgren, Seravalli, & Emilson, 2011; Mumford, 2002; van der Have & Rubalcaba, 2016). The literature also includes studies that investigated innovative behaviours (Esen et al., 2020) and tendencies (Esenalieva, 2019; Seçkin Halaç, Eren, & Bulut, 2014; Sütçü, 2019; Yüce & Samsa, 2017) in different groups. Previous research has also examined lateral thinking in university students studying classroom teaching (Yıldız & Yılmaz, 2020), Turkish teaching (Karagöz, 2019), civil engineering (Tantekin Çelik, Aydınlı, & Bağrıaçık, 2018), and sports management, sports coaching and recreational sports (Beyaz, Ketten, Caba, & Pekel, 2020), students taking pedagogical formation training (Semerci, 2017), university students in general (Sevinç, 2020), students (Mustofa & Hidayah, 2020), and older adults (Pandya, 2020). However, there has been little research that addresses social innovation and lateral thinking together and focuses on their relationship. It is hoped that this study fills a gap in the literature by investigating social innovation and lateral thinking together.

Research Purpose

The main aim of the study was to explore preservice social studies teachers' social innovation and lateral thinking tendencies. To this end, answers were sought to the following questions:

- Do preservice social studies teachers' social innovation and lateral thinking tendencies differ according to gender?
- Do preservice social studies teachers' social innovation and lateral thinking tendencies differ according to the year of study?
- Do preservice social studies teachers' social innovation and lateral thinking tendencies differ according to grade point average (GPA)?
- Do preservice social studies teachers' social innovation and lateral thinking tendencies differ according to the level of openness to innovation?
- Is there a relationship between preservice social studies teachers' social innovation and lateral thinking tendencies?
- Do lateral thinking tendencies significantly predict social innovation tendencies?

METHODS

This section outlines the research design, sample, data collection, and data analysis.

Research Design

This study used a survey research design. Survey research aims to explore, reveal, and clearly define the structure of societies, objects and institutions or the functioning of events (Hocaoğlu & Akkaş Baysal, 2019, p. 79). This study examined preservice social studies teachers' social innovation and lateral thinking tendencies.

Study Group

The study group consisted of 272 preservice social studies teachers who were studying at two different universities (in the Black Sea and Central Anatolia Region) in the 2019-2020 academic year and volunteered to participate in the study. Table 1 presents information on the study group.

Table 1. Data on the Study Group

Variable	Frequency	Percentage
Gender	(f)	(%)
Female	190	30.1
Male	82	69.9
Total	272	100
Year of Study	Frequency (f)	Percentage (%)
1st Year	68	25
2nd Year	63	23.2
3rd Year	63	23.2
4th Year	78	28.7
Total	272	100

As seen in Table 1, a total of 272 people, 190 women and 82 men, were included in the study. Additionally, 4th-year preservice social studies teachers composed the maximum number of participants (f = 78, 28.7%).

Data Collection Instruments

The data were collected using the “*Social Innovation Scale*” developed by Seçkin Halaç et al. (2014) and the “*Lateral Thinking Disposition Scale*” developed by Semerci (2016).

Social Innovation Scale

The *Social Innovation Scale* developed by Seçkin Halaç et al. (2014) was used to determine preservice social studies teachers’ social innovation tendencies. The scale has one dimension and consists of 8 items. In the exploratory factor analysis results, it was found that the 8-item unidimensional structure of the scale showed good fit. As a result of the confirmatory factor analysis, it was determined that the variables were significantly loaded ($\chi^2=5.61$, CFI=.951, NFI=.941, NNFI=.931, IFI=.951, GFI=.962, RMSA=.078). The Cronbach’s alpha of the scale was reported as 0.858 (Seçkin Halaç et al., 2014). The Cronbach’s alpha was found to be 0.881 in the present study.

Lateral Thinking Disposition Scale

Another scale used in the study is the *Lateral Thinking Disposition Scale* developed by Semerci (2016). The scale has one dimension and consists of 9 items. The scale is rated on a 5-point Likert-type scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The lowest score that can be obtained from the scale is 9 and the highest score is 45. The factor load of the scale takes values between .41 and .67. The Cronbach Alpha internal consistency coefficient of the scale is .79 (Semerci, 2016). The Cronbach’s alpha was found to be 0.844 in the present study.

Data Analysis

As part of the study, the Kolmogorov-Smirnov test was performed to check whether the data obtained from both scales were normally distributed. Table 2 shows the test results.

Table 2. The Kolmogorov-Smirnov Test Results

	Kolmogorov-Smirnov Test		
	Statistics	df	p
Social Innovation	.110	272	.000*
Lateral Thinking	.079		.000*

*p<.05

The Kolmogorov-Smirnov test results showed that significance is $p < .05$ on both scales. In addition, histogram, Q-Q Plot, and the values of skewness and kurtosis between -1.5 and +1.5 (Tabachnick & Fidell, 2013) were examined. As a result of the analysis, it was determined that the data were not distributed normally. In this case, nonparametric analysis methods were used in the data analysis, taking into account the number of categories in variables. The data were analysed using the Kruskal-Wallis H test according to the gender variable and using the Mann-Whitney U test according to the year of study, GPA, and level of openness to innovation. The Mann-Whitney U test was used to determine the groups between which significant differences occurred among the variables with multiple categories. The Spearman’s rank correlation coefficient was calculated to explore the correlation between social innovation and lateral thinking tendencies. The significance of the data ranged from $p < .05$ to $p < .01$.

FINDINGS

The data obtained were analysed and a number of findings were reached. Table 3 displays the results of the analysis of preservice social studies teachers’ social innovation and lateral thinking tendencies.

Table 3. Analysis Results for Social Innovation and Lateral Thinking Tendencies

	N	Minimum	Maximum	\bar{X}	SD
Social Innovation	272	1.25	5.00	4.19	.65
Lateral Thinking	272	1.89	5.00	3.17	.55

Given the arithmetic mean of the preservice social studies teachers' scores on the Social Innovation Scale and Lateral Thinking Disposition Scale, their social innovation tendencies ($\bar{X} = 4.19$) were higher than their lateral thinking tendencies ($\bar{X} = 3.17$). Based on these results, it can be said that participants' social innovation tendencies are high, while their lateral thinking tendencies are moderate.

The Mann Whitney U test was used to determine whether preservice social studies teachers' social innovation and lateral thinking tendencies differ significantly according to gender. Table 4 shows the test results.

Table 4. Mann Whitney U Test Results for Social Innovation and Lateral Thinking Tendencies According to Gender

	Gender	N	Mean Rank	Sum of Ranks	U	p
Social Innovation	Female	190	131.84	25049.00	6904.000	.136
	Male	82	147.30	12079.00		
	Total	272				
Lateral Thinking	Female	190	132.13	25104.50	6959.500	.162
	Male	82	146.63	12026.50		
	Total	272				

As seen in Table 4, preservice social studies teachers' social innovation ($U = 6904.000$, $p > .05$) and lateral thinking ($U = 6959.000$, $p > .05$) tendencies did not differ significantly according to gender. In other words, preservice social studies teachers' social innovation and lateral thinking tendencies do not vary depending on their gender.

Table 5 shows the Kruskal Wallis H test results for preservice social studies teachers' social innovation and lateral thinking tendencies according to the year of study.

Table 5. Kruskal Wallis H Test Results for Social Innovation and Lateral Thinking Tendencies according to the Year of Study

	Year of Study	N	Mean Rank	df	X^2	p	Difference
Social Innovation	1st Year	68	146.60	3	9.714	.021*	1-3
	2nd Year	63	139.70				2-3
	3rd Year	63	109.98				3-4
	4th Year	78	146.54				
Lateral Thinking	1st Year	68	150.02	3	4.097	.251	
	2nd Year	63	126.98				
	3rd Year	63	126.75				
	4th Year	78	140.27				

* $p < .05$

Looking at Table 5, it is apparent that preservice social studies teachers' scores on the Social Innovation Scale differed statistically significantly according to the year of study ($X^2_{(3)} = 9.714$, $p < .05$). The Mann-Whitney U test was performed to determine the groups where social innovation tendencies differed statistically significantly. The test results showed that the significant difference was between 1st- and 3rd-year preservice social studies teachers, 2nd- and 3rd-year preservice social studies teachers, and 3rd- and 4th-year preservice social studies teachers. Given the mean rank of 1st-year ($MR = 146.60$) and 3rd-year ($MR = 109.98$) preservice social studies teachers, the difference was in favour of 1st-year preservice teachers. Given the mean rank of 2nd-year ($MR = 139.70$) and 3rd-

year (MR = 109.98) preservice social studies teachers, the difference was in favour of 2nd-year preservice teachers. Given the mean rank of 3rd-year (MR = 109.98) and 4th-year (MR = 146.54) preservice social studies teachers, the difference was in favour of 4th-year preservice teachers. To put it differently, 3rd-year preservice social studies teachers had lower social innovation tendencies compared to others.

Preservice social studies teachers' scores on the Lateral Thinking Disposition Scale did not differ significantly according to the year of study ($X^2_{(3)} = 4.097, p > .05$). Table 6 shows the Kruskal Wallis H test results for preservice social studies teachers' social innovation and lateral thinking tendencies according to GPA.

Table 6. Kruskal Wallis H Test Results for Social Innovation and Lateral Thinking Tendencies according to GPA

	GPA Range	N	Mean Rank	df	X ²	p
Social Innovation	00.00-1.00	2	154.75	3	.517	.915
	1.01-2.00	16	145.09			
	2.01-3.00	161	137.48			
	3.01-4.00	93	132.94			
Lateral Thinking	00.00-1.00	2	161.25	3	4.656	.199.
	1.01-2.00	16	175.09			
	2.01-3.00	161	135.93			
	3.01-4.00	93	130.31			

As seen in Table 6, participants' social innovation ($X^2_{(3)} = .517, p > .05$) and lateral thinking ($X^2_{(3)} = 4.656, p > .05$) tendencies did not statistically significantly differ according to their GPA. In other words, preservice social studies teachers' GPA did not statistically affect their social innovation and lateral thinking tendencies.

Within the scope of the study, five different levels were defined (from 1 = lowest to 5 = highest) to identify participants' level of openness to innovation. Social innovation and lateral thinking tendencies were measured accordingly. Table 7 shows the Kruskal Wallis H test results for preservice social studies teachers' social innovation and lateral thinking tendencies according to the level of openness to innovation.

Table 7. Kruskal Wallis H Test Results for Social Innovation and Lateral Thinking Tendencies according to the Level of Openness to Innovation

	Level of openness to innovation	N	Mean Rank	df	X ²	p	Difference
Social Innovation	Level 2	5	31.60	3	65.245	.000*	2-4,2-5
	Level 3	33	75.20				3-4
	Level 4	111	117.03				3-5
	Level 5	123	174.78				4-5
Lateral Thinking	Level 2	5	81.10	3	62.298	.000*	2-5
	Level 3	33	74.58				3-4
	Level 4	111	114.23				3-5
	Level 5	123	175.46				4-5

*p < .05

As shown in Table 7, participants' both social innovation ($X^2_{(3)} = 65.245, p < .05$) and lateral thinking ($X^2_{(3)} = 62.298, p < .05$) tendencies differed statistically significantly according to their level of openness to innovation. Looking at participants' scores on the Social Innovation Scale, there were significant differences between those with Level 2 openness to innovation and those with Levels 4 and 5 openness to innovation, between those with Level 3 and those with Levels 4 and 5, and between those with Level 4 and those with Level 5. Looking at the levels of innovation, the significant difference was in favour of those with Level 5 openness to innovation (MR = 174.78) in comparison to those with Level 2 (MR = 31.60), Level 3 (MR = 72.20), and Level 4 (MR = 117.03) openness to

innovation. The other significant difference was in favour of those with Level 4 openness to innovation in comparison to those with Level 2 (MR = 31.60) and Level 3 (MR = 72.20) openness to innovation.

Participants' lateral thinking tendencies differed statistically significantly between those with Level 2 openness to innovation and those with Level 5 openness to innovation, between those with Level 3 and those with Levels 4 and 5, and between those with Level 4 and those with Level 5. The significant difference between those with Level 2 (MR = 81.10) and those with Level 5 (MR = 175.46) was in favour of those with Level 5. The significant difference between those with Level 3 (MR = 74.58) and those with Levels 4 (MR = 114.23) and 5 (MR= 175.46) was in favour of those with Levels 4 and 5. Finally, participants with Level 5 openness to innovation (MR = 175.46) also had a significantly higher mean rank compared to those with Level 4 (MR = 114.23).

Participants' scores on the Social Innovation Scale and Lateral Thinking Disposition Scale differed according to the level of openness to innovation that they reported. Looking at the mean rank, it is apparent that both social innovation and lateral thinking tendencies have a higher rank in participants with Level 5 openness to innovation. Accordingly, it seems that those with a high level of openness to innovation also have a high tendency to social innovation and lateral thinking. Additionally, the fact that innovative people have developed innovative thinking skills in various areas of life and put different perspectives on situations or problems can also account for high tendencies in both social innovation and lateral thinking.

The relationship between preservice social studies teachers' social innovation and lateral thinking tendencies were examined. Table 8 displays the findings.

Table 8. Relationship between Social Innovation and Lateral Thinking Tendencies

	Lateral Thinking	
Social Innovation	r	.634
	p	.000*
	N	272

* Correlation is significant at $p < .01$.

As seen in Table 8, there was a positive significant relationship between preservice social studies teachers' social innovation and lateral thinking tendencies ($r = .634$, $p < .01$). To clarify, as participants' social innovation tendencies increase, their lateral thinking tendencies also increase. A possible explanation of this finding might be that both social innovation and lateral thinking have components in common such as innovation, alternative thinking, problem-solving, and creative thinking.

Finally, Table 9 shows the results as to whether lateral thinking tendency predicts social innovation tendency.

Table 9. Regression Results for the Prediction of Social Innovation Tendency by Lateral Thinking Tendency

Variable	B	Standard Error	β	T	p
Constant	1.93	.17		11.33	.00*
Social Innovation	.53	.04	.62	13.27	.00*

$R = .62$, $R^2 = .39$, $F = 176.20$, $*p < .05$

The results in Table 9 show that lateral thinking tendency is a significant predictor of social innovation tendency ($\beta = .62$, $p < .05$).

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

Innovation has been treated as a way of thinking or tendency in recent years. Innovation has been also classified into various types such as individual, technological, and social innovation. Several studies on innovation perceptions and innovative thinking tendencies have focused on both overall innovation and innovation types and found that innovation, individual innovation, and innovative thinking tendencies are low (Bodur, 2018; Kılıç, 2015) and high (Deveci & Kavak, 2020) in different sample groups. This study found that participants' social innovation tendencies are generally high. This result might be due to the nature of the sample group (studying social studies teaching). The study also found that preservice social studies teachers' lateral thinking tendencies are generally moderate. Likewise, Lawrence and Xavier (2013) reported that preservice teachers' lateral thinking tendencies were moderate. In contrast, Tantekin Çelik et al. (2018) found that most of the civil engineering students in the sample have a high level of lateral thinking tendency. This inconsistency may be due to the different number of participants or the different disciplines/fields of study that they were enrolled in.

Research has reported that gender does not affect the level of individual innovation in particular (Kılıç, 2015). Similarly, this study found that social innovation, which is a type of innovation, did not differ significantly by gender. These results may indicate both women and men have similar views on creating innovative solutions to a number of social problems.

As a result of Sevinç's (2020) study, it was found that the lateral thinking tendencies of senior university students differ significantly by gender in favor of males. Contrary to this situation Yıldız and Yılmaz (2020) concluded that preservice teachers' scores on the Lateral Thinking Disposition Scale did not significantly differ by gender. Likewise, in a study with students taking pedagogical formation classes, Semerci (2017) found that lateral thinking tendencies did not significantly differ by gender. Similarly, in the present study, preservice social studies teachers' lateral thinking tendencies did not significantly differ by gender. This may indicate that male and female participants have similar lateral thinking tendencies.

Durmuş İskender, Kaş Güner, and Oluk (2018) reported that the level of individual innovation did not differ according to the year of study, while 3rd-year participants had the lowest mean score. In contrast, the present study found a significant difference in social innovation tendency according to the year of study. Accordingly, 1st- and 4th-year preservice social studies teachers had a higher level of social innovation tendency. On the other hand, preservice social studies teachers' lateral thinking tendency did not differ significantly according to the year of study. Similarly, Karagöz (2019) reported that preservice Turkish teachers' lateral thinking tendency did not differ according to the year of study. However, in their study with preservice classroom teachers in the 2016-2017 academic year, Yıldız and Yılmaz (2020) found that 4th-year participants had a higher level of lateral thinking tendency. This discrepancy could be attributed to the fact that the studies were conducted in different periods and different departments/fields of study.

GPA was another variable treated in the study. The analysis results showed that participants' social innovation and lateral thinking tendencies did not significantly differ by GPA. However, participants' social innovation and lateral thinking tendencies differed significantly according to their level of openness to innovation. Accordingly, participants with a high level of openness to innovation also had a high level of social innovation and lateral thinking tendencies.

Bodur (2018) concluded that the high level of innovation also increases entrepreneurial tendencies. Studies have found a positive relationship between individual innovation and critical thinking tendency (Durmuş İskender et al., 2018; Özgür, 2013). Previous studies on social innovation tendencies have found that social innovation is interrelated with individual innovation (Çağlıyan, Esenalieva, & Attar, 2019), sustainability perceptions and individual creativity (Esen et al., 2020), corporate social responsibility (Sütcü, 2019), and corporate entrepreneurship (Esenalieva, 2019).

Previous studies on lateral thinking tendencies have found significant correlations between lateral thinking and critical thinking (Yıldız & Yılmaz, 2020) and conscious awareness (Beyaz et al., 2020). As a result of their studies, Mustofa and Hidayah (2020) found that the problem-based learning model had an effect on lateral thinking ability. The present study found a positive significant relationship between social innovation and lateral thinking. Additionally, lateral thinking is a significant predictor of social innovation.

Different thinking tendencies are needed to keep up with the times, follow innovations, and produce solutions to problems faced at every moment of life. Thus, it is of key importance to determine individuals' distinct thinking tendencies. The findings of this study have some implications for future practice. Further research may be undertaken to reveal the relationship between different types of thinking other than lateral thinking and social innovation so that teacher training curricula can be revised to promote preservice teachers' social innovation tendencies. Training preservice teachers to develop diverse thinking skills and a high level of social innovation may help educate generations who can think innovatively and produce different solutions. Further research may investigate social innovation and lateral thinking tendencies in different age groups or students studying different disciplines.

REFERENCES

- Arsad, N., Sanusi, H., Majid, R. A., Ali, M. M., & Husain, H. (2012). Lateral thinking through black box experiment among engineering students. *Procedia - Social and Behavioral Sciences*, 60, 14–20. <https://doi.org/10.1016/j.sbspro.2012.09.340>.
- Beyaz, M., Ketten, S. A., Caba, U. & Pekel, A. (2020). The relationship between student's lateral thinking and conscious awareness level. *The Journal of Academic Social Sciences*, 8(102), 248-253. <http://dx.doi.org/10.29228/ASOS.40265>
- Bodur, G. (2018). The relationship between individual innovativeness and entrepreneurship tendency of nursing students. *Journal of Health Sciences and Professions*, 5(2), 139-148. DOI:10.1016/j.techfore.2013.05.008
- Cajaiba Santana, G. (2014). Social innovation: moving the field forward. A conceptual framework. *Technological Forecasting & Social Change*, 82, 42-51. DOI:10.1016/j.techfore.2013.05.008
- Chatsuwan, P., Koraneekij, P., & Na-Songkhla, J. (2020). Development of instructional model using problem-based learning with lateral thinking on isometric virtual world to enhance creative problem-solving of the undergraduate students. *Journal of Information Science*, 38(1), 1-19. <https://doi.org/10.14456/jiskku.2020.1>
- Çağlıyan, V., Esenalieva, E., & Attar, M. (2019). A research on the relationship between individual and social innovativeness: the case of Selcuk university. *Marmara Üniversitesi Öneri Dergisi*, 14(52), 433-455. <https://doi.org/10.14783/maruoneri.595050>
- De Bono, E. (1970). *Lateral thinking*. London: Ward Lock Education.
- Deveci, İ & Kavak, S. (2020). Innovativeness perceptions and innovative thinking tendencies of middle school students: an exploratory sequential design. *Journal of Qualitative Research in Education*, 8(1), 346-378. DOI: 10.14689/issn.2148-2624.1.8c.1s.15m
- Durmuş İskender, M., Kaş Güner, C., & Oluk, A. (2018). Determining of the relationship between critical thinking dispositions and individual innovativeness of nursing students. *The Journal of International Social Research*, 11(56), 489-497. <http://dx.doi.org/10.17719/jisr.20185639022>

- Eren, H. (2010). *Proposal of a model that is measuring the effect of the university students' social innovative capacity on their technological innovativeness*. (Doctoral Dissertation). Turkish Military Academy Defense Science Institute Department Of Technology Management, Ankara.
- Esenalieva, E. (2019). *A research on the relationship between corporate entrepreneurship, individual and social innovativeness: A comparison between Turkey and Kyrgyzstan*. (Master's Thesis). Selçuk University Institute of Social Sciences, Konya.
- Esen, D., Esen, M., & Kaya Özdağ, G. (2020). The effect of sustainability perceptions of academicians on social innovation behavior intermediate role of individual creativity. *International Journal of Management and Administration*, 4(7), 19-33. <https://doi.org/10.29064/ijma.660939>
- Gökalp, M. (2019). *Öğretim ilke ve yöntemleri (4.baskı) [Teaching principles and methods (4th Edition)]*. Ankara: Pegem.
- Hernandez, J. S. & Varkey, P. (2008). Vertical versus lateral thinking. *The Physician Executive*, 34, 26-28.
- Hillgren, P.A., Seravalli, A., & Emilson, A. (2011). Prototyping and infrastructuring in design for social innovation. *CoDesign*, 7(3-4), 169-183. DOI:10.1080/15710882.2011.630474
- Hocaoğlu, H. & Akkaş Baysal, E. (2019). Nicel araştırma modelleri desenleri [Quantitative research models patterns]. In G. Ocak (Ed.). *Eğitimde bilimsel araştırma yöntemleri [Scientific research methods in education]* (pp.67-123). Ankara: Pegem.
- Karagöz, B. (2019). An evaluation of pre-service Turkish teachers' lateral thinking dispositions with regard to different variables. *European Journal of Education Studies*, 5(9), 156-165. DOI: 10.5281/zenodo.2542955
- Kılıç, H. (2015). *Primary subject teachers' individual innovativeness levels and lifelong learning tendencies (within Denizli province)*. (Master's Thesis). Pamukkale University Institute of Educational Sciences, Denizli.
- Krlev, G., Bund, E., & Mildenerger, G. (2014). Measuring what matters—indicators of social innovativeness on the national level. *Information Systems Management*, 31(3), 200-224, DOI: 10.1080/10580530.2014.923265.
- Lawrence, A.S.A. & Xavier, S.A. (2013). Lateral thinking of prospective teachers. *Journal of Educational Reflection*, 1(1), 28-32.
- Martin, B. (2006). Social testing. *Social Alternatives*, 25(4), 39-42.
- MoNE (Ministry of National Education). (2018). *Social studies curriculum (primary and secondary schools 4, 5, 6 and 7 grades)*. Ankara.
- Mulgan, G. (2006). The process of social innovation. *Innovations: Technology, Governance, Globalization*, 1, 145-162.
- Mumford, M. D. (2002). Social innovation: ten cases from Benjamin Franklin. *Creativity Research Journal*, 14(2), 253-266. https://doi.org/10.1207/S15326934CRJ1402_11
- Murray, R., Caulier Grice, J., & Mulgan, G. (2010). *The open book of social innovation*. London: The Young Foundation & NESTA.

- Mustofa, R. F. & Hidayah, Y. R. (2020). The effect of problem-based learning on lateral thinking skills. *International Journal of Instruction*, 13(1), 463-474. <https://doi.org/10.29333/iji.2020.13130a>
- Özgür, H. (2013). Exploring of the relationship between critical thinking tendencies and individual innovativeness of CEIT department pre-service teachers. *Mersin University Journal of The Faculty of Education*, 9(2), 409-420.
- Pandya, S.P. (2020). Meditation to improve lateral and divergent thinking among older adults: a 2-year follow-up study. *Aging Clinical and Experimental Research*, 32, 723-732. DOI: 10.1007/s40520-019-01240-4
- Pitt-Catsoupes, M. & Berzin, S. C. (2015) Teaching note-incorporating social innovation content into macro social work education. *Journal of Social Work Education*, 51(2), 407-416, DOI: 10.1080/10437797.2015.1012947.
- Pol, E. & Ville, S. (2009). Social innovation: buzz word or enduring term? *The Journal of Socio-Economics*, 38, 878-885. <https://doi.org/10.1016/j.socec.2009.02.011>
- Seçkin Halaç, D., Eren, H., & Bulut, Ç. (2014). Social innovation: A scale development study. *Hacettepe University Journal of Economics and Administrative Sciences*, 32(1), 165-190. DOI: 10.17065/huiibf.48390
- Semerci, Ç. (2016). Developing a lateral thinking disposition (latd) scale: a validity and reliability study. *Journal of Theory and Practice in Education*, 12(1), 358-371.
- Semerci, N. (2017). Pedagogical formation students' dispositions toward lateral thinking. *Bartın University Journal of Faculty of Education*, 6(1), 336-345. <https://doi.org/10.14686/buefad.293271>
- Sevinç, Ş. (2020). *A research on the investigation of lateral thinking tendencies of university students*. (Master's Thesis). Erciyes University Institute of Educational Sciences, Kayseri.
- Srikongchan, W., Kaewkuekool, S., & Mejaleurn, S. (2021). Backward instructional design based learning activities to developing students' creative thinking with lateral thinking technique. *International Journal of Instruction*, 14(2), 233-252. <https://doi.org/10.14686/buefad.293271>
- Sütcü, H. (2019). *The relationship between corporate social responsibility and social innovation: the case of Karaman Social Security Provincial Directorate*. (Master's Thesis). Karamanoğlu Mehmetbey University, Institute of Social Studies, Karaman.
- Tabachnick B.G. & Fidell, L.S. (2013). *Using multivariate statistics*. (Sixth ed.), Boston: Pearson.
- Tantekin Çelik, G., Aydınli, S., & Bağrıaçık, B. (2018). Experimental study on usage levels of lateral thinking systems in construction engineering students. *13th International Congress on Advances in Civil Engineering*, 12-14 September 2018, İzmir.
- Uslu, D. & Mansur, F. (2017). An investigation on determining the individual-social innovativeness and proactiveness characteristics of healthcare manager candidate's. *Gazi University Journal of Economics and Administrative Sciences*, (Gazi Academic Young Social Scientists Symposium 2017 Special Issue), 52-68.
- Ünveren Kapanadze, D. (2019). Analyzing learning outcomes of new Turkish teaching curriculum in terms of higher-order thinking skills. *Milli Eğitim Dergisi*, 48(223), 83-112.

- Waks, S. (1997). Lateral thinking and technology education. *Journal of Science Education and Technology*, 6(4), 245-255.
- Van der Have, R. P. & Rubalcaba, L. (2016). Social innovation research: an emerging area of innovation studies? *Research Policy*, 45(9), 1923-1935. <https://doi.org/10.1016/j.respol.2016.06.010>
- Yahyagil, M. Y. (2001). Organizational creativity and innovation. *Yönetim*, 38, 7-16.
- Yıldız, K. & Yılmaz B. (2020). The relationship between critical and lateral thinking dispositions of primary school teacher candidates. *Bolu Abant İzzet Baysal University Journal of Faculty of Education*, 20 (1), 335-353. <https://doi.org/10.17240/aibuefd.2020.20.52925-578949>
- Yılmaz, B. (2017). *The relationship between critical and lateral thinking dispositions of classroom teacher candidates*. (Master's Thesis). Abant İzzet Baysal University Institute of Educational Sciences, Bolu.
- Yılmaz, K. (2019). *Eleştirel ve analitik düşünme (2.baskı)[Critical and analytical thinking (2nd Edition)]*. Ankara: Pegem.
- Yüce, A. & Samsa, Ç. (2017). The effect of social and technological innovation tendencies on exploratory buying behavior tendencies: a study on students of Kafkas university. *Balkan and Near Eastern Journal of Social Sciences*, 3(4), 67-74.