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An Examination of the Relationship Between Innovativeness and Lifelong Learning Motivation

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ABSTRACT

In today's rapidly changing conditions, individuals' ability to adapt depends largely on their capacity for innovative thinking and their adoption of lifelong learning. This study aims to analyze university students' innovativeness and lifelong learning motivation and to examine the relationship between these two constructs. The sample of the study consisted of 466 associate and undergraduate students studying at a foundation university in Türkiye. The majority of the participating students were categorized as "Early Majority." No significant differences were found in students' innovativeness and lifelong learning motivation scores according to gender or grade level. Students studying in quantitative fields and those with higher academic achievement had higher innovativeness and lifelong learning motivation scores compared to others. A positive and moderate correlation was found between innovativeness and lifelong learning motivation scores. The findings revealed that students' innovativeness and lifelong learning motivation were more strongly associated with academic achievement and personality traits than with demographic variables. It is recommended that universities create learning environments that foster innovativeness and lifelong learning motivation and provide counseling services aimed at enhancing students' personal characteristics such as self-awareness, self-control, and extroversion.

Yenilikçilik ve Yaşam Boyu Öğrenme Motivasyonu Arasındaki İlişkinin İncelenmesi

Makale Bilgisi

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ÖZET

Günümüzde bireylerin sürekli değişen koşullara uyum sağlayabilmeleri, yenilikçi düşünme becerileri ve yaşam boyu öğrenmeyi benimsemeleri ile olanaklı olabilir. Bu araştırmada, üniversite öğrencilerinin yenilikçilik ve yaşam boyu öğrenme motivasyonu analiz edilerek bu iki değişken arasındaki ilişkinin ortaya konulması amaçlanmaktadır. Araştırmanın örneklemini Türkiye'de bir vakıf üniversitesinde ön lisans ya da lisans düzeyinde öğrenim gören 466 öğrenci oluşturmaktadır. Araştırmaya katılan öğrencilerin çoğunluğu 'Sorgulayıcı' kategorisinde yer almıştır. Cinsiyet ve sınıf düzeyine göre, öğrencilerin yenilikçilik ve yaşam boyu öğrenme motivasyonu puanlarında anlamlı farklılık bulunmamıştır. Sayısal bölümde öğrenim görenlerin sözel bölümler öğrenim görenlerden ve akademik başarı düzeyi yüksek olanların düşük olanlardan yenilikçilik ve yaşam boyu öğrenme motivasyonlarının daha yüksek olduğu bulunmuştur. Üniversite öğrencilerinin yenilikçilik ve yaşam boyu öğrenme motivasyonu puanları arasında pozitif ve orta düzeyde anlamlı bir ilişki saptanmıştır. Bulgular öğrencilerin yenilikçilik ve yaşam boyu öğrenme motivasyonlarının demografik değişkenlerden ziyade akademik başarı ve kişilik özellikleriyle güçlü bir ilişki içerisinde olduğunu ortaya koymaktadır. Üniversitelerde yenilikçiliği ve yaşam boyu öğrenme motivasyonunu destekleyen öğrenme ortamları oluşturulmalıdır. Öğrencilerin öz farkındalık, özdenetim ve dışa dönüklük gibi kişilik özelliklerini geliştirmeye yönelik danışmanlık hizmetleri verilmesi önerilmektedir.

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INTRODUCTION

New developments offer individuals, particularly young people, opportunities for social inclusion and career advancement. Young people often improve themselves either through personal effort or with the support of educational institutions. Huang (2017) stated that universities can contribute to the development of young and innovative entrepreneurs. Similarly, Valenzona et al. (2022) emphasized that innovation enables individuals to adapt to change and discover new opportunities. For university students who develop themselves through formal education, openness to innovation is of great importance. Eren et al. (2025) noted that university students who focus on career development tend to be more innovative and that innovativeness helps them cope with technological complexities. Furthermore, entrepreneurship promotes innovation (Ike et al., 2025), contributing to economic growth and offering a potential solution to unemployment (Al-Mamary & Alshallaqi, 2022).

Innovativeness is defined as a characteristic that reflects individuals' tendencies or reactions toward the unusual, new, and original (Kılıçer & Odabaşı, 2010). Rogers (2002) classified individuals' levels of innovativeness into five categories, ranging from most to least innovative: innovators, early adopters, early majority, late majority, and laggards. Pan et al. (2024) reported that students identify themselves as innovative. There are many factors influencing innovativeness. Several studies have indicated that innovativeness differs by gender (Gündüz, 2021; McQuiggan, 2006; Turhan, 2009). Liu et al. (2010) suggested that individuals with higher levels of innovativeness are more likely to take risks. Valenzona et al. (2022) found that household assets, monthly household expenses, and health conditions affect innovativeness.

The rapid changes in information and technology have rendered education provided in time-limited schools insufficient. The desire to adapt to innovation and to engage in lifelong learning is crucial for a safe and high-quality life. Individuals need to continuously improve themselves in order to start a job, maintain success, achieve promotions, or meet personal and social needs. This necessity brings forth the concept of lifelong learning.

Today, the path to lifelong learning increasingly involves benefiting from distance education opportunities. There is a relationship between the willingness to adopt distance education and innovativeness (Peng & Dutta, 2023; Twum et al., 2022; Wang & Lin, 2021). Innovativeness also positively affects learning performance in digital environments (He & Zhu, 2017; Pan et al., 2024; Wang & Lin, 2021). In this context, it can be stated that there is a relationship between innovativeness and learning.

The adoption of lifelong learning motivation in university education has become increasingly important in recent years (Chan et al., 2025). Bülbül & Yalçınkaya (2024) found that lifelong learning motivation does not differ according to gender or age. Information and communication technologies may also influence lifelong learning motivation (Paura et al., 2018). However, van der Burgt et al. (2019) indicated that rapid technological advancement might negatively affect lifelong learning motivation.

In today's information age, where vast amounts of knowledge are produced daily, university students should not remain limited to the information they have already acquired. They are expected to learn how to access information, continually renew themselves, and even generate new knowledge. This requires students to be open to innovation and to maintain high levels of desire and motivation toward lifelong learning. These two concepts are directly related to students' personal, social, and academic development. Determining the relationship between university students' innovativeness and their lifelong learning motivation levels is therefore considered important. Such findings can guide the design of teaching methods and course content in universities to support both innovativeness and lifelong learning motivation and contribute to understanding the interaction between these two concepts in the

literature.

Purpose of the Study

The main purpose of this study is to determine the levels of innovativeness and lifelong learning motivation among university students, to examine whether these variables differ according to demographic and personality characteristics, and to reveal the relationship between them. In line with this purpose, the following research questions were addressed:

- What are the levels of innovativeness and lifelong learning motivation among university students?
- Do university students' levels of innovativeness and lifelong learning motivation differ significantly according to their demographic characteristics (e.g., gender, grade level, department, etc.)?
- Do university students' personality traits significantly influence their innovativeness and lifelong learning motivation?
- Is there a significant relationship between university students' levels of innovativeness and their lifelong learning motivation?

METHOD

Research Design

In this study, the relationship between university students' levels of innovativeness and lifelong learning motivation was examined using a relational survey model. In addition, the levels of innovativeness and lifelong learning motivation of university students were compared in terms of various variables. The study aimed to draw general conclusions about the population represented by the sample. Accordingly, data on university students' demographic characteristics, as well as their levels of innovativeness and lifelong learning motivation, were collected using the survey method.

Population and Sample

The population of this study consists of a total of 6,377 associate and undergraduate students enrolled at a foundation university in Türkiye during the 2024–2025 academic year. In the study, the students forming the population were stratified based on similar characteristics according to their faculties and schools, and a proportional stratified sampling method was employed. Accordingly, the sampling process was carried out by considering the weight of each faculty or school within the total population. The sample of the study consists of 466 students randomly selected from this population.

Data Collection Instruments

Individual Innovativeness Scale

The original scale was developed by Hurt, Joseph, and Cook (1977). It was adapted into Turkish by Kılıçer and Odabaşı (2010). The scale consists of 20 items in a five-point Likert format, with response options ranging from "Strongly Disagree" to "Strongly Agree", scored from 1 to 5. According to the scoring method defined by the developers, individuals can be grouped as either "innovative" or "low in innovativeness." In addition, based on the total scores, participants can be categorized as Innovators, Early Adopters, Early Majority, Late Majority, or Laggards. The scale has four sub-dimensions: Resistance to Change, Opinion Leadership, Openness to Experience, and Risk-Taking. Sample items include: "I enjoy trying out new ideas," "I must see other people using a new innovation before I consider

it," and "I find being original in my thoughts and actions exciting." Within the scope of this study, the Cronbach's Alpha coefficient for the 20-item form of the scale was found to be α = .826. This value indicates that the scale has a high level of internal consistency.

Lifelong Learning Motivation Scale

The scale was developed by Usta (2023) and consists of 17 items and 5 factors in a five-point Likert format. Within the scope of this study, 11 items from the first three factors of the scale were used. The response options range from "Strongly Disagree" to "Strongly Agree", and are scored from 1 to 5. The scale includes items such as "I try to learn new things every day," "I am excited to learn new subjects," and "It is important for me to continue learning at every stage of my life." In this study, the Cronbach's Alpha coefficient for the 11-item form of the scale was found to be α = .870. This value indicates that the scale has a high level of internal consistency.

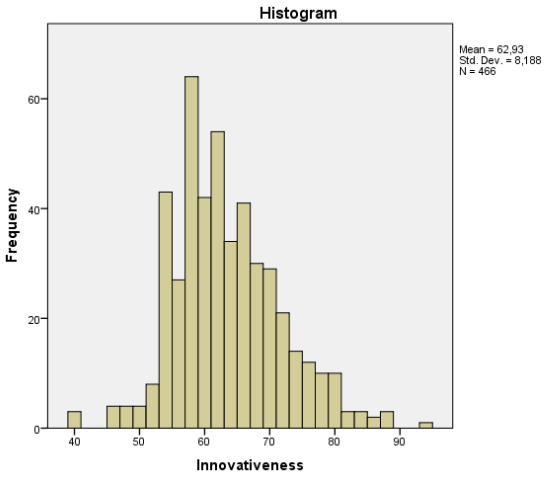
Data Collection and Analysis

After obtaining permission to use the measurement tools within the scope of the research, the instruments were transferred to an online environment. The link to the online questionnaires was shared with students who were invited to participate in the study. After all responses were completed without missing data, the data collection process was finalized; therefore, no forms with missing items were generated. The entire data collection process took two weeks, and the average completion time for each student was approximately 5–6 minutes.

In the data analysis, the first step was to check whether the data collected through the Individual Innovativeness and Lifelong Learning Motivation Scales were normally distributed. Since the sample size was large, the Kolmogorov–Smirnov (K–S) Test was preferred. The results of this analysis were significant for both scales ($p < .005$). However, since this test can indicate significance even for small deviations when the sample size is large, the graphical distribution as well as the Skewness and Kurtosis values were also examined.

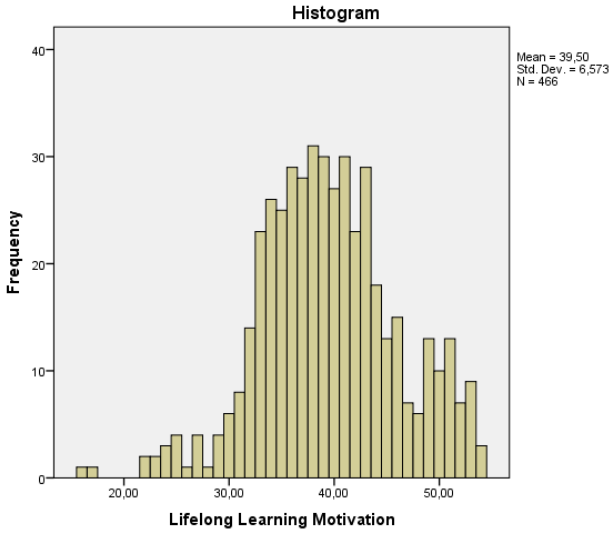
Figure 1

Graphical Representation of University Students' Innovativeness Levels



For the innovativeness scale, the Skewness value was found to be .52 and the Kurtosis value .51. According to the graphical representation, the data approximately follow a normal distribution. Small deviations are natural and acceptable for parametric testing. In summary, since the normality assumption was met, parametric tests can be used with confidence (Tabachnick & Fidell, 2013). Descriptive statistics were conducted to determine the innovativeness levels of university students.

Figure 2
Graphical Representation of University Students' Lifelong Learning Motivation Levels



For the lifelong learning motivation scale, the Skewness value was found to be −.08 and the Kurtosis value .26. According to the graphical representation, the data were evaluated as approximately normally distributed, and it was concluded that parametric tests could be used with confidence.

Descriptive analyses were conducted regarding university students' innovativeness and lifelong learning motivation levels. In addition, an independent samples t-test was performed to determine whether these scores differed according to demographic characteristics. In cases where statistically significant differences were found, the magnitude of the difference was determined by calculating the eta-squared (η^2) effect size. Furthermore, a Pearson correlation analysis was conducted to determine whether there was a relationship between university students' innovativeness levels and their lifelong learning motivation.

FINDINGS

Innovativeness Levels of University Students

The general findings regarding university students' innovativeness levels in the study are presented in Table 1.

Table 1
Innovativeness Levels of University Students

Variables	N	Items (k)	Min	Max	Mean	Mean/k	SD
Innovativeness	466	20	40	93	62.93	3.15	8.19

It was observed that the innovativeness levels of the university students participating in the study ranged between 40 and 93 points, with an average score of 62.93. When this score is divided by the number of items, the mean value is 3.15. According to the evaluation criteria recommended by the developers of the scale, 12 students were classified as "Innovators," 95 as "Early Adopters," 265 as "Early Majority," 89 as "Late Majority," and 5 as "Laggards."

Innovativeness Levels of University Students According to Their Demographic Characteristics

In this study, the demographic characteristics examined included grade level, department type,

and academic achievement. Grade level was categorized as lower grade (first- and second-year students) and upper grade (third- and fourth-year students). Department type was classified as quantitative departments (e.g., engineering, mathematics, and natural sciences) and verbal departments (e.g., education, social sciences, and humanities). Academic achievement was determined based on students' self-reported grade point average (GPA) and categorized as high (GPA ≥ 3.00) and low (GPA < 3.00). The findings regarding the distribution of university students' innovativeness levels according to their demographic characteristics are presented in Table 2.

Table 2
Innovativeness Levels of University Students According to Their Demographic Characteristics

Variables	Groups	N	Mean	SD	df	t	p
Gender	Female	372	62.91	8.1	464	-.11	.91
	Male	94	63.01	8.58			
Grade Level	Lower G.	211	62.57	7.77	464	-.86	.39
	Upper G.	255	63.23	8.52			
Department	Quantitative	226	64.11	8.34	464	3.04	.00*
	Verbal	240	61.82	7.91			
Academic Achievement	Low	278	61.64	8.14	464	-4.22	.00*
	High	188	64.84	7.90			

*Note. α = 0.05. p < 0.05 indicates statistical significance.

In this study, the innovativeness levels of university students were compared according to their demographic characteristics. The findings revealed differences in students' innovativeness levels based on gender, grade level, department, and academic achievement variables.

Analyses by gender showed that there was no significant difference between male and female students in terms of innovativeness levels (t = −.11, p = .91; Table 2). This result indicates that gender does not have a significant effect on students' innovativeness levels.

According to the results of the t-test conducted for grade level, there was no statistically significant difference between lower-grade and upper-grade students in terms of innovativeness (t = −.86, p = .39; Table 2). This finding suggests that students' academic grade level does not significantly influence their tendency toward innovation.

Comparisons based on the department variable showed that students in quantitative fields had higher levels of innovativeness compared to those in verbal fields (t = 3.04, p = .00; Table 2). This may indicate that students in quantitative programs, being more frequently exposed to analytical thinking and problem-solving processes, tend to develop greater innovative thinking skills.

Analyses regarding academic achievement revealed that students with high academic performance were more innovative than those with low academic performance (t = −4.22, p = .00; Table 2). This finding demonstrates that as students' academic success increases, their level of innovativeness also rises.

Innovativeness Levels of University Students According to Their Self-Perception

The findings regarding university students' innovativeness levels based on their self-perception are presented in Table 3.

Table 3
Innovativeness Levels of University Students According to Their Self-Perception

Variables	Groups	N	Mean	SD	df	t	p
Socioeconomic	Low	245	62.32	7.88	464	-1.69	.09
	High	221	63.60	8.49			
Extraversion	Low	242	60.60	7.16	464	-6.70	.00*
	High	224	65.45	8.50			
Self-Control	Low	109	58.65	6.93	464	-6.50	.00*
	High	357	64.24	8.11			

*Note. $\alpha = 0.05$. $p < 0.05$ indicates statistical significance.

In this study, university students' innovativeness levels were compared according to their self-perception. The findings revealed differences in students' innovativeness levels based on socioeconomic status, extraversion, and self-control variables.

Analyses conducted according to socioeconomic status showed that there was no significant difference in innovativeness levels between students with low and high socioeconomic status ($t = -1.69$, $p = .09$; Table 3). This finding suggests that socioeconomic status does not have a determining effect on students' tendency toward innovation.

According to the results of the t-test for extraversion, students with high levels of extraversion had higher innovativeness levels compared to those with low levels ($t = -6.70$, $p = .00$; Table 3). This finding indicates that extroverted personality traits may support innovative behavior and thinking.

Analyses regarding self-control levels revealed that students with high self-control had higher innovativeness levels than those with low self-control ($t = -6.50$, $p = .00$; Table 3). This suggests that individuals' self-regulation skills may be related to innovative thinking and behavior.

Overall, the findings indicate that while socioeconomic status does not have a determining effect on innovativeness, personality traits such as extraversion and self-control positively influence students' levels of innovativeness. These results emphasize the importance of considering personality traits when evaluating the innovative potential of university students.

Lifelong Learning Motivation Levels of University Students

The general findings regarding university students' lifelong learning motivation levels in the study are presented in Table 4.

Table 4
Lifelong Learning Motivation Levels of University Students

Variables	N	Items (k)	Min	Max	Mean	Mean/k	SD
Lifelong Learning Motivation	466	11	16	54	39.50	3.59	6.579

It was observed that the lifelong learning motivation levels of the university students participating in the study ranged between 16 and 54 points, with an average score of 39.50. When this score is divided by the number of items, the mean value is 3.59.

Lifelong Learning Motivation Levels of University Students According to Their Demographic Characteristics

The findings regarding the distribution of university students' lifelong learning motivation levels

according to their demographic characteristics are presented in **Table 5**.

Table 5
Lifelong Learning Motivation Levels of University Students According to Their Demographic Characteristics

Variables	Groups	N	Mean	SD	df	t	p
Gender	Female	372	39.24	6.34	464	-1.68	.09
	Male	94	40.51	7.37			
Grade Level	LowerG.	211	39.23	6.52	464	-.80	.42
	Upper G.	255	39.72	6.62			
Department	Quantitative	226	40.38	6.34	464	2.84	.01*
	Verbal	240	38.66	6.69			
Academic Achievement	Low	278	38.55	6.51	464	-3.82	.00*
	High	188	40.89	6.43			

*Note. $\alpha = 0.05$. $p < 0.05$ indicates statistical significance.

In this study, university students' lifelong learning motivation levels were compared according to their demographic characteristics. The findings revealed differences in students' lifelong learning motivation levels based on gender, grade level, department, and academic achievement variables.

Analyses by gender showed that there was no significant difference between male and female students in terms of lifelong learning motivation levels ($t = -1.68$, $p = .09$; Table 5). This result indicates that gender does not have a determining effect on students' lifelong learning motivation.

According to the results of the t-test for grade level, there was no statistically significant difference between lower-grade and upper-grade students in terms of lifelong learning motivation ($t = -.80$, $p = .42$; Table 5). This finding suggests that students' academic grade level does not significantly influence their lifelong learning motivation.

Comparisons based on the department variable showed that students in quantitative fields had higher lifelong learning motivation levels compared to those in verbal fields ($t = 2.84$, $p = .01$; Table 5). This may indicate that students in quantitative programs are more focused on learning processes and the pursuit of innovative knowledge.

Analyses regarding academic achievement revealed that students with high academic performance had higher levels of lifelong learning motivation than those with low academic performance ($t = -3.82$, $p = .00$; Table 5). This finding demonstrates that academic achievement positively affects students' motivation toward learning.

Lifelong Learning Motivation Levels of University Students According to Their Self-Perception

The findings regarding university students' lifelong learning motivation levels based on their self-perception are presented in Table 6.

In this study, university students' lifelong learning motivation levels were compared according to their self-perception. The findings revealed differences in students' lifelong learning motivation levels based on socioeconomic status, extraversion, and self-control variables.

Analyses conducted according to socioeconomic status showed that there was no significant difference in lifelong learning motivation levels between students with low and high socioeconomic status ($t = -1.87$, $p = .06$; Table 6). This finding suggests that socioeconomic status does not have a

determining effect on students' motivation toward learning.

Table 6
Lifelong Learning Motivation Levels of University Students According to Their Self-Perception

Variables	Groups	N	Mean	SD	df	t	p
Socioeconomic	Low	245	38.96	7.07	464	-1.87	.06
	High	221	40.10	5.93			
Extraversion	Low	242	38.21	6.42	464	-4.50	.00*
	High	224	40.89	6.46			
Self-Control	Low	109	35.31	6.05	464	-8.10	.00*
	High	357	40.77	6.19			

*Note. α = 0.05. p < 0.05 indicates statistical significance.

According to the results of the t-test for extraversion, students with high levels of extraversion had higher lifelong learning motivation levels compared to those with low levels (t = −4.50, p = .00; **Table 6**). This finding indicates that extroverted personality traits may enhance students' motivation toward learning.

Analyses regarding self-control levels revealed that students with high self-control had higher lifelong learning motivation levels than those with low self-control (t = −8.10, p = .00; Table 6). This suggests that individuals' self-regulation skills may be associated with motivation toward learning.

Overall, the findings indicate that socioeconomic status does not affect lifelong learning motivation, but personality traits such as extraversion and self-control may positively influence students' motivation. These results emphasize the importance of considering personality traits when evaluating university students' learning motivation.

The Relationship Between University Students' Innovativeness and Lifelong Learning Motivation Levels

A correlation analysis was conducted in the study to determine whether there was a relationship between university students' innovativeness and lifelong learning motivation levels. The data obtained from the analysis are presented in Table 7.

Table 7
The Relationship Between University Students' Innovativeness and Lifelong Learning Motivation Levels

Variables	1	2
1.Innovativeness	—	
2. Lifelong learning motivation	.51**	—

**Note. α = 0.05. p < 0.01 indicates statistical significance.

The relationship between university students' innovativeness and lifelong learning motivation levels was examined using Pearson correlation analysis. The results showed a positive and moderately significant relationship between innovativeness and lifelong learning motivation levels (r = [.51], N = [466], p < [.001]; Table 7). This finding indicates that students with higher levels of innovativeness also tend to have higher levels of lifelong learning motivation.

DISCUSSION

This study examined university students' levels of innovativeness and lifelong learning motivation in relation to demographic variables, academic achievement, self-perception, and the

relationship between these two variables. According to the evaluation criteria recommended by the developers of the scale, 12 students were classified as "Innovators," 95 as "Early Adopters," 265 as "Early Majority," 89 as "Late Majority," and 5 as "Laggards." This distribution shows that the majority of students display a moderate level of innovativeness, with only a limited number of highly innovative individuals. This finding is consistent with many studies in the literature (Gündüz, 2021; Siyahtaş & Çakır, 2025; Sorgo et al., 2021).

Analyses regarding gender and grade level revealed no significant differences in students' innovativeness and lifelong learning motivation levels (Tables 2 and 5). Several studies have similarly reported that innovativeness and lifelong learning motivation do not differ by gender (Akgün, 2017; Aslan & Kesik, 2018; Bülbül & Yalçınkaya, 2024), while a few others have found differences (Paura et al., 2018). The studies showing such differences often involved participants from different cultures or professions. The present result indicates that gender has no determining effect on these two psychological variables. Likewise, socioeconomic status was also found to have no significant impact on either variable (Tables 3 and 6). These findings suggest that students' innovative thinking and motivation toward learning depend more on other factors rather than economic conditions.

Analyses based on the department variable revealed that students in quantitative fields scored higher in both innovativeness and lifelong learning motivation than those in verbal fields (Tables 2 and 5). This may be due to the greater exposure of quantitative students to analytical thinking and problem-solving processes, which could enhance both innovative thinking and motivation to learn.

Findings related to academic achievement showed that students with higher academic success also demonstrated higher levels in both variables (Tables 2 and 5). This result indicates that cognitive competence and engagement in learning processes positively affect both innovativeness and motivation.

Regarding self-perception, extraversion and self-control were found to have significant and positive effects on both variables (Tables 3 and 6). Extroverted students tend to display more innovative behavior and higher learning motivation due to their openness to social interaction and new experiences, while students with high self-control show better performance in both innovativeness and lifelong learning motivation through their ability to plan and regulate their own behavior.

Another key finding of the study was obtained from the Pearson correlation analysis examining the relationship between innovativeness and lifelong learning motivation. The analysis revealed a positive and moderate correlation between the two variables ($r = .51$, $N = 466$, $p < .001$; Table 7). Similar results have been reported in the literature, indicating a positive relationship between teachers' innovativeness and their lifelong learning tendency (Manbaki & Küçüksüleymanoğlu, 2024) as well as their attitudes toward online learning (Kurudirek & Kurudirek, 2021). This finding suggests that students with higher levels of innovativeness also tend to be more motivated toward lifelong learning, implying a reciprocal interaction between these two characteristics.

Overall, the findings indicate that students' innovativeness and lifelong learning motivation are strongly associated with academic achievement and personality traits rather than demographic variables. This highlights the importance of considering individual differences and personality characteristics in the design of educational programs.

CONCLUSION

The innovativeness and lifelong learning motivation levels of the students participating in the study were examined. According to the evaluation criteria recommended by the developers of the scale,

12 students were classified as “Innovators,” 95 as “Early Adopters,” 265 as “Early Majority,” 89 as “Late Majority,” and 5 as “Laggards.” This distribution indicates that the majority of students exhibited a moderate level of innovativeness.

Analyses conducted according to gender and grade level revealed no significant differences in students’ innovativeness and lifelong learning motivation scores. Similarly, socioeconomic status was found to have no significant effect on either variable.

However, analyses by department showed that students in quantitative fields scored higher in both innovativeness and lifelong learning motivation compared to those in verbal fields. Findings related to academic achievement revealed that students with higher academic success demonstrated higher scores in both variables.

In terms of self-perception, both extraversion and self-control were found to have positive effects on innovativeness and lifelong learning motivation. In addition, a positive and moderate relationship was found between innovativeness and lifelong learning motivation ($r = .51$, $N = 466$, $p < .001$).

Overall, the findings indicate that students’ innovativeness and lifelong learning motivation are strongly related to academic achievement and personality traits, rather than demographic variables. In light of the study findings, several recommendations can be made to guide future research and practice. Universities may consider redesigning their course content and teaching methods to enhance students’ innovative thinking skills and lifelong learning motivation. Additionally, activities and programs can be developed to further strengthen students’ motivation toward learning. Since personality traits and personal development appear to influence innovativeness and learning motivation, these aspects should be supported through educational practices. Finally, conducting similar studies in different universities and departments would help compare results and improve the generalizability of the findings.

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