

The Role of Organizational Development in the Effect of Intra-Organizational Entrepreneurship on Innovativeness: A Mixed-Method Study in Higher Education Institutions

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Abstract

The study aims to examine the effect of the level of intra-organizational entrepreneurship in higher education institutions on the level of organizational innovation and to determine whether the perceived organizational development level has a mediating role in this effect. In the research, it is examined whether the academicians' perceptions of intra-organizational entrepreneurship, organizational innovation, and organizational development differ significantly according to demographical and professional variables. It also examines the subject in depth according to the views of academicians qualitatively in accordance with the results of the quantitative research.

The research is carried out with an explanatory sequential design, one of the mixed design methods. The correlational survey, causal comparison, and Structural Equation Modeling (SEM) are used to test the theoretical relationships empirically. The qualitative part of the research is conducted according to the phenomenological design.

The quantitative sample of the research is a total of 501 faculty members having various academical degrees selected from foundation and state universities in the 2020–2021 academic calendar through proportional stratified sampling. The qualitative study group of the research is 15 academicians who were selected by using purposive sampling among the participants who constitute the quantitative sample group.

As a result of the research, while the average scores of the Organizational Entrepreneurship Scale were found to be high, the Organizational Innovation Scale and the Organizational Development Level Determination Scale mean scores were found to be moderate. When all the findings were evaluated together, it is found that the academics' perceptions of intra-organizational entrepreneurship in higher education institutions indirectly affect organizational innovativeness through their perceptions of organizational development.

Keywords: entrepreneurship, innovation, organizational development

1. Introduction

Educational institutions in many countries are making changes and innovations in their working processes with the help of new technologies. Innovations and changes can be in pedagogical, administrative, informative, organizational or technical, and other areas. Instant changes in goals and workplace specialties also oblige experts to acquire new skills more actively (Vasilevska et al., 2017, p. 107). Therefore entrepreneurship, innovativeness and organizational development has become very important for higher education institutions. The conceptual framework in the study will be taken into account in these concepts.

1.1 Entrepreneurship

Today's rapidly changing hyper-competitive business world requires strategic approaches to entrepreneurship. Entrepreneurship is defined by the European Commission (2003) as the mindset and processes for the development of economic activities within a new organization or existing institution by blending it with effective management, risk-taking, creativity, and innovation (Knošková, 2015, p. 344).

According to Ağca and Yörük, entrepreneurship is the process of creating new organizations. Intrapreneurship, on the other hand, is entrepreneurial activities in operating organizations. The concept of entrepreneurship is derived from the French word “entreprendre”, and an entrepreneur is a person who takes initiative and transforms resources into values (Ağca & Yörük, 2006, pp. 155–158). Innovation and organizational learning, internationalization and the establishment of international networks, and internationalization of resources are also natural results of entrepreneurship and strategic management. Strategic entrepreneurial behavior will be exhibited by seeking advantages in a strategic sense and opportunities in terms of entrepreneurship (Hisrich & Peters, 2002, p. 481).

The entrepreneur determines the existing or probable needs in society, realizes the opportunities, and makes future-oriented decisions based on his/her own experiences and intuition. It is an indicator of a forward-looking personality, and entrepreneurial thinking consists of elements such as being innovative, creative and pioneering and taking risks through competitive thinking (Başar, 2013, pp. 7–8).

Innovation is one of the characteristic features of entrepreneurship. Individuals with a high entrepreneurial tendency are open to innovations and exhibit more innovative behaviors. The basic elements of the concept of entrepreneurship are the behaviors of being creative and innovating (Korkmaz, 2000, pp. 165–166). Entrepreneurship has a role in revealing innovations and creating new employment. In environments where political, technological, and economic transformation takes place rapidly, institutions are expected to be aware of their entrepreneurial potential and to realize this potential (Ağca & Yörük, 2006, p. 156).

1.2 Innovation

Innovativeness is the willingness to change or to try new things (Hurt et al., 1977, p. 59), and it can be characterized as a deviation in the behavior of doing things with old methods. Innovativeness is defined as the degree to which an innovation is adopted before others by individuals or institutions that make up the social system (Rogers, 1995, p. 60). Innovation is the process of transforming new ideas into reality by blending them with creative ideas and knowledge to create a new beneficial service, product, or idea. New ideas can be commercialized through economic activities via innovation (Keskin, 2018, p. 188).

Gandotra (2010, p. 56) emphasizes that the environments where innovation can be associated with technology and other types of innovation in organizational, national, regional, sectoral, or multinational dimensions and organizational culture has a very important role in the degree of progress and entrenched creativity and innovation. Innovation at the organizational level can be in the form of individual activities towards developing, promoting, and implementing a useful innovation, testing new methods of working methods, and developing new techniques and technologies (Töre, 2017, p. 10).

The concept of organizational innovation can be considered in at least two frameworks. The first is the creation of a new output or a new category within the scope of Schumpeter’s theory of economic development based on innovation. Another dominant understanding of innovation is that organizational innovation is one of the types of organizational change. This concept is much more widely accepted. This second concept of organizational innovation includes “adopting something new in the organization” and may include the adoption of a new idea, structure, model or technology, product, or service (Hage, 1999, p. 599). In other words, this latter view argues that innovation includes “the process of developing and implementing a new idea, such as a new technology, product, organizational process, or regulation” (Pedersen, 2020, p. 446). While there are innovations related to outputs such as service, product, and design, there are also innovations related to organizational structure such as process innovation, organizational innovation, or strategy innovation. (Saruhan, 2012).

Innovation adoption studies, on the other hand, focus on whether the adopted technique or practice is assimilated into the adopting organization and whether it meets the need. On the other hand, innovation generation studies focus on how quickly and efficiently any techniques or applications are developed and presented to potential adopters in any community (Damanpour, 2014, p. 1271). Behaviors such as raising funds to support new ideas and put them into practice can be counted as innovative business behavior. Since innovation creates interaction between innovators and those affected by innovation, it is seen as a social process (Kheng et al., 2013, p. 93). The complex division of labor, organic organizational structure, and risk strategy are associated with organizational innovation. Concepts covered by the complex division of labor range from organizational learning, problem-solving and organizational creativity capacity to theories of intra-organizational relations and organizational change (Hage, 1999, p. 597).

There are certain indicators that measure entrepreneurship and innovation on the basis of higher education institutions. TÜBİTAK ranks the first 50 universities in Turkey in five categories in terms of entrepreneurship and innovation characteristics. Number of courses on entrepreneurship, technology management, and innovation

management at undergraduate and graduate level, number of employees in the management of Technology Transfer Office, technoparks, incubation centers, and the existence of Technology Transfer Office structure, entrepreneurship, technology management, and innovation management training/certificate organized for outside the university. The number of programs is one of the indicators of entrepreneurship and innovation (Uslu et al., 2020, p. 5).

Technology transfer is the process of selecting and transferring technological knowledge, skills, and system-related technologies of institutions that do not have the capacity to produce sufficient technology. Technology Transfer Offices are interface structures established in universities in order to transform the science and technologies produced in universities into practice by being commercialized in cooperation with industry in line with industrial needs (Çengel & Binark, 2019, pp. 28–29). Incubation centers were first established in the United States as a science park in 1950 to develop university-industry cooperation, and in 1952 as Stanford Research Park under the name of Silicon Valley. Incubation centers evaluate innovation before incubation and contribute to the development of commercial business plans by providing entrepreneurship training. Assisting in the protection of intellectual property rights such as patenting innovative services and products in innovation-based incubators, providing administrative and legal support, providing access to specialist resources or centers such as university laboratories, helps to ensure technology transfer. In the post-incubation period, there are services such as contributing to the commercialization of technology by providing internationalization support, providing mutual services through networking and clustering among entrepreneurs, generating ideas, and providing input to other entrepreneurs (Oran, 2020, p. 26).

Technoparks are research and business centers where industry and research institutions provide added value to countries by increasing the production of new technologies and entrepreneurship, carrying out innovation and R&D activities in the same environment as universities, providing knowledge and technology transfer among themselves, and integrating the academic structure with the economic and social structure. Faculty members and research units of companies come together and cooperate on projects. Entrepreneurs who will produce advanced technology can carry out commercial activities by making use of universities (Tepe & Zaim, 2016, p. 20).

In the context of the teaching and learning process in Higher Education Institutions, innovation management can be seen as the ability to adopt new teaching and learning models. Transforming the traditional teaching and learning process into an open-based education through Massive Open Online Courses (MOOCs) is one of the innovation management competencies. Massive Open Online Courses have emerged with the idea of openness in education, free sharing of information, and in accordance with the concept of Industry 4.0, which has a decentralized structure, and requires the desire to learn to be met without demographic, economic, and geographical restrictions (Kowang et al., 2020, p. 305).

Innovation activities in the education and training system should be carried out by taking the interrelationships and interdependencies of social systems into account. As the quality and scale of innovations in education increase, education itself will be positively affected and this will benefit the whole society (Serdyukov, 2017, p. 4) The education system focuses on the entrepreneurial mentality, creativity, curiosity, independence, and self-direction feelings, and success in order to raise innovative individuals. Students should embed traits such as taking initiative and taking risks wisely (Serdyukov, 2017, p. 20).

1.3 Organization Development

While emphasizing individual and organizational values together, all kinds of activities that reveal organizational cooperation and work efficiency and that help to remove the obstacles to the unfolding of human potential are included in the scope of organizational development. Most of the organizational development programs involve specific goals and processes. These are creating an open climate, creating a problem-solving environment, building trust, reducing inappropriate competition and encouraging cooperation, developing reward systems that recognize both organizational and individual goals, and giving decision-making and problem-solving responsibilities, self-control, and self-direction to employees of the organization (Kegan, 1971, p. 456).

Organization development encompasses the design, implementation, and subsequent consolidation of change, and aims at the appropriate institutionalization of new activities within the organization in the long run, beyond efforts to implement the change program (Cummings & Worley, 2009, p. 3). The organization has examined the stages of development in three parts, and the first stage is data collection, feedback, and diagnosis. At this stage, the relevant persons are consultants and senior management. In the second stage, while data collection and feedback continue continuously, revisions are made in the diagnosis stage and two personnels from the organization, who are in a key position, are included in the process besides the consultant. In the third stage, all members of the organization participate in the data collection and feedback processes and form a team. The

fourth stage is the collection of data by the formed team, the creation of sub-sets, and the implementation of intergroup problem-solving steps (French, 1969, p. 27).

The Sustainable Competitiveness and Global Innovation Index are the indicators that rank countries in terms of sustainability, development, and innovation, and it requires the development of knowledge and getting a share from renewed technological advances (Erhan & Yastioğlu, 2020, p. 78). In this context, measuring the performance of basic processes and outputs in terms of organizational effectiveness and quality, with its non-financial dimensions as well as financial, has become a priority (Sarıaltın & Yılmaz, 2006, p. 79)

Multidimensional performance measurement methods, which are widely used by organizations in performance evaluation should be taken into account and non-financial technical (operational) criteria should also be used. (Öztürk, 2019, p. 252). Intervention makes the organization responsive to the need for change by including it in the organization's goals and groups (Dinçer, 1986, p. 471).

2. Method

The research is carried out with an explanatory sequential design, one of the mixed design methods in which quantitative and qualitative research techniques are carried out sequentially (Plano Clark & Creswell, 2015, p. 392). The quantitative section takes the first place in the research. The correlational survey, causal comparison, and Structural Equation Modeling (SEM) are used to test the theoretical relationships in an empirical way. The qualitative part of the research is conducted according to the phenomenological design.

2.1 Sample

The quantitative sample of the research is a total of 501 faculty members having various academical degrees selected from foundation and state universities who have been working actively in Istanbul in the 2020-2021 academic year which is collected through proportional stratified sampling in which the universe is divided into subgroups with different characteristics and samples are selected from each group in order to represent the groups (Baştürk & Taştepe, p. 142). University type and the ratio of academicians in each to the total were taken into consideration. The qualitative study group of the research is 15 academicians who were selected by purposive sampling among the participants who constitute the quantitative sample group. Criteria are to be giving lectures or courses on entrepreneurship, organization theory, or innovation, or to be carrying out joint national or international projects with universities' incubation centers, technology transfer offices, technology development centers or technoparks, etc. The purpose of using purposive sampling techniques is to select participants or other research units that can provide data or contribute to the research questions (Graff, 2017, p. 56). Data gathering was performed using Google Forms.

Data regarding the participants are presented in Table 1.

Table 1. Participants

Variable	Quantitative		Qualitative	
	n	%	n	%
Female	250	49.9	8	53.3
Male	251	50.1	7	46.7
Age 20–30	71	14.1	2	13.3
Age 31–40	146	29.0	8	53.3
Age 41–50	136	27.0	1	6.7
51 and above	148	29.9	4	26.7
1-5 years	106	21.1	2	13.3
6–10 years	78	15.6	8	53.3
11–15 years	65	13.0	1	6.7
16 years and above	252	50.3	4	26.7
Research Assist	132	26.3	3	20
Dr.	164	32.7	9	60
Assoc. Prof.	79	15.8	1	6.7
Prof.	126	25.2	2	13.3
State University	246	49.4	8	53.3
Foundation	255	50.6	7	46.7
Administrative Task Exists	222	44.3	7	46.7
No Administrative Tasks	279	55.7	8	53.3
Project Task Exist	344	68.7	15	100
No Project Tasks	157	31.3	0	0
total	501	100	15	100

According to Table 1, in the quantitative stage, 250 of the participants were female and 251 were male while 8 female and 7 male were the participants in the qualitative stage. In the quantitative stage, 71 of the academicians were between the ages of 20–30, 146 between 31–40, 136 between 41–50, and 148 were 51 years old and over. In the qualitative stage, 2 of the academicians were between the ages of 20–30, 8 between 31–40, 1 between 41–50, and 4 were 51 years old and over. In the quantitative stage, 106 between 1–5 years, 78 between 6–10 years, 65 between 11–15 years, and 252 had a seniority of 16 years or more, whereas, in the qualitative stage, 2 between 1–5 years, 8 between 6–10 years, 1 between 11–15 years, 10 had a seniority of 16 years or more. In the quantitative stage, 32 of them were Research Assistants, 164 were Doctors, 79 were Associate Professors and 126 of them were Professor Doctors. In the qualitative stage, 3 of them were Research Assistants, 9 were Doctors, 1 Associate Professor, and 2 of them were Professor Doctors. In the quantitative stage, 246 were at state and 255 were at foundation universities. In the qualitative stage, 8 were at the state and 7 were at foundation universities. In the quantitative stage, 222 had an administrative duty, while 279 did not. In the qualitative stage, 7 had an administrative duty, while 8 did not. In the quantitative stage, 344 of the academicians took part in projects while 157 did not take part in any projects. In the qualitative stage, all of them took part in projects.

2.2 Purpose of the Research

The research aims to present a theoretical framework for entrepreneurship, innovation, and organizational development in the context of higher education institutions. In this context, the relationship between intra-organizational entrepreneurship and innovation in higher education will be examined, and it will be determined whether the level of organizational development perceived by academics has a mediating role in this relationship. In the research, it will also be examined whether the perceptions of entrepreneurship, innovation, and development in higher education differ significantly according to demographic and professional variables. Another purpose of the research is to analyze the experiences and perceptions of academicians concerning organizational development, entrepreneurship, and innovation. The sub-themes will be determined. A data collection tool that will measure organizational development in higher education institutions will be developed and used according to academician perceptions.

2.3 Data Collection Tools

In addition to the 7-item form developed by the researcher, three separate scales were used to determine the demographic and professional characteristics of the academicians forming the sample. Two of the scales were previously developed in the literature, and the other was developed within the scope of the research.

One of the scales is the Intra-Organizational Entrepreneurship Scale, which was brought to the literature by Şeşen (2010) to determine the level of intra-organizational entrepreneurship, and the Cronbach Alpha coefficient was found to be 0.933 as a result of the reliability analysis, and the reliability level is quite high. The Intra-Organizational Entrepreneurship Scale consists of five dimensions: innovation, proactivity, risk-taking, and autonomy (Toksöz, 2015, p. 160). The second scale is the organizational innovativeness scale, consisting of 20 items and five factors, and the internal consistency was found to be 0.84 (Onağ & Tepeci, 2016, p. 63). The third scale is the Organizational Development Level Determination Scale, which will be brought to the literature with the scale development study in this research. The KMO test value is .965, and according to Büyüköztürk (2002), this value is greater than .70, so the data provided by the study group is suitable for factoring. The analysis result was significant at the level of Barlett's Test of Sphericity ($p < .001$). In this case, it can be said that the data set comes from a multidimensional universe (Büyüköztürk, 2002). Regarding scale reliability, the scale internal consistency coefficients are very high. Cronbach alpha (α) was found .96, half reliability coefficient (r_{1-2}) was .919, Spearman-Brown value was .92, and Guttman (G) value was .97. Scales with $\alpha \geq 0.90$ have high-reliability levels (Baydar, 2021, p. 126).

In the qualitative research section, a semi-structured interview form was used, which was shaped according to the findings obtained from the quantitative section, literature review, pilot interviews, and expert opinions. In order to ensure the validity of the data collection tool, the opinions of 4 academicians from a state university were taken, questions that are thought to cause repetitive data were removed from the interview form and necessary arrangements were made.

In qualitative studies, the interview method is a powerful method that reveals perceptions, perspectives, feelings, and experiences. The data collection tool can be open-ended and structured (Yıldırım & Şimşek, 2013, p. 46). The characteristic of qualitative research is to determine and reveal the perceptions and experiences of the individuals participating in the research about the phenomenon or event that is the subject of the research. In qualitative research, the researcher interacts with techniques such as observation and interviews about the subject of the research and can obtain their experiences, perceptions, and comments about the event or phenomenon.

(Gürbüz & Şahin, 2017, p. 408).

2.4 Data Collection Processes

The researcher has responsibilities to research groups and colleagues. These are to protect the safety of the working group, to conduct the research with precision, and to protect privacy (Cohen, Manion, & Morrison, 2018, p. 141).

The scales constituting the quantitative data collection tools were sent to the e-mail addresses of the sample group in the 2020–2021 academic year digitally via google forms using tool links. In the qualitative part, the informed consent forms were obtained from the academicians. In the 2021–2022 academic year, the interviews, which lasted 40 minutes on average, were conducted through the Zoom program. The interviews were recorded with the permission of the participants and transcribed with the Speech to Text application.

2.5 Analysis of Data

In the quantitative phase of the research, statistical analyzes such as frequency, percentage calculations, arithmetic mean, standard deviation parametric and non-parametric difference tests, and correlation analysis, were performed to analyze the degree and direction of the relationship. Analyzes were made using, IBM SPSS 22 and AMOS 26.0 package programmes.

In the qualitative part of the research, content analysis was used to analyze the data obtained through semi-structured interviews. In content analysis, the data is conceptualized in order to reveal the experiences and meanings of the study group, and the themes that enable the phenomenon to be defined are revealed (Yıldırım & Şimşek, 2013, p. 81).

It will be done with content analysis and will be based on 8 steps suggested by Schereier (2012). These are determining the research problem, choosing the data to be analyzed, creating the coding scheme, dividing the data into parts, testing the coding scheme, evaluating the coding scheme and making the necessary changes, making the coding, and interpreting and presenting the findings (Çetin, 2016, p. 129). The data obtained will be subjected to content analysis with the phenomenological design and sub-themes will be created based on the codes related to the themes with inductive analysis.

3. Findings

3.1 Quantitative Findings

The descriptive statistics values obtained from the three scales used in the study are presented in Table 2.

Table 2. Results of descriptive statistics obtained from the scales

Descriptive Statistics of Scale Scores					
	N	Mean	Std. Deviation	Minimum	Maximum
IOES	501	3.56	0.49	1.00	5.00
OIS	501	3.12	0.49	1.00	5.00
ODLDS	501	3.39	0.04	1.00	5.00

As can be seen in Table 2, while the mean scores of the Intra-Organizational Entrepreneurship Scale were found to be high at the level of “I agree” ($\bar{x} = 3.56$, $SD = .49$), the mean scores of the Organizational Innovation Scale were moderate at the level of “Indecisiveness” ($\bar{x} = 3.12$, $SD = .49$), the mean scores of the Organizational Development Level Determination Scale were found to be moderate ($\bar{x} = 3.39$, $SD = .04$) at the level of “Indecisiveness”.

The results of the Mann Whitney-U test to determine whether the level of intra-organizational entrepreneurship differs significantly according to the academicians’ perceptions according to the demographic and occupational variables are presented in Table 3.

Table 3. The results of Mann Whitney-U Test to determine whether the level of Intra-Organizational entrepreneurship according to academicians' perceptions shows significant differences according to demographic and occupational variables

Score	Groups	N	\bar{X}_{rank}	Σ_{rank}	U	Z	p
IOES	Project task exists	344	269.78	92803	20545	-4.29	.000
	No Project tasks	157	209.86	32948			
	State	249	237.03	59020	27895	-2.15	.032
	Foundation	252	264.81	66731			
	Women	250	232.13	58032	26657	-2.91	.004
	Men	251	269.80	67720			
	Administrative	222	264.86	58800	27892	-1.91	.056
	No Administrative	279	239.97	66952			

As can be seen in Table 3, as a result of the Mann Whitney-U analysis conducted to determine whether the intra-organizational entrepreneurship scores of the academicians who constitute the sample group differ significantly according to the variable of taking part in national or international projects, a significant difference was found between the mentioned groups in favor of those involved in the projects ($p < .05$). From this point of view, it can be stated that the intra-organizational entrepreneurship of the academicians who take part in national or international projects is higher than that of academicians who are not involved in the projects.

As for whether the intra-organizational entrepreneurship scores differ significantly according to the variable of the type of university, a significant difference was found between the groups in favor of foundation universities ($p < .05$). From this point of view, it can be stated that the intra-organizational entrepreneurship of academics working at foundation universities is higher than those working at state universities.

As a result of the Mann Whitney-U analysis performed to determine whether the intra-organizational entrepreneurship scores differ significantly according to the gender variable, a significant difference was found between the mentioned groups in favor of men ($p < .05$). From this point of view, it can be said that the intra-organizational entrepreneurship of male academicians is higher than that of female academics.

The results of the Kruskal Wallis-H test to determine whether the level of intra-organizational entrepreneurship differs significantly by title according to academician perceptions are presented in Table 4.

Table 4. Kruskal Wallis-H Test results to determine whether the level of Intra-Organizational entrepreneurship shows a significant difference according to title variable according to academicians' perceptions

Score	Groups	N	\bar{x}_{sira}	x^2	df	p
IOES	Res. As.	132	215.2	14.3	3	.003
	Dr.	164	264.7			
	Assoc. Dr.	79	239.9			
	Prof. Dr.	126	277.6			
	Total	501				

As seen in Table 4, as a result of the Kruskal Wallis-H test, which was conducted to determine whether the Intra-Organizational Entrepreneurship scores of the academicians constituting the sample group show a significant difference according to the title variable, the difference between the ranking averages of the groups was found to be significant ($x^2=14.3$; $p < .005$). After this result, complementary analyzes were started. For this purpose, the groups were compared among themselves in pairs with Mann Whitney-U analysis, and the results were presented.

No significant difference was found between the Doctoral Lecturer and Associate Professor groups ($p > .05$). No significant difference was found between the Doctoral Lecturer and Professor Doctor groups ($p > .05$). A significant difference was found between the Research Assistant and Professor Doctor groups in favor of the latter group ($p < 0.005$). No significant difference was found between the Research Assistant and Associate Professor groups ($p > .05$). A significant difference was found between the Research Assistant and Doctoral title groups in favor of the Doctoral title ($p < .005$).

Table 5. Mann Whitney-U Test results to determine whether the level of organizational innovation according to academic perceptions shows a significant difference according to demographic and occupational variables

Score	Groups	<i>N</i>	\bar{X}_{rank}	Σ_{rank}	<i>U</i>	<i>z</i>	<i>p</i>
OIS	There is project	344	261.26	89874	23474	-2.35	.019
	No Project	157	228.52	35877			
	State	249	226.75	56461	25336	-3.73	.000
	Foundation	252	274.96	69290			
	Woman	250	249.44	62361	30986	-0.24	.810
	Boy	251	252.55	63390			
	Admin. Exist	222	272.53	60502	26189	-2.97	.003
	No Admin	279	233.87	65249			

As can be seen in Table 5, as a result of the Mann Whitney-U analysis conducted to determine whether the organizational innovativeness scores of the academicians constituting the sample group differ significantly according to the gender variable, no significant differentiation was found between the stated groups ($p > .05$). As a result of the Mann Whitney-U analysis conducted to determine whether the organizational innovation scores differ significantly according to the variable of taking part in international projects, in favor of the project task ($p < .05$) among the groups in question, in favor of foundation universities ($p < .05$), a significant difference was found in favor of those who took administrative tasks ($p < .05$).

Table 6. Kruskal Wallis-H Test results to determine whether the level of organizational innovation according to academic perceptions shows significant differences by title

Score	Groups	<i>N</i>	\bar{x}_{sira}	x^2	df	<i>p</i>
Organizational Innovation	Res. As.	132	223.1	12.1	3	.007
	Dr.	164	266.7			
	Assoc. Prof	79	227.9			
	Prof. Dr.	126	274.3			
	Total	501				

As seen in Table 6, as a result of the Kruskal Wallis-H test, which was conducted to determine whether the Organizational Innovation scores of the academicians constituting the sample group showed a significant difference according to the title variable, the difference between the averages of the groups was found to be significant ($x^2 = 12.1$; $p < .05$). After this result, complementary analyzes were started. For this purpose, the groups were compared among themselves in pairs with Mann Whitney-U analysis, and the results are presented as follows:

A significant difference was found between Research Assistants and Doctor groups in favor of Doctors ($p < .05$). No significant difference was found between the Research Assistant and Associate Professor groups ($p > .05$). A significant difference was found between the Research Assistants and Professor Doctor groups in favor of academics with the title of Professor Doctor ($p < .05$). A significant difference was found between the Doctor and Associate Professor Doctor groups in favor of the academicians with the title of Doctor ($p < .05$). No significant difference was found between the Doctor and Professor Doctor groups ($p > .05$). A significant difference was found between Associate Professor and Professor Doctor groups in favor of academics with the title of Professor Doctor ($p < .05$).

Table 7. Independent Groups T-Test results to determine whether the level of organizational development according to perceptions of academicians shows significant differences according to demographic and occupational variables

Score	Groups	N	\bar{X}	sd	Se \bar{x}	t_{test}		
						t	df	p
OD	Woman	250	3.40	.78	.049	.503	499	.615
	Man	251	3.37	.81	.050			
	Administrative	222	3.51	.78	.052	3.05	499	.002
	No Admin.	279	3.29	.79	.048			
	Project	344	3.42	.79	.043	1.36	499	.173
	No Project	157	3.32	.79	.063			
	State	249	3.25	.81	.051	-3.72	499	.000
Foundation	252	3.52	.76	.048				

As can be seen in Table 7, as a result of the independent groups' t-test analysis conducted to determine whether the organizational development scores of the academicians constituting the sample group differ significantly according to the gender variable, no significant difference was found between the mentioned groups ($t = .50$; $p > .05$). As a result of the independent groups' t-test analysis was performed to determine whether their scores differ significantly according to the variable of having administrative tasks, and a significant difference was found between the mentioned groups ($t = -3.05$; $p < .005$). As a result of the analysis carried out to determine whether the organizational development scores of academics differ significantly according to the variable of taking part in national or international projects, a significant difference was found between the groups in question ($t = -3.05$; $p < .005$). As a result of the independent groups' t-test analysis performed to determine whether the scores differ significantly according to the type of university studied, a significant difference was found between the mentioned groups ($t = -3.72$; $p < .001$).

Table 8. One-Way Analysis of Variance (ANOVA) results to determine whether the level of organizational development shows significant differences by title according to academicians' perceptions

f, \bar{X} and sd Values					ANOVA Results					
Point	Group	N	\bar{X}	sd	SS	df	MS	F	p	
OD	Res. As.	132	3.24	.93	Between G.	4.96	3	1.65	2.65	.048
	Dr.	134	3.49	.72						
	Assoc. Dr.	79	3.36	.79	Within G.	310.1	497	.62		
	Prof. Dr.	126	3.43	.71						
	Total	501	3.38	.79						

As a result of the One-Way ANOVA test, which was conducted to determine whether the Organizational Development scores of the academicians constituting the sample group showed a significant difference according to the title variable a significant difference was found between the mentioned groups ($\chi^2 = 1.65$; $p < .05$). After this result, complementary analyzes were started. For this purpose, the groups were compared among themselves in pairs with independent groups t-test analysis, and the results are presented below.

As a result of the independent groups' t-test analysis conducted to determine whether the organizational development scores differ significantly according to the variable of being a Research Assistant or Doctor, a significant difference was found between the groups in favor of the faculty members having Doctor title ($t = -2.5$; $p < .05$). There was no significant difference between the groups in question according to the variable of being a Research Assistant or Associate Professor ($t = -0.9$; $p > .05$). No significant difference was found according to the variable of being a Research Assistant or Professor Doctor ($t = -1.8$; $p > .05$). No significant difference was found according to the variable of being an Associate Professor or Associate Professor ($t = -1.2$; $p > .05$). No significant difference was found according to the variable of being a Doctor, Faculty Member, or Professor Doctor ($t = 0.7$; $p > .05$). No significant difference was found according to the variable of being Associate Professor or Professor Doctor ($t = 0.7$; $p > .05$).

If the mediating variable reflects the entire observed relationship between the independent and dependent

variable, there is full mediation, and if it reflects a part of it, there is partial mediation. In the case of full mediation, when the mediating variable is included in the analysis, the relationship between the dependent and independent variable is expected to weaken considerably or become statistically insignificant. In the case of partial mediation, the relationship between dependent and independent variables is still significant, and there is a decrease in the level of significance (Yılmaz & Dalbudak, 2018, p. 520).

In the model, correlations between the dependent variable, independent variable, and mediator variable were examined.

Table 9. Regression coefficients for the unmediated model

Variables within Relationship	β	SE	CR	P
OE → OD	.671	.105	6,369	***
OD → OI	.928	.060	15,530	***
OE → OI	.307	.070	4,404	***

Note. *** $p < .001$.

As seen in Table 9, a moderately positive and significant relationship was found between intra-organizational entrepreneurship and organizational innovativeness ($\beta = .31$; $p < .001$). A moderately positive and significant relationship was found between intra-organizational entrepreneurship and organizational development, which is considered as a mediating variable ($\beta = .67$; $p < .01$).

The standardized coefficients obtained when the mediator variable is included in the model are given in Table 10.

Table 10. Standardized regression coefficients for the mediation model

Variables in Relationship Status	β
OE → OD	.347
OD → OI	.808
OE → OI	.138

According to the data seen in Table 10, the path from intra-organizational entrepreneurship to organizational innovation did not become meaningless with the inclusion of organizational development in the analysis, and the effect on it and the relationship further decreased ($\beta_{end} = .14 < \beta_{first} = .31$; $r_{end} = .14 < r_{first} = .42$)

3.2 Qualitative Findings

The views of the sample group on organizational development were examined in the context of the literature and the themes that emerged in the quantitative section.

Views of the sample group on organizational development are reflected by the sub-themes of organizational evaluation, organizational intervention, and organizational sustainability. The codes related to the sub-theme of organizational evaluation are inspection mechanisms, performance management, and being data-driven, and the most frequently repeated code was inspection mechanisms. It is seen that the sub-theme of Organizational Intervention consists of quality activities, strategic management, organization, and change codes. According to the opinions of academics, the codes related to the organizational sustainability sub-theme of the organizational intervention theme are economic sustainability and value creation.

The views of the sample group on entrepreneurship are reflected by entrepreneurship processes, entrepreneurship indicators, and entrepreneurship supports. The codes that appear within the scope of the opinions of academicians on entrepreneurship processes are licensing processes, patenting processes, and commercialization. Codes related to the sub-theme of entrepreneurship indicators appeared in the form of academic publications and intellectual property according to the opinions of academicians. The codes related to the sub-theme of entrepreneurship support are in-service training, financial support, and incentives, respectively.

The sample group's views on innovation are reflected by the themes of a learning organisation, technology, and collaborations. According to the opinions of academicians regarding the collaboration sub-theme of the innovation theme, the codes that emerged are in the form of project partnerships and university-industry collaborations. According to the opinions of academicians regarding the technology sub-theme of the innovation theme, the codes that emerged are in the form of R&D and Technology Centers. It is seen that the codes related

to the learning organization sub-theme are guidance, culture, and learning communities.

4. Conclusion and Discussion

4.1 Conclusion and Discussion on Quantitative Research Findings

According to the results of the research, the average scores of the academicians on the Organizational Entrepreneurship Scale were found to be high at the level of “I agree” ($\bar{x} = 3.56$, $SD = .49$). The following results in the literature support the research result:

In the research of Erdem and Karadal (2020, p. 423), which considers entrepreneurs as a sample, corporate entrepreneurship was found at the level of “I agree” with a score of 4.04. Sart (2020, p. 291) found the average entrepreneurship level perceived by academics at the level of 3.95 “I agree” in his research on academics working at research universities in Istanbul. As for literature a measurement tool called “Internal Locus of Control Entrepreneurship Scale” was obtained consisting of 27 items, the scale exhibited a 7-dimensional factor structure. It is seen that the scale consists of the factors of need for achievement, originality, control, tendency to take risks, autonomy, self-efficacy, and opportunity discovery that is proactivity (Çetin & Şallı, 2021, p. 335). Karadeniz and Özkan (2020, p. 881) state that most universities in Turkey have entrepreneurship centers and that applied project pieces of training are given in the field of entrepreneurship in these centers.

Innovation is the focus of innovation and R&D, and it provides countries with advantages such as increased employment, competitive advantage, social welfare, and sustainable development (Tetik, Emeklier, & Emeklier, 2019, p. 166). The realization of projects open to global cooperation is seen as one of the elements of academic entrepreneurship and Technology Development Zones that need to strengthen their networks. As a result, the goals of Technology Development Zones progress in proportion to academic entrepreneurship activities (Arslan & Özmodanlı, 2020, p. 112).

As a result of the research, it was concluded that the Organizational Innovation Scale average scores were at a moderate level ($\bar{x} = 3.12$, $SD = .49$) at the level of “Indecisiveness”. Sart (2020, p. 290) found the average innovativeness level perceived by academics at a “medium” level of 3.32 in his research on academics working at research universities in Istanbul.

According to the results of the research, the level of organizational development perceived by the academicians was found to be moderate ($\bar{x} = 3.39$, $SD = .04$) at the level of “indecisiveness”.

It has been observed that the concept of organizational sustainability has emerged as one of the dimensions of the Organizational Development Level Determination Scale developed within the scope of the research. Engin and Akgöz (2013, p. 89) argued that corporate sustainability is the realization of sustainability at the institutional level and that the concept is a concept that brings together concepts such as corporate citizenship, corporate governance and communication, and stakeholder approach, and corporate accountability, corporate social performance. According to Aydın (2004), the survival of organizations in competitive and dynamic environments in today’s conditions depends on their ability to adapt to change. Acquiring the ability to adapt can be achieved by the continuous learning and development of organizations.

According to the results of the research, intra-organizational entrepreneurship affects innovativeness positively and significantly according to the perceptions of academicians ($\beta = .42$, $p < .01$). Erdem and Karadal (2020, p. 423) concluded that corporate entrepreneurship positively affects organizational innovation. Wennekers et al. (2010, p. 4) talk about bidirectional causality between entrepreneurship and innovation and state that these concepts are mutually related.

According to the results of the research conducted by Okay and Tekin (2020, p. 120) on the sample group having administrative tasks, innovation and corporate entrepreneurship have a positive effect on business performance.

Esen et al. (2020, p. 28) found a positive and significant relationship between perceived sustainability and social innovativeness in their research on academics working at state universities in Turkey.

Erdem and Karadal examined the relationships between the concepts of corporate entrepreneurship, institutionalization, and organizational innovation in their research, which took entrepreneurs from the X and Y generations as a sample, and concluded that corporate entrepreneurship has a fully mediating role in the relationship between institutionalization and organizational innovation. In addition, strategic innovation, risk, and proactivity were included in the model established as dimensions of corporate entrepreneurship, and positive and significant relationships were found between these variables and organizational innovation (Erdem & Karadal, 2020, p. 423).

According to the perceptions of the academicians, it can be stated that the intra-organizational entrepreneurship

of male academics is higher than that of female academicians. Göker (2019, p. 164) concluded that corporate entrepreneurship generally does not show a significant difference according to the gender variable. Only the freedom of doing business, one of the sub-dimensions of corporate entrepreneurship, differs significantly in favor of male participants according to gender.

According to the perceptions of the academicians, it is concluded that the intra-organizational entrepreneurship levels of the academicians who have the title of Doctor and Associate Professor Doctor are close to each other. It is concluded that the entrepreneurship levels of the Doctors and Professor Doctors are close to each other. It is concluded that the Research Assistant and Associate Professor Doctor are close to each other. It is concluded that the level of intra-organizational entrepreneurship perceived by academics is higher for professors than for research assistants. This level is higher for Doctors than for Research Assistants.

According to the perceptions of the academicians, it is concluded that the intra-organizational entrepreneurship levels of the academicians who have and do not have administrative tasks are close to each other and that the intra-organizational entrepreneurship of the academics who take part in national or international projects is higher than the academicians who are not involved in the projects. It can be said that the intra-organizational entrepreneurship of academics working in foundation universities is higher than those working in state universities.

According to academician perceptions, it is concluded that the organizational innovativeness levels of male and female academicians are close to each other. According to the research conducted by Konokman et al. (2016, p. 868) on primary school teacher candidates, the perceived innovativeness level does not differ according to gender.

According to the perceptions of the academicians, it is concluded that the perceived organizational innovativeness level of the academicians who have the title of Doctor is higher than that of the Research Assistants. It is concluded that the perceived organizational innovativeness level of research assistants and academicians with the title of Associate Professor is close to each other. It is concluded that the perceived organizational innovation level of academics with the title of Professor Doctor is higher than that of Research Assistants while Doctor is higher than those with the title of Associate Professor. It is concluded that the level of organizational innovation perceived by the academicians with the title of Professor Doctor and Professor Doctor is close to each other. It is concluded that the perceived organizational innovation level of academics with the title of Professor Doctor is higher than those with the title of Associate Professor.

It can be said that the perceived organizational innovativeness level of academicians who take administrative tasks is higher than that of academics who do not take administrative tasks. It can be said that the perceived organizational innovativeness level of academics who take part in national or international projects is higher than that of academics who do not take part in projects and that organizational innovation perceived by academics working at foundation universities is higher than those who work at state universities.

It can be said that the organizational development levels perceived by male and female academicians are close to each other. Durusu (2010, p. 135), in his research covering development and managerial development, concluded that organizational development scores do not differ significantly according to gender.

The Organizational Development level perceived by the academicians who have the title of doctor is higher than the research assistants. It has been concluded that the organizational development levels perceived by the research assistants and the academicians with the title of associate professor are close to each other. It has been concluded that the organizational development levels perceived by the research assistants and the academicians with the title of professor doctor are close to each other. In the study, it was concluded that the organizational development levels perceived by the doctors and the academicians with the title of associate professor are close to each other. It has been concluded that the organizational development levels perceived by the doctors and the academicians who have the title of professor doctor are close to each other. It has been concluded that the organizational development levels perceived by the academicians who have the title of associate professor and professor doctor are close to each other. Durusu (2010) concluded that organizational development scores increase as the title increases, but there is no significant difference in the scores according to the titles.

In the research, it was concluded that the organizational development levels perceived by the academicians who have administrative tasks are higher than those who do not. Bumin Süzen and Çalık (2016, p. 1413), in the research they carried out with the faculty members working in the fields of education, engineering, medicine, health, and social sciences, concluded that the academicians who have administrative tasks have the opinion that improvement studies are carried out in higher education institutions at a rate of .32.

In the research, it was concluded that the organizational development levels perceived by the academicians who have a project task are higher than those who do not have a project task. It is a fact that both national and international projects broaden the horizons of organizations and promote employees to learn new things.

In the study, it was concluded that the organizational development levels perceived by the academicians working in foundation universities were higher than those working in state universities.

According to academics' perceptions, intra-organizational entrepreneurship has positive effects on both organizational innovation and organizational development. According to academician perceptions, the level of organizational development affects organizational innovativeness. Intra-organizational entrepreneurship has both direct and indirect effects on organizational innovation. Accordingly, organizational development has a partial mediating role in the effect of intra-organizational entrepreneurship on organizational innovation.

4.2 Conclusion and Discussion on Qualitative Research Findings

The qualitative findings of the research were analyzed in the way that the emerging sub-dimensions of the Organizational Development Level Determination Scale developed in the quantitative section formed the themes of the qualitative section. The sub-dimensions of this scale, which were developed in the quantitative section, as organizational evaluation, organizational intervention and organizational sustainability, and the titles of entrepreneurship and innovation, which are among the other variables discussed in the quantitative section, are also discussed as the themes of the qualitative section. Sub-themes and codes were obtained from these themes.

When the views of academics on entrepreneurial activities are examined; It is seen that the views of the sample group on entrepreneurship consist of three sub-themes reflected by entrepreneurship processes, entrepreneurship indicators, and entrepreneurship supports.

Academicians participating in the research drew attention to the importance of licensing processes, patenting processes and commercialization in the context of entrepreneurship processes. Research shows that academics are far from entrepreneurship. According to Zengin et al. (2021, p. 71), academics exhibit behaviors that are not prone to entrepreneurship. Academics state that multidisciplinary approaches and cooperation with the private sector are essential for entrepreneurial success. The opinions of the academicians on the content of academic entrepreneurship activities are consultancy services, national and international projects, the establishment stages of production facilities, modeling and R&D and patent-oriented studies, and entrepreneurship activities in the field of technology are carried out through technoparks. The opinions put forward under the sub-theme of entrepreneurship processes within the current research support these results.

The academics participating in the research drew attention to the importance of protecting intellectual property rights and making academic publications in the context of entrepreneurship indicators. They stated that universities' rankings in national and international entrepreneurship indices, in local indices such as The Scientific and Technological Research Council of Turkey (TÜBİTAK) Entrepreneurial and Innovative University Index (GYÜE), and global indices such as Times Higher Education are criteria for foreign students and researchers to choose the institution. The Higher Education System and innovative strategies need to be developed toward technology-based entrepreneurship and production with high added value (Saygın Karagöz et al., 2020, p. 721).

The academics participating in the research drew attention to the need for in-service training, encouragement of entrepreneurship by the management, and financial support in the context of entrepreneurship support. Public and industry funds, human and material resources are emphasized. Öztürk (2021, p. 111) recommends creating an educational curriculum that encourages innovative entrepreneurship and organizing awareness and information activities for technology transfer offices, especially for students. As a result of the research conducted on 650 academicians working at state universities in Istanbul, it was understood that personality traits such as openness to experience are significantly and positively related to entrepreneurship tendency (Aydıntuğ Myrvang, 2021, p. 57).

The views of academics on the concept of innovation are gathered under three sub-themes: creating learning organizations, developing technology, and collaborations. Academics forming the sample group argues that there should be a system consisting of individuals who plan and cooperate in the interaction process to meet the social needs. The organization should be in constant interaction with its environment and work in harmony with the external environment, take part in a continuous research and development process, and have a strategy for predicting the future and improving management.

In the study, the technology sub-theme is associated with technology centers such as technology transfer offices, incubation centers, and R&D activities. It is concluded that the sub-theme of collaborations according to the

opinions of academicians is handled within the scope of national and international project partnerships and university-industry collaborations. Establishing project coordinators and making use of project experts are seen as a necessity. According to the opinions of the academicians, it is stated that the project activities should be carried out uniquely and functionally and that quality should be a criterion rather than quantity in such activities. It is emphasized that new processes should be designed to reach industrial structures and a domestic and foreign portfolio should be created through networks. It is among the opinions of the academicians that consist of the sample group that industrial organizations in the ecosystem should be well known and initiatives should be taken by being a member of the European Enterprise Network, and the free services provided by this network should be benefited. It is stated that researchers need partnerships in order to access different European Union funds. According to Taçgın (2020, pp. 86–87), R&D studies, projects, and studies that have the potential to be patented from graduate theses should be followed by university administrations and identified by Technology Transfer Offices. A budget should be created for patent studies via cooperation between universities. University administrations are expected to develop long-term strategic approaches to technology transfer. Current research results support these views.

In the study, it is seen that the learning organization sub-theme, according to the opinions of academicians, is handled within the scope of organizational culture, guidance activities such as mentoring and coaching and learning communities such as peer learning and experience sharing. Bosma, et al. (2020, p. 69) emphasize the need to provide social support with mentors through culture. According to Marquardt (2000, p. 237), administrators need to take the responsibility of mentoring, training, and continuous learning in learning organizations and put the knowledge into practice. Attention is drawn to the importance of activities within the scope of 21st-century skills such as mentoring and coaching in order to create learning organizations. The research results are in line with these recommendations.

According to the opinions of the academicians, the organizational development theme consists of the sub-themes of organizational evaluation, organizational intervention, and organizational sustainability, which emerged as the sub-dimensions of the Organizational Development Level Determination Scale developed in the quantitative section. The organizational development process is explained by repetitive cycles such as diagnosing problems by collecting data, producing joint solutions, taking action with organizational intervention, and evaluating the results (French, 1969, p. 27). The sub-themes that emerged in the current study overlap with these processes. Achieving organizational sustainability is possible through intrapreneurship, which is seen as the power that encourages organizations to innovate (Gürel, 2012, pp. 56–58).

The academics in the study group expressed their opinions about the inspection mechanisms, performance management, and being data-driven related to the organizational evaluation sub-theme. The level of sophistication has been associated with the open and transparent evaluation of performance by academics in accordance with quality standards and accreditation systems. Kegan (1971, p. 456) draws attention to the importance of establishing self-control mechanisms and cooperation in organizational development processes.

In the study, the organizational intervention sub-theme was associated with the strategic management approach such as quality standards and quality activities such as accreditation system, determining a common vision, and needs assessments. It has been emphasized that the strengths and weaknesses of higher education institutions should be determined with SWOT analysis, which is a part of strategic planning, and that it is necessary to be objective in this regard and to realize action plans by recognizing the aspects that are open to improvement. According to Tunçer (2013, p. 214), organizational development is to change the social processes and value structure of the organization in a planned manner with strategic interventions, by providing their contribution with an employee-centered and holistic approach. In the present study, the views of academics on the sub-theme of organizational intervention support this view.

The organizational sustainability sub-theme of organizational development has been associated with the concepts of economic sustainability and value creation by academics. Gültekin and Argon (2020, p. 507) brought the concept of sustainable development to the institutional dimension with the concept of organizational sustainability, and as a result of their organizational sustainability scale development studies, they concluded that sustainability consists of environmental, cultural, social and economic sustainability dimensions.

4.3 Conclusion and Discussion on the Integration of Quantitative and Qualitative Research Findings

In this section, the results and discussions on the integration of the quantitative research findings carried out in the sample of academicians on intra-organizational entrepreneurship, organizational innovation, and organizational development and the qualitative research findings are given.

In the quantitative part of the study, it was aimed to determine the organizational development level of higher

education institutions according to the perceptions of academicians. For this purpose, a scale consisting of three dimensions (organizational evaluation, organizational intervention and organizational sustainability) and 18 items for organizational development was developed and data were collected from 501 academicians through this scale and analyzed. As a result of the analysis, it has been concluded that the level of development and all dimensions of higher education institutions are at a moderate level according to the perceptions of academicians.

In the qualitative part of the research, interviews were held with fifteen academicians who were in cooperation with technology centers such as Technology Transfer Office and incubation centers through national or international projects among the quantitative research sample. The interview themes were created by using the quantitative section variables and the emerging dimensions of the scale developed in the quantitative section. The sub-themes and codes formed in this line are given in Figure 1.

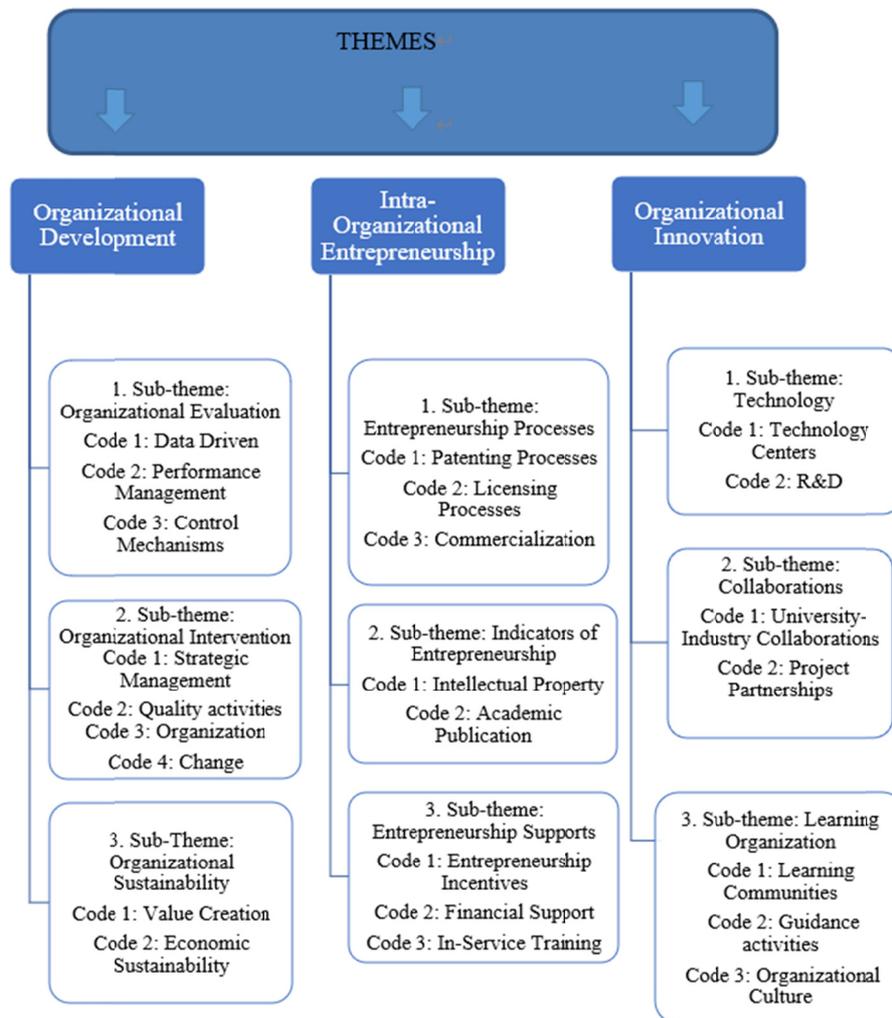


Figure 1. Themes, sub-themes, and codes for quantitative and qualitative research results

Figure 1 shows the scale dimensions obtained in the quantitative section of organizational development and the themes covered within the scope of entrepreneurship and innovation, which are the other two variables studied in the quantitative research, and the sub-themes and codes obtained as a result of the qualitative research in the context of these themes.

In the qualitative part, the organizational evaluation dimension has been considered as a sub-theme of organizational development and has been associated with the importance of being data-driven, performance management, and inspection mechanisms in higher education.

Findings are in line with French (1969, p. 27), who mentions organizational intervention as an organizational

development element in the literature. The organizational intervention was handled as a sub-theme in the qualitative part and was associated with strategic management activities, quality activities, organizational structure, and being change-oriented. This result supports the views of Tunçer (2013, p. 214), who associates the concept of organizational development with a holistic approach to changing the social processes and value structure of the organization with strategic interventions in a planned way. In the present study, the views of academics on the sub-theme of organizational intervention support this view. Among the items under the intervention dimension of the Organizational Development Level Determination scale developed in the quantitative section, “I benefit from mentoring/guidance activities related to my areas open for improvement in my institution”, “I benefit from in-service training opportunities in my institution”, also supports the codes appearing in the qualitative section. Likewise, the score obtained from the item “I think that quality standards are established in my institution” and the scores of “collective learning takes place in my institution” are at the level of “indecision”, which supports these views and the need that arises in this area.

Organizational sustainability, another dimension of organizational development in the quantitative section, has become a sub-theme of the qualitative section and has been associated with the concepts of ensuring economic sustainability and creating value by academics. In the organizational sustainability sub-dimension of the scale developed in the quantitative section, the average score obtained from the item “The values produced in my institution are ensured to be sustainable” and the score obtained from the item “Cooperations with the Technology Transfer Office, incubation center, etc. are at a sufficient level” are at the level of “indecision” in the qualitative section. It supports emerging codes and emerging needs. These views are in line with the views of Gültekin and Argon (2020, p. 507), who associate the concept of sustainability with environmental, cultural, and social dimensions as well as economic sustainability, and Yüksel (2018, p. 475), who associate it with long-term value creation.

It was concluded that the level of entrepreneurship is high at the level of “agree” in higher education institutions according to the perceptions of academicians, while it was seen that entrepreneurship was perceived at the highest level in the dimension of risk-taking, which was close to the level of “agree”. The lowest perceived dimension of entrepreneurship was the level of “indecision” and the dimension of innovation. In the qualitative part, the codes of intra-organizational entrepreneurship, patenting and licensing processes, and commercialization are gathered under the sub-theme of entrepreneurship processes. The opinions of academicians, which were reported as entrepreneurship incentives, financial support, and in-service training needs, were gathered under the sub-theme of entrepreneurship supports. The views expressed as the protection of intellectual property rights and the production by increasing the number of academic publications in revealing innovative value while taking initiatives are grouped under the sub-themes of entrepreneurship indicators. The removal of obstacles to innovation will be possible with the existence and functionality of these indicators. These views are related to the innovative strategies of the higher education system with the production of products with high added value (Saygın Karagöz et al., 2020, p. 721) and Çınaroğlu (2021, pp. 124–128).

It has been observed that the innovativeness level of higher education institutions is at a moderate level at the level of “indecision”. It was concluded that innovativeness remained below the average in the dimension of strategy innovativeness and was perceived at the level of indecision in all other dimensions. In the qualitative part, it is seen that the theme of innovation consists of sub-themes such as technological activities, cooperation, and creating a learning organization, which are the pioneers of strategic innovation. In this context, it is considered important to establish university-industry collaborations, national and international project partnerships, and learning communities, and to provide mentoring support. These results are in line with the results of Ağca (2005, p. 161) who argues that universities, as well as technology development centers, have roles in initiatives in the context of collaborations, and Telli Yamamoto (2020, p. 47), who associates entrepreneurial university practices with researcher and academic entrepreneurship and R&D studies on social issues.

5. Recommendations

5.1 Recommendations for Practitioners

- In higher education institutions, the subject of entrepreneurship should be integrated into all courses, and homework can be given in a way that requires practical entrepreneurial activities.
- Entrepreneurs who can provide good practice examples in cooperation with the technoparks, incubation centers, state and private sector can be hosted in the courses with an interdisciplinary approach.
- Entrepreneurship mentoring services and units can be increased by holding workshops on the concerns of academics about starting a venture.

- Different incentive systems and models can be established to guide academics to make qualified enterprises. These may be systems where academics are scored to the extent that they teach their colleague or enable the colleague to produce concrete output, as in the cooperative learning model. In this way, the entrepreneurial potential can be increased which decreases due to competition and lack of information transfer in higher education institutions.

5.2 Recommendations for Researchers

- In higher education institutions, the subject of entrepreneurship, innovation, and organizational development relations can be studied in different academic years, and similar and different results can be compared with the research.
- This research, which was carried out with a sample of academicians can be studied with university students and a sample group of graduates, and the results of perception levels in different groups can be compared.
- Institutional problems can be identified through the deficiencies observed by conducting the research on the views of technopark, incubation center, and technology transfer office employees on the entrepreneurship, innovation, and development status of universities. Thus, a consensus would be reached among the academicians who teach theory and technology centers that transfer them to practice.

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Authorship Contribution Statement

Authors are expected to present author contributions statement to their manuscript such as; **Şeyma Karaokur Akdağ:** Investigation, Resources, Visualization, Software, Formal Analysis, and Writing the original draft. **Münevver Çetin:** Supervision and Validation.

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