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## Determination of Academicians' Opinions on Academic Entrepreneurship and Entrepreneur University

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### ABSTRACT

This study was carried out in order to determine the opinions of the faculty members working in the Department of Science Teaching and Department of Economics about academic entrepreneurship. Case study from qualitative research methods was used in the research. The study was carried out with a total of 14 faculty members, including 7 faculty members who work in the Department of Science Teaching at a State University in Turkey and 7 faculty members who work in the Department of Economics which is under the Faculty of Economics and Administrative Sciences. The study used a qualitative form developed by the researchers, containing seven open-ended questions and demographic feature information, as a data collection tool. Descriptive analysis method was used in the analysis of qualitative data. As a result of the research, it was concluded that the faculty members of the Department of Science Teaching evaluate academic entrepreneurship as the transfer of the knowledge produced to society, the dissemination of knowledge and the creation of social benefits. It has been found that faculty members of the Department of Economics consider academic entrepreneurship as a process of creating innovation, in short, transforming the knowledge created into creating economic and commercial value. In addition, faculty members of both departments define entrepreneurial university as universities that contribute to the economy and society, encourage academics, and cooperate with the university and industry.

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## Akademisyenlerin Akademik Giriřimcilik ve Giriřimci Üniversiteye Yönelik Görüşlerinin Belirlenmesi

### ÖZ

Bu çalışma; fen bilgisi öğretmenliği ve iktisat bölümünde görev almakta olan öğretim üyelerinin akademik girişimcilik konusunda farkındalıklarının belirlenmesi amacıyla gerçekleştirilmiştir. Araştırmada, nitel araştırma yöntemlerinden durum çalışması kullanılmıştır. Çalışma, Türkiye'deki bir Devlet Üniversitesinin Eğitim Fakültesi Fen Bilgisi Eğitimi Anabilim Dalında görev yapmakta olan 7 öğretim üyesi ve İktisadi ve İdari Bilimler Fakültesi İktisat Anabilim Dalında görev yapmakta olan 7 öğretim üyesi olmak üzere toplam 14 öğretim üyesi ile gerçekleştirilmiştir. Çalışmada veri toplama aracı olarak, araştırmacılar tarafından geliştirilen, yedi açık uçlu soru ve demografik özellik bilgileri içeren nitel form kullanılmıştır. Araştırmada nitel verilerin analizinde betimsel analiz yöntemi kullanılmıştır. Araştırma sonucunda Fen bilgisi öğretmenliği anabilim dalı

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öğretim üyelerinin akademik girişimciliği üretilen bilginin topluma aktarılması, bilginin yayılması ve toplumsal fayda yaratılması olarak değerlendirdikleri sonucuna ulaşılmıştır. İktisat anabilim dalı öğretim üyelerinin ise akademik girişimciliği yaratılan bilginin ekonomik ve ticari bir değer yaratır hale dönüştürülmesi kısaca yenilik yaratma süreci olarak değerlendirdikleri tespit edilmiştir. Ayrıca her iki anabilim dalı öğretim üyeleri girişimci üniversiteyi ekonomiye ve topluma katkı sağlayan, akademisyenleri teşvik eden, üniversite-sanayi iş birliği içerisinde olan üniversiteler olarak tanımladığı görülmektedir.

girişimcilik,  
Girişimci üniversite,  
Öğretim üyeleri

## Introduction

Universities are places where academic activities are carried out at associate degree, undergraduate and graduate level, as well as conducting scientific activities and producing knowledge in a universal sense. In other words, in the classical sense, universities are places where scientific research activities are carried out and where students are assigned to educate. But as a result of global changes, there is also a process of change in universities due to the evolution of knowledge into a new factor of production and the fact that university-industry cooperation becomes more important. Universities have come to the forefront of technology and knowledge transfer, have started to take more into account the demands and expectations of the market and have become one of the main elements of cooperation in the development process. As a result, this process has given universities an entrepreneurial role, and even universities have moved towards a position that often finds solutions to the problems faced by the industry (Taymaz, 1993).

Advanced technological innovations, information and communication industries in today's rapidly changing economic circumstances and return the global economy is one of the determining factors of different competitive environment. Therefore, creating economic growth through technological innovations has become one of the primary goals of societies (Yalçıntaş, 2014). In the last century, scientific knowledge and technology outputs due to the economic position of the increasing importance of knowledge-based, developing and important role in the creation of an innovative economy that have increased the importance of universities (Storey & Tether, 1998). They adapt to the cultural, social and economic changes created by the globalization process by creating an application area, finding appropriations and creating organization systems. For this reason, due to the competition required by increasing demands and conditions, universities are also trying to create new resources to ensure this change with an innovative and entrepreneurial transformation. Science and technology, with the understanding that the factors of production is a factor as important as universities have a chance of finding an active role in contributing to social development (Etzkowitz, 2003). In this context, various new generation types of universities such as entrepreneurs, companies and virtual universities have emerged and thus universities are turning into a new corporate organization that aims to develop, is innovative, entrepreneurial, can produce and use appropriate educational systems, has a regional and global two-way information exchange process (Sakinç and Aybarç-Bursalıoğlu, 2012). Also 21<sup>th</sup> century it is expected that the next generation universities of the century will be producing scientific knowledge, teaching and entrepreneurial (Çetin, 2007). Higher education institutions that can produce, store information and innovation, convert it to material gain, transfer it to people or institutions in need and have the ability to manage these processes in a stable and smooth manner are called entrepreneurial universities (Yıldız, 2019).

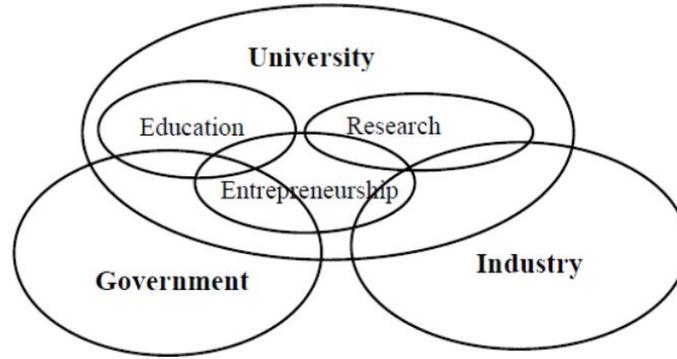
Entrepreneurial university according to Robertson (2008);

- \* Pioneer in developing university resources,
- \* Innovative enough to develop important projects even in areas where the private sector cannot enter by cooperating with industry,
- \* Can have entrepreneurial effects on the leading institutions of society,
- \* Able to carry out interdisciplinary studies by removing inter-institutional boundaries using the latest techniques,
- \* Focused on solutions to global world problems and thus can support the development of industrial society,

- \* They are a new generation of institutions that can be leaders in creating concrete outcomes by meeting the information needs of society.

**Figure 1**

*Entrepreneurial and Innovative College Model (Mets, 2010: 80-89)*



In Mest's (2010) entrepreneurial and innovative university model, corporate relations for innovation between the public, private sector and academia are represented by a triple-helix structure, and this structure explains the need to use knowledge as capital (Kiper, 2010). According to this model, in order to apply knowledge to innovation and technology, a tripartite cooperation is needed, the need to spread knowledge to society after production is stated, while the added value and economic development are processed in the direction of the provider. In this model, it is emphasized that universities, which are seen as the main institutions that spread knowledge to society, are the industrial branch that produces added value and prosperity, and the high-level structure that combines and promotes these two building blocks, are government institutions (Yalçıntaş, 2014). An entrepreneur is expressed as having three different functions when studying University definitions; that is, being an entrepreneur, converting knowledge into entrepreneurial activity, and being able to create entrepreneurial structures as a result of the interaction of the University and the environment (Cansız, 2014). In addition, academic entrepreneurship is considered by encouraging academicians in the higher education system to convert scientific work and inventions to economic added value (Özdemir, 2016). Mostly of academicians in the process of academic entrepreneurship determination as to the need, to be able to do purposeful work, you have high internal and external motivation of academics to be able to produce solutions for the social problems that, throughout the process of disciplined study, or setting up a business in entrepreneurship from the output of an existing company out of business to contribute to the development of such conditions as to indicate (Bercovitz &Feldman, 2008).

In terms of academic entrepreneurship, universities in Turkey are examined, in recent years, technology, know-how, design, production methods and systems to ensure the transformation of economic benefit to many private and public source University technology transfer activities are focused. In this sense, technoparks, incubation centers, technology transfer offices (TTO) with university-industry-state cooperation interfaces are being established in accordance with Mest's (2010) entrepreneurial and innovative university model. Thanks to this structure, universities, government and industry in cooperation with entrepreneurship by supporting commercialize technological knowledge and innovations in products and production methods to develop new and advanced technology of small and medium enterprises to international competitive structure of the country's industry by ensuring compliance support. Although these supporting activities are significant progress for universities, it is difficult to say that they have become institutionalized and cultural in Turkey. Among the reasons for this situation is the inability to spread throughout Turkey; only commercial resources private universities and public universities at in need of some in the advanced area of the

industry come to the fore; these structures and policies in the academic world unable to build properly yet fail to take full advantage of the system can be shown (Akmermer & Çolak, 2016).

The entrepreneurial university model is able to give the qualifications needed by the market to the education process. The most distinctive and distinctive feature of the entrepreneurial university process is the tendency of universities to increase and diversify their revenues. In general, universities have two types of income: shares transferred from the central administration and student fees. All sources of income other than these are called the third type of income. Examples of the third type of income include funds from projects to which the university is a party, income from cooperation with industrial and professional organizations, contributions from alumni associations, donations, licenses and patents. For this reason, it is important to diversify the third type of income in the success of the entrepreneurial university model.

### **Theoretical Framework and Literature Review**

In general, when the literature is examined, entrepreneurial universities are seen to be innovative, productive, prone to group work, able to direct opportunities to concrete outcomes, have flexible organizational structure, able to produce and transfer knowledge that they produce, create different resources, pioneer in entrepreneurship, able to create University and Industry Cooperation, and support competitive and economic development (Odabaşı, 2008). It is aimed to provide advantage in global competition with entrepreneurial universities and to increase economic and social benefits (Özdem & Sarı, 2008). In other words, the entrepreneurial university model is the approach based on the fact that universities operate directly into the market and create material outputs in order to achieve economic development (Özer, 2012).

Entrepreneurial universities are organizations that provide support for the process management needed in the transformation of creative ideas into economic and social value, which provides an environment for the development of an innovative culture of theoretical knowledge through experts and centers. Legal ways to support the protection of information, the training of human resources in the creation of new resources, such as financial services that they offer to the community for providing common services (Yıldız, 2019).

Currently, universities pay more attention to staff with the equipment required by entrepreneurship and commercialize the results of their research (Kirby, 2006). In a sense, this ensures that the social role of universities is not only to produce knowledge, but also to be a tool that can transmit and embody knowledge. In addition to the economic value of information, this change also allows the development of vocational education, employment opportunities and relations with private sector stakeholders (Charles, 2003).

Youth unemployment is one of the most important problems, especially for developing countries with a high proportion of young people, such as Turkey. Prolonging the time to start work after graduation from the university also slows down the transfer of achievements obtained in academic education to business life. Even if the qualified and entrepreneurial graduate education status targeted in the entrepreneurial university model is reached, it is a serious problem that these individuals cannot immediately implement the academic savings they have earned for various reasons. Academic entrepreneurship, which has emerged as a requirement of entrepreneurial universities in the process of transformation into an information society, has a significant share in bringing university research results to society, economy and industry. One of the problems in the entrepreneurial university model from the point of view of Turkey is that the goal of ensuring university cooperation with industrial organizations cannot be achieved at the desired level, except in some provinces where the industry is concentrated. It is another fact that the goal of ensuring and making this cooperation permanent will be parallel to the development of the industry in order to turn competition into an advantage. In addition, another problem that entrepreneurial universities will face in Turkey is that today's universities do not have financial and legal freedom in terms of generating the third type of income. In this case, both academic and administrative personnel should have the equipment and flexibility to meet the new

requirements in the transition to new generation universities. In this case, by creating solutions to structural problems with new legal regulations, the staffing process can be carried out with people in the interventionist culture and equipment, ensuring that the problems that may arise in transformation remain at the lowest level (Özer, 2018).

Arslan (2010) mentions that one of the most fundamental factors in the entrepreneurial spirit of universities is the fact that universities are trying to create self-resources due to the decrease in public resources. The concept of entrepreneurship, which plays an important role in the economic development of countries, has been studied within the framework of theories and currents developed by economists in the historical process. Academics and universities play an important role in the development of the information society. Universities are institutions that produce the necessary knowledge at the heart of the understanding of development, can create solutions to problems, contribute to both themselves and the country's economy by converting knowledge into economic value (Özdem & Sarı, 2008). Since the importance of entrepreneurial universities in the global competitive environment has been understood, many studies have been conducted in foreign literature on entrepreneurial universities (Küttim, Kalleaste, Venesaar & Kiis, 2014; Nasr & Boujelbene, 2014). The limitation of studies on academic entrepreneurship in Turkey increases the importance of studies on this subject. Today, it has become important for entrepreneurs to be innovative and to keep up with change. Education at universities is thought to significantly affect students' perspectives on entrepreneurial trends and innovation skills. Because entrepreneurship has been studied within the framework of theories developed by economists, it is important to determine the academic entrepreneurial trends of the faculty members of the Department of Economics.

It is an undeniable fact that the faculties of Education play an active role in bringing the results obtained from academic entrepreneurship studies to society. In this context, science teaching has a leading role in society in the process of thinking about the nature of knowledge, understanding the existing knowledge and producing new knowledge, and contributes to the creation of an innovative and entrepreneurial generation. In society as a whole, it is seen that innovative products and projects are mainly carried out in the field of engineering and Medicine (Pan & Akay, 2015). This can lead to the perception that academicians in the Faculty of education do not have much connection with academic entrepreneurship. It is important to examine the academic entrepreneurship aspects of academicians in the Faculty of education and especially in the field of Science Education in order to carry out studies in the context of academic university and to ensure the transfer of knowledge to society. In the STEM education report of the Ministry of Education, General Directorate of innovation and educational technologies. The aim of educating individuals who can think innovatively and develop products with century skills is remarkable (MEB, 2016). In the future, the transfer of basic subjects such as engineering, chemistry, physics, biology, medicine, environment and health of Science Education to children will be 21. Considering that it aims to educate individuals who are innovative with century skills, who can produce and turn the product it produces into economic value, and who are also aware of their legal rights in this regard; academicians who train candidates for science teachers have an important point of view on academic entrepreneurship. In order to determine the entrepreneurship awareness of academicians working in the Department of Science Teaching and Department of Economics, answers to the following questions were sought:

1. "What comes to mind when it comes to academic entrepreneurship?"
2. "How does the process work about academic entrepreneurship?"
3. "What are the basic needs for the development and success of academic entrepreneurship?"
4. "What type of academic entrepreneurs do you think can succeed? (young, old, senior, international experience holder, overseas PhD holder)"
5. "Do you consider yourself an academic entrepreneur? Why?"
6. "What do you think the University's approach to academic entrepreneurship is?"
7. "What does the concept of entrepreneurial university mean to you?"

## Method

### Research Pattern

The research was planned and conducted as a case study from qualitative research approaches. Case studies are based on “how” and “why” questions, allowing the researcher to examine a phenomenon or event in depth (Yıldırım & Şimşek, 2013). With this research carried out, with an interpretive approach, “why” and “how” the answers to the questions was sought.

### Research Group

The research group consists of a total of 14 faculty members, including assistant professor (n:4), associate professor (n:4) and Professor (n:6), who work in the Department of Science Teaching which is under the name of the Faculty of Education in a public university located in the Aegean region of Turkey and the Department of Economics which is under name of Faculty of Economics and Administrative Sciences. Data from the working group was collected in March 2021. In the creation of the Working Group, the purposeful sampling method was preferred because it allows in-depth examination in a specific area. Purposeful sampling is a technique commonly used in qualitative research to identify and select information-rich cases for the most efficient use of limited resources (Patton, 2005). This technique involves identifying and selecting an individual or group of individuals who are particularly knowledgeable or experienced about a phenomenon of interest (Cresswell & Plano Clark, 2011). Interview forms are encoded with the letter İ for faculty members of the Department of Economics and F for faculty members of Science Teaching. Titles are lowercase and general faculty members of assistant professor is encoded as y, d for associate professors, and p for with the title of Professor. Then sorting was carried out with the Arabic numbering system. For example, if the data belonging to a professor working in the Department of Science Teaching is ranked in fifth place, its code will be Fp5.

The characteristics of each academic are given in Table 1.

**Table 1**

*Working Group Information*

Lecturer	Gender	Department	Title	Year of duty
İd1	Male	Economics	Associate professor	6-11 years
Ed2	Female	Science Teaching	Associate professor	6-11 years
Ep3	Male	Science Teaching	Professor Dr.	18 years and up
Ey4	Female	Science Teaching	Assistant professor	12-17 years
Ey5	Male	Science Teaching	Assistant professor	18 years and up
İp6	Male	Economics	Professor Dr.	18 years and up
Ep7	Female	Science Teaching	Professor Dr.	12-17 years
Ed8	Female	Science Teaching	Associate professor	6-11 years
Ep9	Female	Science Teaching	Professor Dr.	6-11 years
İp10	Male	Economics	Professor Dr.	18 years and up
İy11	Female	Economics	Assistant professor	1-5 years
İd12	Male	Economics	Associate professor	12-17 years
İy13	Male	Economics	Assistant professor	1-5 years
İp14	Female	Economics	Professor Dr.	12-17 years

### Data Collection Tools

Before preparing the interview form, firstly, a general literature review on the research topic was conducted by the researchers and a draft interview form was prepared. In terms of the suitability of the draft interview form for the purpose of the study and the clarity of the questions, the opinions of two

academicians in the departments of science education and economics were consulted. Academicians generally found the questions appropriate and understandable for the purpose of the study. Thus, the interview form was given its final form. The interview form consists of two parts. In the first part, there is the part with the directive and demographic questions. In the instruction part, the purpose of the research was explained to the participants and they were asked to answer the questions sincerely in order to achieve the purpose of the research. In the demographic section, the personal information (gender, department, title, seniority year) of the academicians forming the sample is included. In the second part, there are seven questions in order to determine the views of academicians on academic entrepreneurship and entrepreneurial university. The participants were interviewed online or remotely due to the pandemic, and they were asked to write down their answers to the questions and forward them to the researchers. The interview form consists of seven open-ended questions. These questions are;

1. "What comes to mind when it comes to academic entrepreneurship?"
2. "How does the process work about academic entrepreneurship?"
3. "What are the basic needs for the development and success of academic entrepreneurship?"
4. "What type of academic entrepreneurs do you think can succeed? (young, old, senior, international experience holder, overseas PhD holder)"
5. "Do you consider yourself an academic entrepreneur? Why?"
6. "What do you think the University's approach to academic entrepreneurship is?"
7. "What does the concept of entrepreneurial university mean to you?" are like them.

In order to increase the validity and reliability of this study, the strategies of credibility, consistency and confirmability, which were suggested by Lincoln and Guba (1985) and which would increase the quality of qualitative research, were used. The credibility of the study was ensured by expert review and participant confirmation. For this purpose, the opinions of two academicians working in the Department of Science Education and Department of Economics were sought about the interview form. In order to provide participant confirmation, the researcher summarized the data collected at the end of the interview and asked the participants to check whether their perceptions reflect the data correctly. In order to ensure the consistency of the research, the same data were analyzed and coded by two researchers one by one. In the coding phase of the data, coding was done according to the concepts extracted from the data, which is one of the three types of coding mentioned by Strauss and Corbin (1990). For this purpose, each researcher examined the data he obtained, divided it into meaningful sections and tried to find out what each section meant conceptually. Therefore, codes were created by the researchers for each interview question. Then, the reliability formula "Reliability= (Consensus/Consensus+ difference of opinion) x 100" put forward by Miles and Huberman (1994) was used to determine the agreement rate. The percentage of agreement among researchers was calculated as 85%. 70% or more of the calculated percentage is sufficient to ensure the analysis reliability of the data (Yıldırım & řimřek, 2013). In addition, the confirmability of the study was ensured by quoting the participant statements directly.

### **Analysis of the Data**

Qualitative data obtained through the interview form was examined using the content analysis method. Berg and Lune (2015) defined content analysis as "careful, detailed, and systematic examination and interpretation of a particular material with the aim of detecting patterns, themes, biases, and meanings." In content analysis, data that are similar to each other is interpreted by combining them within the framework of certain concepts or themes. In this study, researchers divided the obtained ethics data into meaningful sections and gave descriptive codes. Given these codes; it is the coding that researchers make according to concepts derived from the data collected. The data set is read many times by researchers and encoded according to concepts extracted from the data by adhering to the written statements of people in line with the problems of the research. Based on the free codes

that appeared in the first stage, the data is grouped under certain themes that can be explained at a more general level and depend on data properties. In the second stage, the researchers arranged the data obtained according to this system and identified and interpreted the data in parallel with the findings. A common decision was reached by comparing the obtained themes and codes. The numbers with consensus and difference of opinion in common decisions were determined and calculated using the formula "Reliability= (Consensus/Consensus+ difference of opinion) x 100". Reliable encodings have been obtained by finding consensus scores of 80 percent and above (Miles & Huberman, 1994).

## Findings

### Findings Related to "What Comes to Mind When You Talk About Academic Entrepreneurship" Question

In Table 2, the data obtained in accordance with the answers given by the faculty members to the first question of the interview form are themed under the headings economic contribution, social contribution and innovation.

**Table 2**

*Content Analysis Findings for Academic Entrepreneurship Concept*

Themes	Codes
Economical additive	Establishing innovative business/ company Creating economic value
Social additive	Lecturing any other universities Providing consultancy services out of the university Providing open education services, making certificate programs
Innovation	Developing a patented product Carrying out licensing activities Conducting research projects

In the interview form transmitted to the faculty members, "What does academic entrepreneurship come to mind?" the question has been asked. Faculty members of the Department of Science Teaching generally focus on the transfer of knowledge to society, while faculty members of the Department of Economics often seem to impose meanings in the form of the creation of new job opportunities and the creation of commercial values.

Ey4 "These are innovative and entrepreneurial behaviors that academicians who work by converting their academic knowledge into production demonstrate in a social, technological and economic sense."

Ep3 "Application of academically produced knowledge to society, economy and industry, transfer of knowledge."

Ed8 "... is the provision of new jobs and opportunities to society with the knowledge produced in the Academy, etc."

I13 "Commercial income. I can point out that scientific work by academics creates commercial income for the University."

Ip6 "Is the production of goods and services for the market economy of the academic process, which is social goods."

Ip10 "Scientific outputs that contribute to the literature."

Id1 "Is the creation of economic and commercial value by the use of qualified knowledge by academicians."

Ip14 "Is the ability to convert the information obtained as a result of the studies into economic and commercial value."

## Findings Related to “How Does the Process Work in Academic Entrepreneurship?” Question

The data obtained in accordance with the answers given by the faculty members to the second question of the interview form are themed under the headings of forming ideas, process, taking ideas into action and shown in Table 3.

**Table 3**

*Content Analysis Findings for Academic Entrepreneurship Process*

Themes	Codes
Creating an idea	To determine topic and aim Establishing purpose
Process	To have motivation To find solutions for the problems Ability to make a working plan
Turning the idea into action	Establishing a business To develop a business Physical space / human support

Examining table 3, when the process of academic entrepreneurship scholars often primarily for the determination of the work to be able to do for a particular purpose, high internal-external motivation have to be able to produce solutions to social problems, disciplined work, appears to have emerged of the code for starting a business and business development.

Id1 "The most important actors of the academic entrepreneurship process are technology development zones, technology transfer offices and university research centers. Academic knowledge can be transformed into economic and social value through these actors."

I13 "Determination of agenda (definition of problem), determination of solutions (including alternatives), acceptance of solutions (by interested parties), implementation and evaluation..."

Ep7 "I have no knowledge of this. But I can guess. I think the beginning of the academic enterprise process is a good academic education."

Ip6 "The process begins when the company applies to universities for academic support for high-tech production."

Ed2 "What opportunities do I have academically/ how to take advantage of them/ what do I need/ planning/ action / Product/ Value Added

Ey4 "The process must run parallel to scientific research processes. So you design a project, you present it, you do it if it's supported, and you patent your product and put it on the market."

In general, when data sets are examined, it is seen that academics basically indicate that willingness/ volunteering is essential for the beginning, and that the process is completed by giving economic value to an output focused on solving a social problem by creating an appropriate work program after conducting work for a specific purpose. In this process, some academics also emphasize physical space and places where help can be obtained in the process that can be directed.

Ep3 "Small and Medium Exploitations or free zones, technology transfer offices"

Ep9 "Academic functioning of the projects carried out, techno parks, educational consultations carried out in Ministry of Education"

Ip14 "Technology transport offices, universities that can effectively operate university industry cooperation through techno parks can succeed in academic entrepreneurship."

Id12 "In order to fulfill the functions of entrepreneurial universities, new units such as research centers, technology transfer centers, techno parks are created within the University. The main purpose of these structures is to facilitate the access of knowledge produced at the university to industry and society, and to develop academic entrepreneurship."

## Findings Related to “What are the Basic Needs for the Development and Success of Academic Entrepreneurship” Question

The data obtained in accordance with the answers given by the faculty members to the third question of the interview form are themed under the headings support and cooperation and shown in Table 4.

**Table 4**

*Content Analysis Findings for The Basic Needs of Academic Entrepreneurship*

Themes	Codes
Supporting	Financially supporting
	Technical supporting
	Bureaucratic supporting
	Psychological supporting
To cooperative	University-Industry cooperative
	Different lecturers cooperative

Table 4 is examined; it is seen that academics mainly touch on the issues of legal regulations and increasing financial support. In addition to the psychological support of the environment of the academics planning to do the study, they also discussed the issues of being in cooperation and helping at the points where they are stuck. In addition, in parallel with the issue of academic entrepreneurship, the importance of the necessary technical infrastructure and qualified human support is also emphasized in the answers.

Iy13 “The development of policies on the promotion of entrepreneurship, lack of capital (financial support) and troubleshooting infrastructure, the expansion of consulting services, intellectual property right, commercialization, marketing management, and providing training and support on topics such as interdisciplinary collaboration, studies of the faculty lecturers and undergraduate-graduate students to take the place of the provision.”

Ey4 “Economic support of academics in terms of projects. Creating different opportunities (facilities) for marketing products that can contribute economically, technologically or culturally.”

Ep3 “Opportunities can be provided that increase communication and cooperation between academia and industry.”

Ed2 “Further support of Research and Development studies, increased cooperation between the University and the community.”

Id1 “The creation of national and regional innovation systems that will ensure University-Industry cooperation is the most basic need.”

Ep7 “I don't think I know about it either. But, as with everything else, the development and success of academic entrepreneurship requires an appropriate infrastructure and an academic climate consisting of people who can think freely.”

Id12 “Information Society phenomenon, supported by economic incentives, defense-weighted state funds and intensive investments in research increase the high-tech production capacity of the industry. It can be successful if a system is created in which the knowledge that will form the basis for entrepreneurship will be produced in universities and applied in industry.”

## Findings Related to “What Type of Academic Entrepreneurs Do You Think Can Succeed? (Young, Old, Senior, International Experience, Foreign PhD Holder)” Question

The data obtained in accordance with the teachers ' answers to the fourth question of the interview form are themed under the headings education, Individual Differences, field of study and shown in Table 5.

**Table 5**

*Content Analysis Findings for Academic Entrepreneurship Success*

<b>Themes</b>	<b>Codes</b>
Education	To have treatments at foreign universities
Personal differences	Having abilities
	Be equipped
	Be experienced
	Age
	Type of thinking
Study field	Applied sciences

As it seen on Table 5, it seems that the answers of academics are basically grouped under three themes. Under the theme of education; the code for an academic to have studied abroad in any stage of education is included. Their answers are examined in the process of academic entrepreneurship academics of being successful when able to better manage the entrepreneurial process, extrovert, good communication skills, fair, such as being dynamic skills with younger who has sufficient knowledge in the field, questioning and more successful in academics, it is observed that they believe to be a fair mindset.

However, it is seen that academicians often associate the concept of academic enterprise with studies in Applied Sciences such as engineering and Natural Sciences.

Id12 "Especially academics in basic sciences and applied fields (such as science and engineering) stand out in academic entrepreneurship."

Ip6 "Those who engage in more Applied Sciences may be more successful."

Ip14 "Establishing a mechanism to increase interdisciplinary work, providing financing and supporting entrepreneurship are the main needs."

### **Findings Related to "Do You Consider Yourself an Academic Entrepreneur? Why?" Question**

The data obtained in accordance with the teachers ' answers to the fifth question of the interview form are themed under the headings self-sufficiency perception, competence perception of the environment relative to the individual and shown in Table 6.

**Table 6**

*Content Analysis Findings for Academic Entrepreneurship Perception*

<b>Themes</b>	<b>Codes</b>
Self-efficacy perception	Creating outputs
	To product information
	To have abilities
Competence perception of the environment according to the individual	Working with the companies
	Getting feedbacks from the friendships

Table 6 academics examined to obtain a new product internally, to be able to produce new information and in this sense have some skills for academic entrepreneurship in creating the perception of the adequacy of beliefs that, private companies and academics in cooperation with the academic venture in the sense that they give a positive feedback on the environment in the sense of academics ' perceptions of academic competence constitute the environment on entrepreneurship. When looking at the answers in detail, academics often have a negative perception (n=7) that they cannot engage in academic entrepreneurial activities mainly due to theoretical work or intensive work pace. Academics academic entrepreneur themselves as partially or fully (n=6), believing that we can mainly produce new

ideas or university - private sector cooperation who have served previously on academics, although in certain conditions (economic support, referral, bureaucratic simplification of the process) at the level of academic entrepreneurship in the case of increased fulfillment stated that they will take part in activities.

Ep7 "I don't see myself as an entrepreneur, but people around me say I am. But I just love my job and try to make the best of it."

I13 "It does not seem possible to qualify myself as an academic entrepreneur because the academic activities that you consider the nature of the field of study do not have the opportunity to sell directly."

Ey4 "I can't see, but I actually want to see, because it takes motivation and support (economically) to be able to produce."

Ep3 "No. I have a lot of time to do the routine that your academic life brings."

Id7 "I believe that I have contributed to the process of producing qualified knowledge that will form the basis for academic entrepreneurship."

Iy11 "Yes, I had the opportunity to share the knowledge I had as an academic entrepreneur in a private institution. I have the idea that with the returns I have received, I have created plus value in this institution."

Ip10 "Yes, because many of my research has been published in international and national journals and has become a light for other scientists. The doctoral and master's theses that I have directed are also original and the first in their field."

### Findings Related to "What Do You Think the University's Approach to Academic Entrepreneurship is?" Question

The data obtained according to the answers given by the faculty members to the sixth question of the interview form are themed under the activities heading and shown in Table 7.

**Table 7**

*Content Analysis Findings for The University's Approach to Academic Entrepreneurship*

Themes	Codes
Activities	Infrastructure problems
	Systemic problems
	Bureaucratic obstacles
	Creating incentives

When examining table 7, solves problems and systemic scholars to the university, general infrastructure, and bureaucratic obstacles in the process of resolving the study of academic entrepreneurship at the necessary points who can intervene at the point of creating incentives for Moslems looked as an institution, and mostly positive attitude (n=10) are observed.

Id1 " ... defining entrepreneurial university criteria within the national innovation system and increasing research budget allowances for universities that meet these criteria will allow academic entrepreneurship to be healthier."

I13 "I can say that our university has incentives for this issue."

Ip6 " ... is monetary-oriented."

Ed8 "Entrepreneurship is an important concept for our university because projects etc. are encouraged to work. Techno park is being established."

Id12 "Is a system and does not have an effective operation. By ranking universities according to their entrepreneurship and innovation performance, a system should be created that will contribute to the development of the entrepreneurship ecosystem, thereby increasing competition focused on entrepreneurship and innovation among universities."

Ep3 "Projects and trainings are organized."

Ey5 "I think his approach in terms of achieving an academic career is positive..."

Ep9 "I think it's positive (Techno park)."

## Findings Related to “What does the Concept of Entrepreneurial University Mean to You?” Question

The data obtained in accordance with the answers given by the faculty members to the seventh question of the interview form are themed under the title entrepreneurial university and shown in Table 8.

**Table 8**

*Content Analysis Findings for Entrepreneurial University Concept*

Themes	Codes
Entrepreneurial university	Economic and social contribution
	Supporting
	Collaborator
	Prestigious universities

Table 8 in detail, it is seen that codes such as economic and social contribution, supportive, collaborative, prestigious universities are formed when they are asked to conduct ideas on the concept of an entrepreneurial university. When the answers are examined in detail, it is understood that entrepreneurial universities are on a mission to contribute to society and the economy by creating a solution to a social problem.

Id12 "Entrepreneur the university educates its students as entrepreneurs or provides opportunities accordingly. In addition, it allows the formation of new ideas, it means a university that is sensitive to the economy, society and the needs of society."

Ip14 "It is a university that has been able to transform the knowledge produced at the university into economic and commercial value through effective mechanisms and make it sustainable, creating its own source."

Iy11 "Refers to the emergence of new ideas and the provision of more services to the community as a result of transferring the knowledge that faculty members have to businesses."

Id1 "Can be stated as contributing to the regional and national economy and creating additional income for the University. It is the activity of universities to ensure the development and sustainability of enterprises with academic knowledge."

Ip14 "Although we see that the University has efforts and support for this, the establishment of a model and the sustainable operation of an institutional mechanism will make these efforts more meaningful."

In addition, there is a perception that such universities are universities that support academics, especially in an economic sense, and are active in cooperation with industry.

I13 "Refers to the fact that universities, in addition to academic publications, strive for these studies to generate income for the University."

Ep7 "Is a fully independent academic environment consisting of competent and expert researchers in the field."

Ed2 "Treats all staff equally, supporting the work of individuals."

Ep3 "Strong University of communication and cooperation in every sense with society and industry."

## Results

The results of this study, which examined the views of faculty members in the Department of Economics and science teaching about academic entrepreneurship and entrepreneurial university, are as follows:

Academic entrepreneurship has been shown to have meanings such as creating new opportunities, transferring knowledge to different areas in society, and creating economic value from scientific outputs. It is seen that the faculty members of the Department of Science Teaching mostly give answers to the use of academic research for the benefit of society and innovative behavior, while the faculty members of the Department of Economics mostly give answers to the creation of commercial value, University-industry cooperation. This can be interpreted as the concept of academic entrepreneurship aims to partially solve the problems that appear in the minds of participants in the areas in which they specialize. Because academics emphasize concepts such as creating scientific output that will contribute to society for academic entrepreneurship, focusing on solutions to social and economic problems, creating companies, creating projects, being innovative, transferring knowledge to society, converting knowledge to commercial value, it can often be said that their perception is correct. It is understood from the answers given that academics working in the Department of Science Teaching see the concept of academic enterprise as mostly for social benefit purposes, such as completing deficiencies in the field of science or transferring knowledge to society. Faculty members of the Department of Economics, on the other hand, look at the concept of academic entrepreneurship mostly in terms of economic benefits, such as creating financial gains or collaborating with businesses. When the literature is examined; Yayla-Eskici and Özsevgeç (2020) in their studies, in which scientists in the main science of science aim to determine entrepreneurial trends, it has been concluded that academics have perceptions such as risk-taking, open to innovations, and productivity in relation to entrepreneurship. These studies support this finding of the research.

For the development of academic entrepreneurship and success in the process, academics mainly touch on support issues. Financial, technical, bureaucratic, and psychological support contact support with an element of detail when looking at economic and financial support for academic entrepreneurship scholars often faced with obstacles is adequate in this sense, universities believe that they could make more progress. In addition, they emphasize the importance of supporting qualified personnel needed in the academic entrepreneurship process, personnel predisposed to group work and computer infrastructures of machinery and equipment, and they also express that they should be supported in overcoming bureaucratic obstacles that exist in the entrepreneurial activity process that they want to be involved in.

As for the profiles that can succeed in academic entrepreneurship, the answers of academics were collected in the themes of Education, individual differences and the field of study. When the theme of education is examined in detail, it is seen that it is parallel with the belief that people who can successfully carry out the academic entrepreneurship process have received education at any level of education abroad. This is due to the perception that many of the universities in developed countries are already universities at the targeted level in our country, and that the individuals studying there are individuals who can therefore succeed in academic entrepreneurship more consciously and easily. Individual Differences also in the field of academic entrepreneurship has different abilities support in terms of the mean of the individual, to be equipped, to be experienced, the age factor (being younger) and thinking differences are stated to be innovative and flexible to increase as the trend of academic entrepreneurship. In addition, scientists working in the fields of Applied Sciences seem to think that they are more prone to academic entrepreneurship. In some studies, less senior academics in the market by paying more attention to better assess the demands and needs that tend to produce high quality outputs and entrepreneurship highlights (Owen & Powell, 2001; Zucker & Darby, 2001; Ambos, Makela, Birkinshaw & D'este, 2008; D'este & Patel, 2007). In addition, Markides (2007) emphasizes that experienced academics may have a lower tendency to be entrepreneurs compared to others, noting that they can be conservative about changing their way of life.

When the literature is examined, it is seen that it is an important factor in the step of academics into entrepreneurship in the field of study. When examining the literature, it can be said that the personal differences of academics, including their areas of interest, such as their areas of work, are also effective in this sense (Shane & Venkataraman, 2000; Nicolaou, Shane, Cherkas, Hunkin & Spector, 2008; Ucbasaran, Westhead & Wright, 2008). Entrepreneurship is more intense in areas that have a direct and

rapid impact on industry (Sampat, Mowery & Ziedonis, 2003). This is why academic entrepreneurship rates are higher in Engineering, Medical Sciences and agriculture and other Applied Sciences (Laukkanen, 2003).

As for academic entrepreneurship, it seems that the perception of competence of academics towards them and the perception of competence of the environment relative to the individual are effective in characterizing the individual as an academic entrepreneur. In this context, the academic scholars' entrepreneur to achieve tangible outcomes, to be able to produce new information, also supports these qualities in yourself that you have skills in this area feel that the person provides to qualify as an academic entrepreneur. In addition, the academic entrepreneur is preferred by companies, and the identification of individuals around him as an entrepreneur also seems to play a role in the academic defining himself as an academic entrepreneur. In many studies, the entrepreneurial activities of academic entrepreneurs at the individual level were evaluated in terms of academic entrepreneurship and academic approaches to entrepreneurial activities were considered from a different perspective with the social environment, entrepreneurial capacity and experience. Wright, Clarysse, Mustar & Lockett (2007) describe the personality structure of the academic entrepreneur and the impact of his social environment on the entrepreneur in their publication "academic entrepreneurship in Europe". How an entrepreneur defines himself, emotional and personal characteristics, abilities that he has, awareness of individual characteristics, desire to acquire social status, such as the qualities that they indicate in their work, which they list, parallels this finding of the study. Chandler and Jansen (1992), on the other hand, found some important relationships between the experience of entrepreneurs and their ability to self-evaluate. According to Akin (1996), the economic environment in which the entrepreneur grew up and took place includes his economic conditions; family structure, family origin, education, age, etc. it constitutes his sociological terms. His subjective perception of himself, his love of his work, his work discipline, etc. its characteristics also form psychological conditions, and entrepreneurship is formed as a result of various variations of these three elements.

Infrastructure requirements for university academics and systemic performs on an overall basis, the bureaucratic obstacles that may occur in the process of resolving, if necessary, who can intervene and solve problems in particular for the study of entrepreneurship and academic support that they receive financial incentives at the point of creation in this sense is considered to college as an institution, it is apparent that within a mostly positive perspective. According to Varga (2009), the main factors affecting academic entrepreneurship in the university field can be grouped into three main categories: university vision and policies, research competence and industry collaboration capacity, and structures supporting research and development. Zucker & Darby (2001) noted that universities that own and support these academic entrepreneurs provide a competitive advantage, and accordingly, their success levels increase significantly. When the literature is examined, it is seen that the university is defined as an institution that is more supportive in a competitive environment and helps in solving political issues. This finding of the study parallels that of the literature.

Academicians define entrepreneurial universities as universities that contribute to the economy and society, support academics, and cooperate with their academicians. According to Holmström (1979), universities should have support and awards to encourage various productive activities in order to develop entrepreneurship. In summary, industrial incentive and reward mechanisms implemented together with universities affect the culture, norms, policies and processes that exist in the University (Siegel, Waldman, Atwater & Link, 2002). From this point of view, these studies in the literature support the finding of the research.

### **Suggestions**

The general aim of this study is to provide a better understanding of the views of the faculty members of the Department of Science Teaching and the Department of Economics on the issue of academic entrepreneurship in university settings. This study is also designed as a qualitative study for in-depth research. The most important of the findings of the study is that the academics working in the

field of science focus on the transfer of the knowledge produced to society, while the faculty members of the Faculty of Economics perceive academic entrepreneurship as creating more material gain.

In terms of next researches, supporting both the framework and views with new findings from a methodological point of view will provide different benefits to the literature. It is also possible to express that the proposed framework for academic entrepreneurship represents a number of conceptual variables that can be further explored in various respects. In this sense, it is suggested to other researchers that a whole series of research questions addressing the basic elements of academic entrepreneurship can be examined in different faculty and university settings.

Designing quantitative or mixed studies to identify and solve the problem by a wider audience will also help fill the gap in the literature. Trainings can be organized to raise awareness of practitioners that academic entrepreneurship can be done in every field of study and in many ways appropriate to this field.

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