

A Pilot Study on the Perception of Innovation and Entrepreneurship

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Abstract

Problem Statement: The concepts of innovation and entrepreneurship must be understood and adopted to ensure such transformation in the university after "Entrepreneurial and Innovative University Index" publication. The basic problem of this research is an analysis of how entrepreneurs define the concepts of innovation and entrepreneurship.

Purpose of Study: This research is focused on how innovation and entrepreneurship concepts are defined by company and project owners making innovation, the types of innovation they work on, the challenges they encounter during the process, and the coping strategies they use

Method: This study used a qualitative research pattern and phenomenological research. Data were collected through semi-structured interviews conducted with the owners of five companies who voluntarily

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participated in the study. The frequency and categorical analysis of content analysis techniques were used in the analysis of the data. Attempts were made to provide reliability by coding the coincidentally selected ones of the voice-recorded interviews via two independent coders. Jury assessment was made for general and specific sub-areas created for categorical analysis within validity.

Findings and Results: Six general areas and 39 specific sub-areas were created within the scope of categorical analysis. Among the most remarkable findings, it was clear that innovative entrepreneurs expressed opinions mostly within the general scope of “innovation process”. Within the “definition of innovation”, it can be seen that they most often refer to providing “added value” with the product. Within the “product features”, they most often refer to the “inclusion of innovation.” It was mentioned that “learning experiences” have positive effects on the innovation process.

Conclusions and Recommendations: It may be suggested that researchers can study the competitiveness and innovation ability of entrepreneurs. It was observed that the participant companies did not have their own innovation models and strategies. It is necessary to develop a country-specific innovation model and strategies based on it in order to develop innovation.

Keywords: innovation description, innovation process, challenges in innovation process.

Introduction

Among the criticisms brought against universities are failure to put into practice the scientific studies produced, producing graduates with theoretical knowledge but without practical experience, and hiring instructors unfamiliar with the problems in implementation. Producing entrepreneur graduates who are able to detect a lack of knowledge in their own fields, produce creative solutions, and make innovations are listed among the recent goals of universities. It has been observed that competition in the business world has achieved a global reach and intensifies day by day.

As a result of these developments, the “Entrepreneurial and Innovative University Index” consisting of 5 dimensions and 23 indicators was created in 2012. It’s obvious that Turkish universities are in need of a radical mentality change in order to make publications in international journals scanned in the Citation Index¹ to

¹ Science Citation Index: The Institute for Scientific Information (ISI) was established in the U.S.A. to develop a bibliographic databased in order to “create and determine parameters for measuring the consumption of scientific results.” This is a database created by this company in 1964. Retrieved June 02, 2015, from https://en.wikipedia.org/wiki/Social_Sciences_Citation_Index

receive greater numbers of references, as well as leveling up in country rating as per new assessment criteria. Activities of entrepreneurial universities are expected to work in two ways: (1) To educate students who can establish their own businesses and have an entrepreneurial culture; and (2) To facilitate their employment in the future by including them in the process through activities such as technology parks and partnerships with the business world (Ozer, 2011; Abdurazzakov, 2015). Establishment of technoparks, technology transfer offices in universities, providing university instructors with intra-service trainings on entrepreneurship, and opening courses under the name of entrepreneurship are among the tasks conducted in an attempt to comply with the new criteria (Alkibay, Orhaner, Korkmaz & Ermec Sertoglu, 2012; Altunoglu & Bulgurcu-Gurel, 2015). Nevertheless, these studies are recognized only by a limited number of instructors and students. Clearly, change is a difficult situation in which resistance is apparent in all organizations. It is necessary to offer briefings on new management techniques and new concepts (Erdogan, 2012; Gumus & Gumus, 2015; Pahnke, McDonald, Rory, Wang & Benjamin, 2015). Starting from the belief that the change will start by knowing the concepts and defining them correctly, the preliminary study investigated how the concepts of "innovation" and "entrepreneurship" were defined by entrepreneurs, and as a more general purpose, how these definitions coincide with the knowledge in the literature.

In studies conducted on how close the instructors and students are to the issues of innovation and entrepreneurship Aslan (2010) noted that, "...Seeing university as a money-bringing business, paying attention to the departments that create funds, ignoring the ones that do not create any funds, and thinking that they should be financed by the state as it provides a public service..." reflect the negative perspective. Nonetheless, it was also noted that "the collaboration between the university and industry is positive, and the fact that students who are able to establish business while studying will increase the post-graduation employment opportunities, and creation of its own funds by the university are positive aspects..."

Some research is being conducted on the tendency of students to become entrepreneurs. For instance, in a pair of studies attempting to measure the perspectives of youth in the Central Anatolia Region on entrepreneurship and their entrepreneurship tendencies, it was determined that the entrepreneurship tendencies of the students were weak (Oneren, 2012; Uluyol, 2013). Nonetheless, it has been asserted that the students in the sample have a potential of entrepreneurship, but they cannot achieve this potential due to lack of conditions (Cansiz, 2007). Yilmaz and Gunel (2011) found that most students have no clear opinions about being an entrepreneur despite taking entrepreneurship courses; they think that becoming an entrepreneur would be a negative situation in which they spent less time with their families and the university education does not support entrepreneurship.

There are not many resources in the literature mentioning the relation between creativity, innovation, and entrepreneurship. Technological innovation and creativity only started to be integrated in the 20th century. Research conducted by Harvard Business School on the behavior of 3000 executives over a six year period found five important 'discovery' skills for innovators (Bessant & Tidd, 2015): (1) associating, (2)

questioning, (3) observing, (4) experimenting, and (5) networking. The most powerful of these drivers was associating. After it was understood that technological innovation could be made through research and development, a connection began to be established "from creativity to innovation..." Nevertheless, the relationship between those two concepts has not been theorized yet (Godin, 2015). It is necessary for universities to make changes in their education content, settings, and targets to support entrepreneurship and innovation. As it is not possible for students to reach a level at which they can be innovative just through their efforts in university, creative thinking should also be developed through creativity education and creative teaching at all education levels starting from kindergarten.

Problem

This research aimed to collect information about how individuals involved in the entrepreneurship process who made innovations in Technopark define the concepts of innovation and entrepreneurship, and on their experiences during the entrepreneurship process.

Sub-problems

The following problems were addressed within the scope of sub-problems:

- (1) How do entrepreneurs define innovation?
- (2) What kind of innovative ideas do they work on?
- (3) What stage of innovation are they in?
- (4) What challenges have they encountered during the process?
- (5) Which support sources did they use to cope with these challenges?

Method

Research Design

The study was designed as phenomenological research, one of the qualitative research methods. Qualitative research is defined as "a research in which qualitative data collection methods such as observation, interview and document analysis are used, and a qualitative process is carried out to put forward the perceptions and events realistically and holistically in a natural setting." Phenomenological research, however, is an analysis that is traditionally conducted with subjects in an attempt to determine their subjective perspectives regarding facts and cases (Punch, 2014; Creswell, 2014). Among the reasons that qualitative patterning was selected in this research was the lack of a scale study published on the issue of entrepreneurship and innovation, the fact that basic studies coinciding with this research were problematic, and the consideration that innovators perceptions and definitions of innovation could only be seen by this method in its plainest and real form.

Research Sample

The participants were project or company owners from five companies in the innovative product development stage in 2014-2015 within Yildiz Technical

University Technopark, with the assumption that they represented a typical sample study group. One of the participant company owners was female, while the remaining four were male, and the average age was 28.6. It was observed that, out of five companies summarized in Table 1, two projects of one company included “product and service innovation” qualities, and all the projects received project support for R&D studies. These projects represent technology-based R&D projects. It was determined that one was completely in the entrepreneurship stage and only starting to enter the market, while two produced prototypes and were in search of market, and the last two were in the product development stage.

Table 1.

Summarized Information of Innovation Projects of the Study Group Companies

	Project name	Topic field of innovation owners	Innovation aspect of the project	Innovation type
Company 1 Project 1	A printer producing 3D models from the models drawn on computer	Computer engineer Electrical and electronic engineer Mechanical eng.	To increase the speed of project output product	Product Service
Company 1 Project 2	High-efficiency motor drive	Computer eng. Elect. Electronic eng. Mechanical eng.	Creation of a different operation system in the engines of race cars Energy efficiency in operation	Product
Company 2	Mobile application creator Location-Based Marketing in Malls via Bluetooth 4.0	Mobile phone-compatible software system to be used in marketing	A system providing the seller with the information about shopping potential and type of customer entering the store	Product Service
Company 3	Remote intra-building heat control, energy efficiency	Mechanical eng. Computer eng.	Four different devices and operation system Software Energy saving in operation of heating system Remote system control	Product Service

Table 1 Continue

	Project name	Topic field of innovation owners	Innovation aspect of the project	Innovation type
Company 4	Development of digital games and animation technologies belonging to the games	Computer education and technologies	Educative, entertaining game and animation software	Product Service
Company 5	Design of medical device and software for monitoring therapy and disease in diagnosis and treatment of disease	Computer engineer	Keeping the records of disease process in diagnosis and treatment of chronic constipation patients, and comparison of records	Product Service

Research Instrument and Procedure

Instrument. Data were collected through semi-structured interviews. Interview texts consisting of six questions were prepared by the researchers after an extensive review of the literature. During the preparation of the questions, the researchers improved the items based on comments of experts from the field.

Procedure. Interviews were conducted with the owners of five companies that voluntarily participated in the study. Appointments were made to conduct face-to-face interviews at their offices in Technopark and the interviews were audio recorded with their permission. To encourage responses, researchers offered a brief explanation of the study and the participants were informed that their names would not be included in the results.

Validity and reliability. Each researcher conducted independent coding in terms of research security, and a second coder recoded a coincidental part. Two coders worked together to reconcile incompatible parts.

As shown in Table 2, "General areas" and "Specific sub-areas" were created for validity as required by analysis. Opinions of experts from eight different areas of expertise were noted on a Likert type scale for analysis categories, and corrections were made. Furthermore, a pilot coding was carried out and correction was made for unprocessed categories.

Data analysis. The interviews with company officials were recorded and transcribed to text after obtaining their permission. Participant expressions were analyzed by a frequency analysis and categorical analysis. The basic unit of coding was a "sentence" (Tarkun-Tavsancil & Aslan, 2001). Three numbers, such as

(17.1.35), were assigned to each sentence; the first number refers to the coder, the second to the interview, and the third to the number of sentences in the interview.

Findings

Coding was conducted on a total of 1429 sentences obtained from face-to-face interviews with the officials of five companies. Six general areas were created "Definition of Innovation" (f=87, among all expressions 6.09%), "Product Features" (f=161, among all expressions 11.27%), "Innovation Process" (f=865, among all expressions 60.53%), "Coping Strategies in Innovation Process" (f=153, among all expressions 10.53%), "Sources of Motivation" (f=54, among all expressions 3.78%), and "Other" (f=109, among all expressions 7.63%), in addition to 39 specific sub-areas (Table 2). Entrepreneurial companies referred to issues in general areas of "Innovation Process" the most, and "Sources of Motivation" the least.

Table 2.

Frequencies and Percentages of General and Specific Sub-Areas Formed in the Coding of Interviews Made with the Study Group

General areas	Specific sub-areas	Number of sentences N	%
1. Definition of Innovation	1.1 Having features of discovery	29	2.03
	1.1 Having features of invention	21	1.47
	1.3. Providing added value	37	2.59
	Total of specific sub-area	87	6.09
	2. Product Features		
2. Product Features	2.1 Having different synthesizing	11	0.77
	2.2 Meeting the needs	51	3.57
	2.3 Providing added value	18	1.26
	2.4 Increasing the life quality	26	1.82
	2.5 Inclusion of innovation	55	3.85
	Total of specific sub-area	161	11.27
3. Innovation Process	3.1. Situations peculiar to gender	14	0.98
	3.2. Opinion stage	55	3.85
	3.3. Search for financial support	85	5.95
	3.4. Innovation network	9	0.63

Table 2 Continue

General areas	Specific sub-areas	Number of sentences N	%
	3.5. Blocks in innovation process	135	9.45
	3.6. Innovation management	37	2.59
	3.7. Angel investors	27	1.89
	3.8. Learning experiences	155	10.85
	3.9. Marketing	72	5.04
	3.10. Concrete preliminary studies	54	3.78
	3.11. Opportunity to establish a company in Technopark	31	2.17
	3.12. Communal perspective	32	2.24
	3.13. Implementation stage	7	0.49
	3.14. Product development	152	10.64
	Total of specific sub-area	865	60.53
4. Coping Strategies in Entrepreneurship Process			
	4.1. Taking lessons from experiences	23	1.61
	4.2. Sources of support	19	1.33
	4.3. Working as a team	13	0.91
	4.4. Intellectual capital	30	2.10
	4.5. Characteristics	47	3.29
	4.6. Personal development	10	0.70
	4.7. Pursuing strategies	11	0.77
	Total of specific sub-area	153	10.71
5. Sources of Motivation			
	5.1. External	11	0.77
	5.2. Internal	16	1.12
	5.3. Type of award	15	1.05
	5.4. Creativity	12	0.84
	Total of specific sub-area	54	3.78
6. Other			
	6.1. Not making a sense	16	1.12
	6.2. Neutral expressions	6	0.42
	6.3. Confirmatory expressions	52	3.64
	6.4. Rejecting expressions	17	1.19
	6.5. Questions	9	0.63
	6.6. Incomplete expressions	9	0.63
	Total of specific sub-area	109	7.63
	Grand Total	1429	

As shown in Table 2, the participants defined innovation on three main axes: "having features of discovery", "having features of invention", and "providing added value." Within this general area, the participants put emphasis mostly on the aspects of "providing added value (f=37, 42.53%)", and minimally on "having features of invention" (f=21, 24.14%). The "definition of innovation" general area had 87 sentences, which represent 6.09% of all sentences (N=1429). Some example sentences of providing added value: "Reflection of a technological innovation for me to the field in a way bringing a financial income (4.1.36)" and "Increasing its value (4.1.48)."

Findings Regarding the Features of an Innovative Product

As shown in Table 1, the projects of the participants represent studies on both service and product innovation types. They put emphasis mostly on the "inclusion of innovation (f=55, 34.16%)" and minimally on "having different synthesizing (f=11, 0.77%)" aspects of the product. Some examples of inclusion of innovation: "Everyone's making a smart device (1.1.231)" and "The device you will produce is required to take a much different and more efficient role in Turkish market (1.1.232)."

Findings Regarding the Experiences of the Participants in Entrepreneurship Process

In the sentences coded under this general area, the participants provide information about quite a large experience process starting from the appearance of an innovative and creative idea in their minds, or other experiences like education and internships, that would create a basis for this development, and extending to marketing. Fourteen specific sub-areas were created within this general area and it was observed that they emphasized the specific sub-areas of "learning experiences (f=155, 17.92%)" the most, and "implementation stage (f=7, 0.81%)" the least. "Innovation network" (f=9, 1.04%) was the second least emphasized sub-area within this general area. Some example sentences regarding the learning experiences: "It was a 6-month, comprehensive training; we were also trained on how to educate an entrepreneur expert (5.1.478)" and "Within this context, I'm attentive to read worldwide news daily, and I also follow up technological developments (1.1.204)."

Findings Regarding the Entrepreneurs' Sources of Coping

When expressions within the scope of the general area of "coping strategies in entrepreneurship process" were examined, the sub-area of "characteristics" (f=47, 30.72%) was emphasized the most, and the sub-area of "personal development" (f=10, 6.5%) the least. Some sentences about the characteristics included: "I can react quickly (5.1.270)" and "Obstinacy is a necessity (1.1.280)."

Within the general area of "sources of motivation", the sub-area of "internal motivation" (f=16, 29.63%) was emphasized the most, and "external motivation" (f=11, 20.37%) the least. Some example sentences regarding the internal motivation include: "Mostly, the greatest factor was me (2.1.155)" and "It may be much slower to carry someone forward with the help of another (2.1.196)."

Interpretation of the "Other" General Area Indirectly Supporting the Research Findings

As required by qualitative research techniques, all the expressions of the participants were coded and six general areas were created; expressions consisting of incomplete or short answer were coded in the general area of "other". As shown in Table 2, "confirmatory expressions (f=52, 47.71%)" were emphasized the most, and "neutral expressions (f=6, 5.50%)" were emphasized the least in the "other" general area. "Confirmatory expressions" having the highest percentage can be interpreted as the participants putting a strong emphasis of their own opinions. Some examples for sub-area of confirmatory expressions include: "Absolutely (2.1.41)" and "Exactly (3.1.166)."

Discussion and Conclusion

Discussion Regarding the Innovation Definition of the Participants

Based on the results of innovation definition, the participants perceive innovation as creation of a product and services that does not exist at all, and as replacement and development of existing products. In the Oslo Manual (2005), innovation is defined as "the implementation of a new or significantly changed product (goods or service) or process, a new marketing method, or implementation of a new organizational method in business practices, workplace organizations or external relations." This definition matches the participants' definition. However, when general topic titles of the concept of innovation are considered, the participants regard innovation from a quite narrow angle. For instance, it was observed that the participants do not mention innovation types (Hjalager, 2010), their sub-dimensions (Bessant & Tidd, 2015), or the concept of innovation and its criteria (Dahlqvist & Wiklund, 2012) at all. Furthermore, the companies did not refer to their own business models (Hobday, 2005; Teece, 2010) at all. This limited perspective of the participants on innovation can create difficulties in coping with problems and decrease their chances of achieving success.

Discussion Regarding the Features of an Innovative Product

As per the approach in the Oslo Manual (1992, 1996 cited in Amara, Landry, Becheikh, & Ouimet 2008), the literature on innovation should focus on two points. The first focus is whether or not the companies are innovative, and which type of innovation process they follow. The second focus is the explanation of the degree of innovation from the perspective of company or customer. On a product basis, the companies on product basis do not emphasize what direct innovation types are, but mention the marketing problems they face following of the development of their products, and do not use basic literature topics like "marketing innovation" at all (Ha-Young & Chang Mu, 2010 ; Kaynak & Demir, 2015; Balasescu, 2015; Rostami, 2015; Heath, Chatterjee, Basuroy, Hennig-Thurau, & Kocher, 2015). For instance, Tatikonda and Rosenthal (2000) stated that it is difficult for companies to develop new products when they have limited experience in product and process technologies, and some companies prefer to outpace their technological competition

by attracting more attention in the market. Considering the practices and strategies in the literature, the companies in the research do not have a conscious, well-informed, and planned progress. Although there are many theories and models, participants did not mention any of them (Singh, Mathiassen, & Mishra, 2015; Tonelli, Zambalde, de Brito, & de Souza Bermejo, 2016). The participants in the research did not use information-based strategies in taking their innovations and products to commercial platforms.

Discussion Regarding the Experiences of the Participants in Entrepreneurship Process

The fact that the aspect with the highest frequency among findings is “learning experiences” can be interpreted in two ways: (1) it is normal for the participant to learn from experience as entrepreneurship is a problem-solving process proceeding from trial and error, and includes uncertainties; and (2) a setting that supports innovation and entrepreneurship, and a specific model followed by the state are not available. The participants proceed with a lack of knowledge; there is no modeling on a national basis, and there are no works to form an infrastructure.

The contents of the sentences registered by the participants mainly mention the lack of angel investors, the irregular operation of the institutions other than themselves in the R&D process, and the difficulties in marketing their products. In order to overcome such problems, suggestions on requirement of regional innovation centers (Elci, Karatayli, & Karaata, 2012), and “establishment of innovation networks by the state” are made in the literature. Under “open innovation”, it is noted that those who work on similar innovation issues build a network and exchange information to develop ideas, make discoveries, and create comprehensive R&D studies in regions called “habitat” as well. Silicon Valley is a good example of this. In 2005, there were 1.5 million jobs and 22,000 companies in Silicon Valley. Historically, this area was characterized by its quality of high startup companies (Venture, 2008, cited by Ferrary & Granovetter, 2009).

Discussion Regarding the Entrepreneurs' Sources of Coping

In sources, being determined is one of the entrepreneurs' prominent characteristics, and the level of their internal motivation is frequently emphasized. In this research, the participants exhibited similar characteristics. Nevertheless, a particularly supportive environment and innovation networks are the support systems of innovation culture emphasized by the literature for an innovation process (Koch & Moslein, 2006; Shuai, Jin, Dingtao, & Shanyong, 2016). The literature emphasizes the significance of the environment in terms of producing ideas and management suggestions in the initial stages of the innovation process. The key idea is to increase motivation and form collaboration by raising awareness for employees who have creative potential and make innovations through discoveries and adaptation.

Brettel & Cleven (2011) conducted research on external factors (tendency towards technological innovation and learning; willingness to take risks; and tendency to future markets) by taking Kitchell's innovation-adaptation model as a basis. In their

research, they found a meaningful positive relation between tendencies to technological innovation and working in collaboration with the customer. In this research, although there are some developments such as exemption of entrepreneurs from tax, establishment of technoparks, etc., the low emphasis on “external motivation” can be interpreted as an indication of failure to create an environment adequately supporting the innovation and entrepreneurship as a state, university, and society (Bennedsen, 2015). For example, as financial incentives, university-based science parks and university towns are established by the state in China to provide an industrial collaboration; it can be said that the government plays a leadership role to increase the focus on universities through regional innovation systems (Cai & Lui, 2014). Furthermore, having information about business models and innovation issues in entrepreneurship and benefiting from them will increase the chances of success. The participant companies did not mention from where and how they collect information on business models, sectors, competitors, or issues such as plans that will increase competition. The following decisions should be taken to establish a business (Chesbrough, 2010):

- The innovation created in the market should be defined,
- The financial structure and profit potential should be estimated,
- The position of the company should be defined in networks to provide contact with suppliers and customers, and
- The competition strategy of the innovating company should be formulated.

Recommendations

The factors about innovation and entrepreneurship mentioned by the participants within the scope of this study were significant but superficial and narrow-scoped. They should be supported by training and workshop studies through which they can obtain more in-depth information. They should know the wide and complicated factor relations covered by innovation and entrepreneurship, and create their own strategies. Conferences should be organized to inform entrepreneur companies about the issue. It may be suggested that academicians working on entrepreneurship and innovation issues prepare a genuine education pack with the subject of introduction to entrepreneurship and innovation.

- It was observed that the participant companies did not have their own innovation models and strategies. They are not equipped to cope with the challenging problems in innovation and the entrepreneurship process, which is a difficult and risky process by its nature, and their risk of failure is subsequently higher. Providing a mentorship system to entrepreneurs in the implementation stage would increase their chances of success.
- Entrepreneurs would be expected to benefit from professional systems such as international patent monitoring and innovation networks for competing internationally. It would be possible to create new innovations by testing the innovation of both their products and their discoveries via these networks. Eventhough the innovation participants do not benefit from such

international network systems, the innovation business they do require international competition. It is considered that it decreases the chances of success of the companies in innovation and entrepreneurship processes. It may be suggested that some institutions such as technoparks, Tubitak, etc. form innovation communication network systems. Furthermore, it may also be suggested that studies should be made on the competition of entrepreneur companies.

- Considering the fact that the participants sorted out so far developed an innovative idea, obtained support for their projects, and made persistent attempts to be an entrepreneur, it is possible to link their successes in problem-solving with the typical entrepreneur characteristics. Studies on the factors increasing individuals' conditions for coping and psychological endurance in the processes of entrepreneurship and innovation will contribute into the area.
- It is necessary to develop a country-specific innovation model and strategies based on this model to develop innovation. Technopark administrations and related associations should prepare comprehensive reports on this issue and submit them to related governmental authorities.
- The participants exhibited no teamwork or communication despite nearly every participant company being at a technopark and working on innovation based on software and computer systems. The technopark or technology offices should encourage intercompany project production through various projects. A portion of project support provided by Tubitak should be adjusted to support this.

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İnovasyon Algısı ve Girişimcilik Üzerine Pilot Bir Çalışma

Atf:

- Aslan, A. E., Duman, B., Sen, D., Duran, C., & Atarbay, S. (2016). A pilot study on the perception of innovation and entrepreneurship. *Eurasian Journal of Educational Research*. 64, 139-156
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Özet

Problem Durumu: Üniversitelere yapılan eleştiriler arasında üretilen bilimsel çalışmaların uygulamaya aktarılamaması, teorik bilgisi olan ancak uygulamaya geçiremeyen mezunlar vermesi, öğretim elemanlarının uygulamadaki sorunlardan uzak olmaları sayılabilir. Gelişmiş ülkelerde son yıllarda üniversitelerin yeni hedefleri arasında kendi alanında bilgi eksikliklerini ve boşlukları görebilen, yaratıcı çözümler üretebilen, inovasyon yapabilen girişimci mezunlar vermek

sıralanmaktadır. İş dünyasında ise rekabetin küresel boyuta taşındığı ve gün geçtikçe şiddetlendiği gözlenmektedir. Tübitak'ın 2012 yılından itibaren yayınladığı 'Girişimci ve Yenilikçi Üniversite Endeksi' ile üniversitelerin inovasyon yapma ve girişimci öğrenci yetiştirme zorunluluğu resmi hale gelmiştir. Üniversitede bu yönde dönüşümün sağlanabilmesi için kavramın anlaşılması ve benimsenmesi gerekir. Yeni kriterlere uygun dönüşüm için üniversitelerde teknoparkların, teknoloji transfer ofislerinin oluşturulması, girişimcilik konusunda üniversite öğretim üyelerinin hizmet içi eğitimler verilmesi ve girişimcilik adı altında dersler açılması ilk elden yapılan çalışmalardır. Ancak, bu çalışmalar sadece kısıtlı sayıda öğretim elemanı ve öğrenci tarafından tanınmakta ve önemsenmektedir. Girişimci olan firma sahiplerinin inovasyon ve girişimcilik kavramlarını nasıl tanımladığının incelenmesi bu araştırmanın temel problemidir.

Araştırmanın Amacı: İnovasyon yapmış şirket ve proje sahipleri tarafından inovasyon ve girişimcilik kavramlarının nasıl tanımlandığı, hangi inovasyon türleri üzerinde çalıştıkları süreçte hangi zorlukları yaşadıkları ve hangi başa çıkma stratejilerini kullandıkları soruları araştırmanın alt amaçlarını oluşturmaktadır.

Araştırmanın Yöntemi: Nitel araştırma deseni ve fenomenolojik araştırma türü kullanılmıştır. Yıldız Teknik Üniversitesi Teknopark bünyesinde 2014-15 yılı içinde inovatif ürün geliştirme aşamasında olan proje ve/veya şirket sahipleri arasından, tipik örnekleri olduğu varsayımıyla gönüllü olan beş şirket çalışma grubunu oluşturmuştur. Çalışmaya katılan firma sahipleri ile yarı yapılmış görüşme yoluyla veri toplanmıştır. Verilerin analizinde içerik analizi tekniklerinden frekans analizi ve kategorisel analiz kullanılmıştır. Ses kaydı alınan ve yazıya dönüştürülen ifadelerin kodlamasında "cümle" birim olarak alınmıştır. İfadelerin tesadüfi olarak seçilenleri iki bağımsız kodlayıcı tarafından kodlanarak güvenilirlik sağlanmaya çalışılmıştır. Geçerlik içinde kategorisel analiz için oluşturulan genel ve özel alt alanlar için jüri değerlendirmesi yapılmıştır.

Araştırmanın Bulguları: Kategorisel analiz kapsamında 'İnovasyon Tanımı, Ürünün Özellikleri, İnovasyon Süreci, Girişimcilik Sürecinde Başa Çıkma Stratejileri, Motivasyon Kaynakları, Diğer' başlıklarıyla 6 genel alan kategorisi ve bunların altında da 39 adet özel alt alan oluşturulmuştur. En göze çarpan bulgular arasında inovasyon sahibi girişimcilerin en fazla 'inovasyon süreci' (n=865), en az da 'motivasyon kaynakları' (n=54) genel alanı kapsamında görüş bildirdikleri belirlenmiştir. İnovasyon süreci'ndeki cümle sayısı, genel cümle sayısının % 60,53'ünü, 'Motivasyon kaynakları'ndaki, cümle sayısı da genel cümle sayısının %3,87'sini oluşturmaktadır. 'Diğer' genel alanı altındaki (n=109) cümle sayısı genel cümle sayısının % 7,68'ni oluşturmaktadır. İnovasyon tanımı içinde ürünün 'katma değer' (n=37, % 42,53) sağlanmasına en fazla, 'icat olma' (f=21, % 24,14) niteliğinde olmasına ise en az değinilmiştir. 'Katma değer getirme' özel alt alanı araştırma evrenindeki 1429 cümle içinde % 3'lük orana; 'icat olma' özel alt alanı da % 1,47 orana sahiptir. Ürünün özellikleri genel alanında en çok ürünün 'yenilik içermesi' (n=55, % 34,16), en az da 'farklı sentezleme olması' (n=11, % 6,83) özel alt alanına değindikleri görülmektedir. Yenilik içermesi genel alt alanı tüm ifadeler içinde yaklaşık % 4 oranında vurgulanmaktadır. İnovasyon süreci içinde en fazla 'öğrenme

deneyimleri (f= 155, % 17,92), en az da 'uygulama aşaması (f= 7, % 0,81)' özel alt alanını vurguladıkları gözlenmiştir. Tüm cümle sayısı içinde 'öğrenme deneyimleri' % 10,85 oranında, 'uygulama aşaması' % 0,49 oranına sahiptir. Girişimcilik sürecinde başa çıkma stratejileri genel alanı içinde 'kişilik özellikleri (f= 47, % 30,72, tüm ifadeler içinde % 3,29)' özel alt alanı en fazla, 'kişisel gelişim (f= 10, % 6,5), tüm ifadeler içinde % 0,70) özel alt alanı ise en az vurgulanmıştır. İnovasyon sürecinde 'öğrenme deneyimlerinin' olumlu etkileri olduğuna değinilmiştir. Katılımcıların 'motivasyon kaynakları' genel alanı içinde en fazla 'içsel motivasyon (f= 16, % 29,63, tüm ifadeler içinde % 1,12), en az 'dışsal motivasyon (f=11, % 20,37, tüm ifadeler içinde % 0,77), oranında vurgulanmaktadır. Nitel araştırma tekniklerinin gereği olarak katılımcıların tüm ifadeler kodlanmış ve altı genel alan oluşturulmuştur, beş genel alan dışında kalan yarım veya kısa cevap niteliğindeki ifadelerde 'diğer' genel alanı içinde kodlanmıştır. Diğer genel alanı altında bulunan altı özel alt alan içinde en fazla vurgulanan 'onaylayıcı ifadeler (f= 52, % 47,71) en az 'nötr ifadeler (f= 6, % 5,50)' dir.

Araştırmanın Sonuçları ve Önerileri: Girişimcilerin rekabet edebilirlikleri ve inovasyon konusunda araştırma yapılması önerilebilir. Üniversitelerin girişimciliği ve inovasyonu destekleyebilmesi için eğitim içerikleri, ortamları ve hedeflerinde değişiklik yapmaları gerekmektedir. Sadece üniversitede alınacak önlemlerle öğrencilerin inovasyon yapabilecek düzeye gelmesi mümkün olmadığından anaokulundan başlayarak tüm eğitim seviyelerinde yaratıcılık eğitimi ve yaratıcı öğretim yoluyla yaratıcı düşünme de geliştirilmelidir.

Araştırma kapsamındaki katılımcıların inovasyon ve girişimcilik hakkındaki görüşleri sırasında değindikleri faktörler önemli ancak yüzeysel ve dar kapsamlıdır. Derinlemesine bilgi edinebilecekleri eğitim ve atölye çalışmalarıyla desteklenmeleri gerekmektedir.

Katılımcı firmaların kendi inovasyon modelleri ve stratejileri olmadığı gözlemlenmiştir. Doğası zorlu ve riskli bir süreç olan inovasyon ve girişimcilik sürecinde zorlayıcı sorunlarla karşılaştıklarında bunlarla baş etme donanımlarının olmadığı ve başarısızlık risklerinin yüksek olacağı düşünülmektedir.

Anahtar sözcükler: İnovasyonun tanımı, inovasyon süreci, inovasyon sürecinde yaşanan zorluklar.