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NETWORKS SYMBIOSIS CAPABILITY AS MEDIATOR BETWEEN STRATEGIC ALLIANCE AND BUSINESS PERFORMANCE: EMPIRICAL STUDY ON IKAT INDUSTRY IN BALI AND EAST NUSA TENGGARA

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ABSTRACT

Purpose - The trend of increasing cooperation between companies in the form of strategic partnership is currently considered as a response to the rapid changes on business environment. However, there are still contradictions on both the business phenomenon and the research result. Therefore, the purpose of this research is to examine the mediating role of networks symbiosis capability in bridging the relationship of strategic alliance and business performance

Methodology - The population of this research are tenun ikat businesses in the province of East Nusa Tenggara and Bali. The samples are 200 respondents in the Region of Sumba Timur, Kota Madya Kupang, Region of Gianyar and Klungkung. Data were collected with the use of questionnaires and analyzed using structural equation analysis with AMOS V.21.

Findings- The results show that the strategic alliances built by ikat businesses have no impact on the improvement of business performance. However, the network symbiosis capability plays a significant mediating role in bridging the relationship between strategic alliances and business performance.

Conclusion- Strategically, SMEs can improve business performance by developing the network symbiosis capability as a resource for their companies.

Keywords: Strategic alliance, network symbiosis capability, resource dimension, business performance.

JEL Codes: L140, M140, M21

1. INTRODUCTION

The changes occur in the last two decades have showed the increasing number of partnerships between companies done in order to face the quick changes of the business environment. The pressure of globalization, technological progress, increased customer expectations, and changes in the current regulations encourage companies to seek business partners who can complement the resources and capabilities. As a consequence, the strategic alliance between the companies became the focus of both the managers and researchers today (Culpan 2008 and Vaillieux, Haskell, and Pons, 2012).

Contradictions remains from various studies conducted by experts on the relationship of strategic alliances and business performance. The model developed by Teng (2007) put the strategic alliance as an independent variable for competitive advantage in this case the company's performance. While on one hand studies conducted by Murray and Kotabe (2005), Lee (2007), Lavie (2007) and Lin, Yang, and Arya (2009) showed that strategic alliances brings positive and significant effects

on the company's performance, on the other hand, studies conducted by Goerzen (2007) and Camison, Boronat, and Villar (2010) found that the strategic alliance has no significant effect on business performance.

As a matter of fact, small businesses in Indonesia play strategic roles in supporting national economic growth so that the government put efforts to do business development programs through partnerships with State-Owned Enterprises (SOEs), to utilize and synergize the resources of the Ministry of Small and Medium-sized Enterprises (MSME) and Bank Indonesia in order to increase access to financing and development of MSME, and to improve the knowledge, abilities and skills of SMEs and to form clusters/industrial centers of SMEs that aimed at improving the competitiveness of small and medium-sized enterprises by emphasizing the value of the efficient use of time and distance in producing a product, which in turn led to lower the production and marketing costs. However, those efforts are still not sufficient to improve the performance of the SMEs. An interesting business phenomenon can be seen from the result of evaluation on the SMEs centers facilitated by the Indonesian Ministry of Cooperatives and SMEs which shows a decreasing in case of productivity before and after the retrofitting took place.

As described above that there is a discrepancy in the previous research on the relationship of strategic alliances and business performance, and as the phenomenon itself shows that partnership program does not necessarily generate good business performance, this study is aimed at examining the mediation role of networks symbiosis capability in bridging the relationship of strategic alliance and business performance.

The rest of the paper is organized as follows. The second section is the review of literature and hypotheses developments. In the third section, the data and the methodology utilized in this study is explained. The fourth section is the report on findings and discussion. The final section concludes the findings of the study and make considerations on their implications for future research agenda.

2. LITERATURE REVIEW

2.1. Driver for Business Performance

Strategic alliance is a collaborative agreement which is an explicit part of the company's development plan, which covers not only the form of full ownership, but also includes the short-term agreement. Based on model developed by Forrest (1990), the strategic alliance may be helpful in overcoming the problem of lack of expertise or facilities in the production and the lack of marketing/distribution resources and the need for rapid exploitation of the technology. With the strategic alliance, the companies involved can benefit from various forms such as the ability of innovation, technological competitiveness and technology leadership, which then lead the company to achieve a high performance.

The company's (organizational) performance is a picture of the success of the company to achieve its goals and can be measured by objective and perception (Wang, 2008). Wiklund (1993), Avlonitis and Salavou (2007), categorize performance which based on perception into two categories namely financial performance and marketing performance perceptual. The perception of financial performance is measured by the perception of managers on the performance of the company compared with the competitor. Similarly, the perception of financial performance utilizing the perception of sales growth, employee growth, and the company's market share instead of its competitor.

Lavie (2006) extended the Resource-based View (RBV) to explain the interconnection of the company in dyadic collaboration/alliance by combining both internal and external resources which can lead to the achievement of competitive advantage of the company. This includes the relational advantages extracted from the shared resources among the partners. Therefore, strategic alliance brings a positive effect on the company's performance.

Empirical studies conducted by Cao and Zhang (2011) on the impact of supply chain collaboration to company's performance in manufacturing companies in the United States found that collaboration/supply chain alliances has a positive effect on company's performance. Previous studies by Lavie (2006), Lee (2007), Lin, Yang, and Arya (2007), Sarkar, Echambadi, and Harrison (2001), and Cao and Zhang (2011) found a positive influence of strategic alliances on company's performance. Then, the hypothesis can be formulated as follows:

H1: Strategic alliance has a positive effect on the company's performance

Czakon (2009) states that the development of alliances between organizations is followed by increased capitalization of networks which need to insert external resource ownership used together by the organizations. In this understanding, rents are raised cross-border organizations and inter-company collaboration. Resource exploitation occurs both inside and outside the organization. There are three processes of networking capabilities in strengthening the RBV namely *building*, *integration* and *reconfiguration* of the resource base of the company. From the perspective of RBV, the relational capabilities is defined as a type of capability dynamic with the capacity to deliberately create, expand, or modify the resource base of the company, added to include resources from partner alliances.

Lisboa, Skarmeas, and Lages (2011) argued that the strategic alliance is an important strategic resource that reflects the company's philosophy of how the business is run and adapt to the environment in order for the company to gain competitive advantages and generate the expected performances by developing organizational capabilities. This study develops the concept of networks symbiosis capability as a new concept. Symbiosis refers to a common understanding of living together closely. Barabel and Meier (2010) emphasizes that the term symbiosis shows compulsory relationship which has survival imperative and endurance as its characteristics that provide mutual benefits for both parties. It then can be inferred that the networks symbiosis capability is a company's ability to preserve and maintain a long term and mutually beneficial relationship in the network.

Mort and Weerewardena (2006) and Moller and Svhan (2005) argued that networks capability in the organizational level plays an important role in developing and maintaining the long term relationship which enables the partners to have access to the resources in order to improve their performances. Therefore, the hypothesis can be formulated as follows:

H2: Network symbiosis capability has a positive effect on the company's performance.

Lavie (2008) states that networking resources are the asset owned by the partners yet have the possibility to be accessed by the company by having close relationship with its partners. In the context of alliance, the main objective of establishing the network is to have access to the resources which are valuable for the company. Zhao (2014) says that based on the perspective of RBV, the resource factor is the key factor for the success of small-sized businesses so the network which supply the resource will be able to develop the company's performance. The hypothesis can be formulated as follows:

H3: The resource dimension has a positive effect on the company's performance.

2.2. Strategic Alliance and Networks Symbiosis Capability

Yan, Zhang, and Zeng (2010) states that business networking in the literature of cooperation development is described as a relationship of two or more independent companies that work together collaboratively to achieve greater business success through synergy. The researchers agree that network capability is acquired in the independent activities inter-companies. Networking capability is used to facilitate the collaborative activities in order to improve further activities carried out to develop the market so the specific resource of the companies can be used, shared, and improved merely if there is an equal solidarity between the organizations. Then, the hypothesis can be formulated as follows:

H4: Strategic alliance has a positive effect on the networks symbiosis capability.

2.3. Networks Symbiosis Capability and Resources Dimension

According to Swan et al (2007), in order to ensure a long term continuation of the innovation, the company needs to put efforts in improving its resources. It means that it is important to do approach of integrating knowledge and skills with the partners in the network. It then leads to the main objective of the inter-organizational relationship carried out by the company which is to creating value by combining the assets, sharing of knowledge, increasing speed to the market, and accessing the global market. Or, in other words, the establishment of relationship between the companies is to create a competitive advantage by minimizing risk and improving access to vital resources and information.

Ferer, Hyland, and Bretherton (2007) says that the company needs a networking capability to discover, develop, and manage the resources provided in partnership in order for the company to be able to promote innovations for the development of new products and processes to meet the market's demand. The hypothesis can be formulated as follows:

H5: Networks symbiosis capability has a positive effect on the resource dimension.

3. DATA AND METHODOLOGY

The population of this study are the companies included in the category of textile industry that is focused on the sub-category of industrial spinning, weaving, and finishing which are under the code 131 based on the KBLI 2009 (Klasifikasi Baku Lapangan Usaha Indonesia year of 2009). There are 200 samples used in this study, on the grounds that the amount has been fulfilling the adequacy of the number of samples for *maximum likelihood estimation* technique. The selection of 200 samples is centralized in the cities that have the weaving industry in the province of East Nusa Tenggara and Bali. In East Nusa Tenggara, the focus is in East Sumba and Kota Kupang, while in Bali, the focus is in Gianyar and Klungkung regency. The sampling technique used in this study is the combination of *systematic sampling* and *purposive sampling*. The reason of using the purposive technique is that the sample/respondents need to meet the requirements of 5 years of operating as a company and have a network of cooperation (partnership) with the other parties.

Data collection method used in this study was visiting respondents and asking them to fill in the questionnaires after passing the validation that particular respondents meet the specified criteria. Then, the respondent was given an explanation of the purpose of the study and asked for their willingness to fill in the questionnaire of the study. The

questionnaire which was used as an instrument of data collection covers the statements that are developed to measure the variables studied in this research. The scale of measurement used for each variable was the interval scale. Interval scale is a data measuring device that can produce a range of values that has meaning, which makes it possible to perform parametric statistical tests. The technique used in this study was the *agree-disagree scale* that is by developing a statement that generates answers of agree or disagree in a variety of ranges of values (Ferdinand, 2011). The range of values used was from 1 for strongly disagree to 10 for strongly agree with the statements. Further, the testing of models and hypotheses, which have been formulated in this study, based on data obtained was carried out by using the analysis of *Structural Equation Model* (SEM) with the support of AMOS 21 program.

4. FINDINGS AND DISCUSSIONS

We collected data in June 2016. The characteristics of the respondents, which are shown in the Table 1, indicate that most of the companies are start-up companies with 5 to 10 years of business operation, employ 5 to 19 employees, and have assets of less than IDR 50,000,000.

Table 1: Description of Respondents

Variables	Frequency	Percentage
Years of Business Operation		
5 – 10 years	67	48.2
11 – 15 years	42	30.2
16 – 20 years	19	13.6
> 20 years	11	8.0
Number of Employees		
< 4	32	23.0
5 – 19	92	66.2
> 20	15	10.8
Assets		
< IDR 50,000,000	88	63.3
IDR 50,000,000 – 500,000,000	41	29.5
> IDR 500,000,000	10	7.2

Data analysis began with the process of ensuring the quality of data that met the requirements of structural equation modeling technique, especially related to normality. The first stage was to re-evaluate the stability and consistency of data that have extreme response of each indicator given by the respondents. The second stage was to remove the data which were *outlier*. Those earlier stages helped obtaining the data profile which did not indicate the presence of data which were not normally distributed. The data then can be received and used for structural modeling analysis (Ferdinand and Killa, 2014). There were 139 data series remained which were further analysed with the support of AMOS V.21. It then, in turn, produced the good model (*goodness-of-fit model*) that can be received, as presented in the following figure.

Figure 1: Testing of Structural Equation Modeling

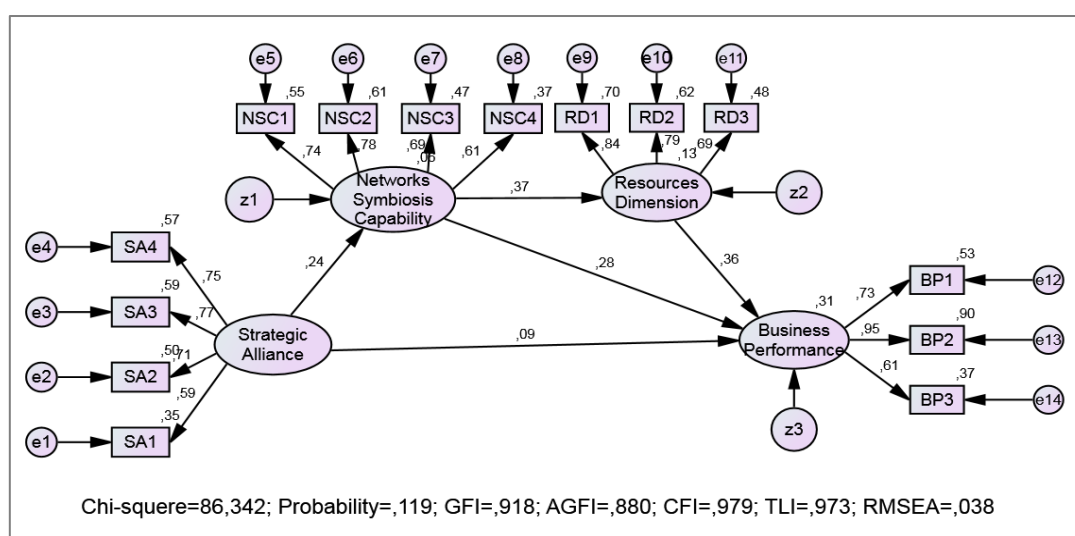


Figure 1 shows that all the required criteria of goodness index model indicates the good criterion with the level of significance (probability) of more than 0.05, a low value of Chi- square, the GFI index which is more than 0.90, the CFI which is more than 0.90, and RMSEA which is less than 0.08. Although one of the indices, in this case the AGFI index is less than required, but the overall goodness model is acceptable and can be used to test the hypothesis.

Furthermore, the results of hypothesis testing can be seen in the coefficient structure of regression value as presented in the following table.

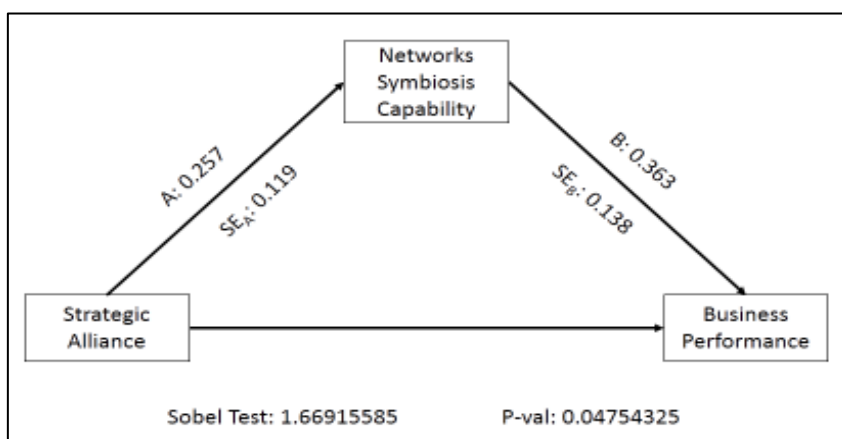
Table 2: Structural Coefficient Value

			Estimate	S.E.	C.R.	P
Networks_Symbiosis_Capability	<---	Strategic_Alliance	.257	.119	2.165	.030
Resources_Dimension	<---	Networks_Symbiosis_Capability	.504	.145	3.478	***
Business_Performance	<---	Strategic_Alliance	.135	.130	1.037	.300
Business_Performance	<---	Resources_Dimension	.341	.099	3.442	***
Business_Performance	<---	Networks_Symbiosis_Capability	.363	.138	2.635	.008

The result of the hypothesis testing presented in Table 2 indicates that H1 (*Strategic alliance has a positive effect on the company's performance*) has the CR value (Critical Ration or *t* value) of 1.037, which is smaller than 1.96 (the required value for accepting a hypothesis). It means that H1 is rejected. While H2 (*Network symbiosis capability has a positive effect on the company's performance.*) has a CR value of 2,165 that is greater than the value of the acceptance requirements. It means that the H2 hypothesis is accepted. Similarly, the H3 (*The resource dimension has a positive effect on the company's performance*), H4 (*Strategic alliance has a positive effect on the capability of network symbiosis*) and H5 (*Network symbiosis capability has a positive effect on the resource dimension*) had CR values which are higher than required for the acceptance. Then, the hypothesis H3, H4, and H5 are also accepted.

The Sobel Test is then used to ensure the mediating role of variable of network symbiosis capabilities in bridging the gap between strategic alliances and business performance. The Sobel Test was done online at <http://www.danialsoper.com>. The result of the Sobel Test is presented in the figure below:

Figure 2: Sobel Test of Network Symbiosis Capability Mediation Role



The result of the Sobel Test presented in Figure 2, indicates that the network symbiosis capabilities have a significant mediating role in the relationships of strategic alliance and business performance. This is proved by the P-val value which is less than 0.05. This means that the strategic alliance will have an impact on improving the business performance if the company has the network symbiosis capabilities.

5. CONCLUSION

This study provides empirical evidence that strategic alliances built by ikat businesses has no impact on the improvement of business performance. However, the business performance can be improved through two indirect ways, firstly, strategic alliance – network symbiosis capability – business performance, and secondly, strategic alliance – network symbiosis capability – resource dimension – business performance.

Considering the importance of the role of networks symbiosis capability as the mediator in bridging the gap between strategic alliances and business performance, practically companies need to develop and improve the network symbiosis capability as a resource for the company. Thus, further research agenda is directed to, beside replicating the model that has been built and tested in other industrial types, also using other approaches such as social network analysis approach to ascertain the role of the importance of networks symbiosis capability.

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THE IMPACT OF INCREASING TEAM SIZE ON PROJECT PRODUCTIVITY

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ABSTRACT

Purpose- Enterprises must increase operational efficiency to gain competitive advantage in this stiff global competition, and operational efficiency is resulted from fast problem resolution and opportunity creation. Project management has been regarded as an effective and efficient approach to quickly solve current problems and create future opportunities. Speed is the most vital factor when facing with problems and opportunities; slowness will breed a small problem to a huge one, even unmanageable, whereas a not quick enough pace will lead to opportunity untouchable and fade away.

Methodology- The challenge facing a project manager in this era is how to complete a project quickly, and one of the most commonly used methods is crashing, which implies shortening the project duration by increasing the number of workers and equipment, and by working overtime. Traditionally, it is a common believe that increasing the number of workers can certainly reduce the project length; even the law of diminishing return is widely recognized. Thus, this study intends to explore the interaction of number increase and diminishing return, and develop a quantitative model to concurrently consider the number of workers, worker experience, worker training and level of team work to obtain the most suitable number of worker increase, to avoid waste of human resources and optimize personnel utilization.

Findings- To demonstrate the applicability of the proposed model, this study uses two examples to illustrate the solution procedures. The results indicate that although the project productivity can increase along with the increase of workers, when the number of workers reaches a certain level, even the worker is further increased, the project cannot be positively benefited; therefore, the increased workers are not only wasted, but also decrease the entire project productivity.

Conclusion- Project managers can use the model to identify the optimal number of additional team members, thus improving human resource management. This study is the first theoretical verification of the law of diminishing returns and provides a more in-depth understanding of crashing, which has both academic and practical value to project management.

Keywords: Project, project management, crashing, law of diminishing return, productivity.

JEL Codes: C61, L84, M12

1.INTRODUCTION

In the competitive global environment of today, companies often manage cross-departmental activities as projects in order to adapt to varying business demands. To achieve their strategic goals, businesses must utilize project management to integrate their resources and respond with maximum speed and minimal cost to rapidly changing operational environments.

A project is a one-time plan or scheme to complete a set of non-customary activities. Each project is therefore unique to some extent and involves issues or elements that staffs have not previously experienced. This means that projects by their very nature have an inherent level of uncertainty and can easily exceed time and cost limitations unless they are properly

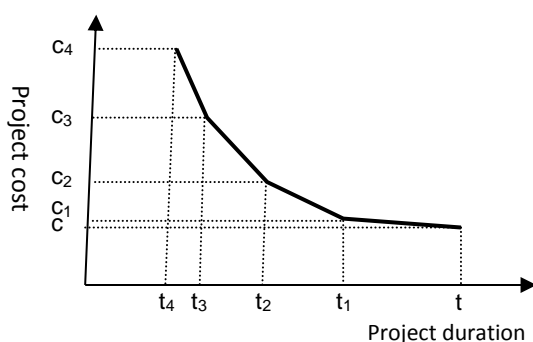
managed. The key to the success of projects lies in the ability of project managers to effectively integrate resources and lead their team to achieve project objectives within the constraints of budget, cost, and quality.

As market changes and competition intensify, many work activities and initiatives are being organized as projects. According to Kerzner (1984), projects have specific start and end dates, and utilize specific resources to achieve a definite objective. Pinto & Slevin (1988) defined projects as having specific start and end dates, fixed budgets, and a series of interrelated activities, the purpose of which is to achieve specific objectives and pre-defined performance. Turner (2003) proposed the concept of a project as a temporary organization which must effectively allocate limited resources and control uncertainty in order to achieve pre-defined objectives. Project management is considered to be the most flexible type of management, because projects require the completion of interrelated tasks within a set timeframe and limited resources. According to Nicholas (1990), the three key elements of a project are the project manager, project team, and project management system. Kerzner (2001) described project management as the process of planning, employing, organizing, scheduling, and controlling, during which project managers must make full use of resources. As global competition intensifies, projects have also grown more complex, accelerated, and uncertain.

Lewis (1993) defined a team as a group of people working together to achieve a common objective. Drucker (1998) believed that teams are able to bring greater competitiveness and innovation to organizations because of mutual collaboration, communication, and coordination among team members. As stated by McGrath (1984), team performance is affected by the attitudes, skills, and personality traits of team members. Christina & Danny (2008) simulated the three factors of influence on team performance: size of team, skills of team members, and the structure of tasks and responsibilities. Cooperation, communication, size of team, and personality traits are all factors commonly perceived to affect team performance. Kennedy et al. (2011) found that email, telephone conversations, and face to face communication all have difference effects. Luthans (1988) found that managers spend an average of half their workday on communication, highlighting its importance. In the knowledge economy of today, says management guru Peter Drucker, organizations must enhance their performance by building the capabilities of their staff. Research has shown that effective training can increase staff output by up to 60%. Therefore, team training is an important factor of influence on productivity. El-Sabaa (2001) found that project managers can enhance performance through training. This study identified training as a consideration in improving productivity. Hsu et al. (2012) explored the impact of transactive memory system on teams' coordination, communication, and performance.

As indicated by Raz et al. (2002), project risks are often unexpected and can cause projects to exceed time and cost limitations. Project managers often employ crashing, which means allocating resources to significantly reduce the completion time for project activities, as a means of avoiding delays. Crashing requires additional resources and cost, usually in the form of increased manpower. Figure 1 illustrates the conventional concept of project duration crashed in relation to the project cost increased, and it can be seen that when project duration is compressed from t to t_1 , the project cost is increased from c to c_1 , and when the duration is consecutively compressed to t_4 , project cost is also increased to c_4 . The conventional concept implies that as long as more manpower is allocated, the project duration can always be shortened.

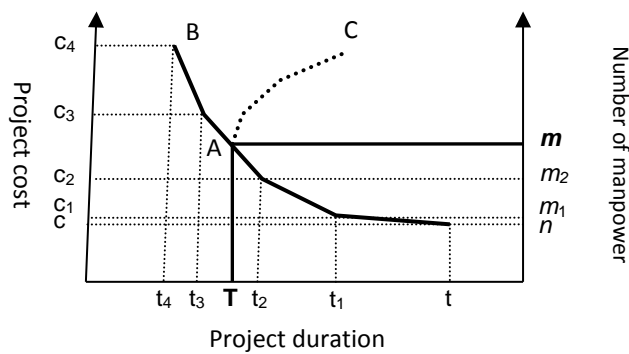
Figure 1: Project Cost and Duration Crashed



Wei & Wang (2003) used linear mathematical modeling to identify methods of reducing completion time. Other researchers have used non-linear modeling to find the optimal approach to managing project time and cost (Deckro et al., 1995; Elmaghraby & Salem, 1982; Falk & Horowitz, 1972). Project management is a time-specific task that must be completed within time and cost constraints as well as meet quality standards. Therefore, how to efficiently solve problems and create opportunities with limited resources is the core objective of a project and an essential issue for businesses.

It must be emphasized that adding workers also increases the complexity of team communication, work assignment, coordination, and integration. This leads to a law of diminishing return scenario; Figure 2 depicts the law of diminishing return when crashing a project. In other words, more manpower may actually weaken productivity and waste resources. As a result, when the manpower added is more than a threshold value of m , the project duration will be lengthened instead of being shortened, i.e., the curve in Figure 2 will go from point A to point C rather than point B. The objective of this study is to develop a quantitative model to identify the most suitable number of additional manpower m to produce the shortest project duration as indicated in Figure 2 when crashing a project.

Figure 2: Law of Diminishing Return When Crashing a Project



2.MODEL FORMULATION

This study developed a model to quantify how overall productivity is affected by increasing manpower. This section comprises two sections: 2.1 explores factors that affect the productivity of project teams, and 2.2 explains the process of building the model.

2.1 Factors Influencing Productivity

Conventionally, the most obvious method of crashing is assigning more team members to urgent project activities. In many cases, however, adding manpower means increasing the complexity of team communication, work allocation, coordination, and integration. This leads to a law of diminishing return scenario. Although more manpower undeniably increases productivity, too large a team can actually weaken productivity. The collective experience of team members is another factor of influence on productivity. Those with more experience in similar projects will naturally find their work easier and be more productive. Another essential element to realizing the full potential of a team is whether its members have been adequately trained. Staff must be equipped with the skills to carry out project work in order to fulfill their responsibilities. Lastly, even if team members are well-trained and highly experienced, productivity will be limited if they are unable to build consensus and work together as a team. This article built a model that calculates productivity based on number of team members (including the detrimental effect of too large a team), their levels of experience and training, and teamwork. Each element is explained in further detail below.

(1) Number of team members

Generally speaking, the productivity of a project team increases as its headcount increases, because the team can simultaneously complete more tasks. The original number of project team members is indicated by n , and the additional members allocated as a result of crashing is represented by m . The total headcount is therefore calculated as $N=n+m$.

(2) Team experience

An important factor of influence on productivity is whether team members are equipped with relevant experience. Each individual has a different level of experience. If every team member was equipped with extensive and relevant experience, then obviously the team would achieve twofold results with half the effort. Experience is represented as e .

(3) Team training

Even if team members are all highly experienced, they will inevitably have different methods of thinking and operating, having come together from different areas of the business. Adequate training, therefore, can improve productivity. If team members have not had relevant project experience, then training is even more essential. We can use the analogy of a sports team: Even though each player is a world class athlete, they must still train intensively in order to play together as a

world class team. Training, both formal and informal, can improve team competency and equip them with the skills and knowledge to complete required tasks. Training is indicated by t in this study.

(4) Teamwork

The ability of a project manager to build a team from a group of individuals in the shortest timeframe possible is crucial to achieving project objectives. Teamwork includes mutual understanding, solidarity, and commitment to fulfilling the mission of the team. Teamwork is represented by g in this study.

(5) Diminishing productivity

Expanding the size of the team has limited benefits in relation to improving productivity because at a certain point, any such benefits are offset by the additional communication and coordination required. The complexity of communication channels is proportional to the squared number of team members. Increasing head count can weaken productivity, particularly in relation to work requiring frequent communication. This reduction in productivity is designated as r in this study.

2.2. Model Development

This study developed a quantitative model to calculate productivity based on number of team members, their level of experience, training, teamwork, and the decline in productivity caused by increasing manpower. The computation procedures are explained below:

Step 1: Determine the value of each coefficient. Assuming that N = final number of team members, n = original number of team members, and m = number of additional members, then $N=n+m$, and e = experience. The higher the value of e , which can be specified as 0.1, 0.3, 0.5, 0.7, and 0.9, the more experienced the team members. The training coefficient t can also be set as 0.1, 0.3, 0.5, 0.7, and 0.9, with a higher value implying better training. Similarly, the teamwork coefficient g is set as 0.1, 0.3, 0.5, 0.7, and 0.9, the higher the stronger the teamwork function.

Step 2: Determine the reduction in productivity (r) caused by increase in team members. Table 1 shows the decline in productivity when $n \leq 5$. Table 2 shows the decline in productivity when $5 < n < 10$. Table 3 shows the decline in productivity when $n \geq 10$.

Table 1: Decline in Productivity ($n \leq 5$)

$n \leq 5$							
Ratio	$\frac{m}{n} \leq 0.5$	$\frac{m}{n} > 0.5$	$\frac{m}{n} > 0.6$	$\frac{m}{n} > 0.7$	$\frac{m}{n} > 0.8$	$\frac{m}{n} > 0.9$	$\frac{m}{n} \geq 1$
R	1	0.95	0.90	0.85	0.80	0.75	0.70

Table 2: Decline in Productivity ($5 < n < 10$)

$5 < n < 10$							
Ratio	$\frac{m}{n} \leq 0.5$	$\frac{m}{n} > 0.5$	$\frac{m}{n} > 0.6$	$\frac{m}{n} > 0.7$	$\frac{m}{n} > 0.8$	$\frac{m}{n} > 0.9$	$\frac{m}{n} \geq 1$
R	1	0.90	0.85	0.80	0.75	0.70	0.65

Table 3: Decline in Productivity ($n \geq 10$)

$n \geq 10$							
Ratio	$\frac{m}{n} \leq 0.5$	$\frac{m}{n} > 0.5$	$\frac{m}{n} > 0.6$	$\frac{m}{n} > 0.7$	$\frac{m}{n} > 0.8$	$\frac{m}{n} > 0.9$	$\frac{m}{n} \geq 1$
R	1	0.85	0.80	0.75	0.70	0.65	0.60

Step 3: Compute the team productivity. Generally, increasing manpower is seen to increase productivity, meaning that the two variables are proportional. By the same token, the more relevant experience team members have, the more they will contribute to productivity. Better training also implies improved productivity. Teamwork and productivity are positively correlated as well. The team productivity P can then be obtained as follows:

$$P = \frac{Net}{(1 - g)} r \tag{1}$$

Where N is final number of team members,

e is experience coefficient,

t is training coefficient,

g is teamwork coefficient,

r is diminishing productivity coefficient.

3. CASE IMPLEMENTATION

This section experiments two cases to demonstrate the applicability of the developed model. Case I assumes that $n=5$ and Case II assumes that $n=10$, and both cases aim to identify the optimal number of team members when crashing is to be conducted.

Case I: Current number of project team members $n=5$.

Step 1: Assume that $e=0.5$, $t=0.7$, and $g=0.7$.

Step 2: Determine the diminishing productivity coefficient, and based on Table 1, the values of r are shown as Table 4.

Table 4: Changes in r Value (Case I)

$n=5$				
M	N	e	t	r
1	6	0.5	0.7	1
2	7	0.5	0.7	1
3	8	0.5	0.7	0.9
4	9	0.5	0.7	0.8
5	10	0.5	0.7	0.7

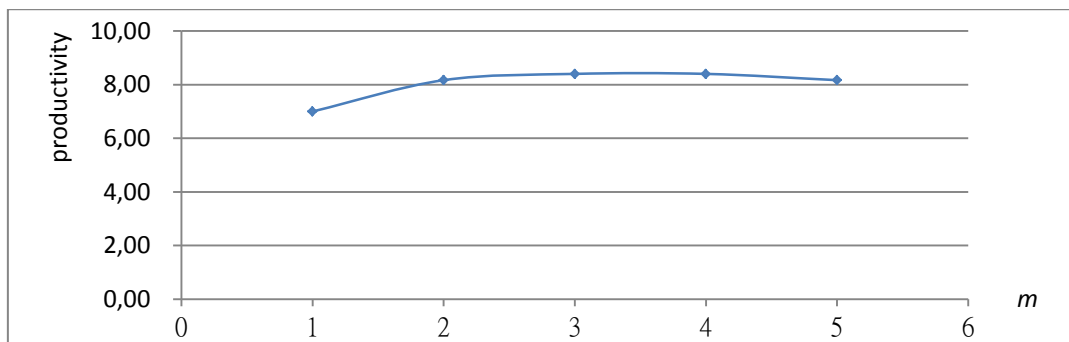
Step 3: Compute the productivity using Equation (1) and the values in Table 4. Results are shown in Table 5. Figure 1 illustrates variation in productivity based on increase in team size.

Table 5: Changes in Productivity of Project Team (Case I)

<i>n</i> =5							
<i>M</i>	<i>N</i>	<i>e</i>	<i>t</i>	<i>r</i>	<i>g</i>	1- <i>g</i>	<i>P_i</i>
1	6	0.5	0.7	1	0.7	0.3	7.00
2	7	0.5	0.7	1	0.7	0.3	8.17
3	8	0.5	0.7	0.9	0.7	0.3	8.40
4	9	0.5	0.7	0.8	0.7	0.3	8.40
5	10	0.5	0.7	0.7	0.7	0.3	8.17

The far right column of the table shows that productivity *P* was measured at 7.0 when one person was added to the team; 8.17 when two people were added to the team; and 8.4 when the team increased by three people. Productivity remained steady at 8.4 when four new members joined the team, but decreased to 8.17 when the head count increased by five. Figure 3 also shows that maximum productivity of 8.4 is achieved when three people are added to the team. The addition of a fourth person does not have any positive effects, while the addition of a fifth person negatively affects productivity and is therefore poor use of human resources.

Figure 3: Changes in Productivity (Case I)



Case II: Current number of project team members *n*=10.

Step 1: Assume that *e*=0.7, *t*=0.7, and *g*=0.7.

Step 2: Determine the diminishing productivity coefficient, and based on Table 3, the values of *r* are shown as Table 6.

Table 6: Changes in *r* Value (Case II)

<i>n</i> =10				
<i>m</i>	<i>N</i>	<i>e</i>	<i>t</i>	<i>r</i>
1	11	0.7	0.7	1.00
2	12	0.7	0.7	1.00
3	13	0.7	0.7	1.00
4	14	0.7	0.7	1.00
5	15	0.7	0.7	1.00
6	16	0.7	0.7	0.85
7	17	0.7	0.7	0.80
8	18	0.7	0.7	0.75
9	19	0.7	0.7	0.67
10	20	0.7	0.7	0.65

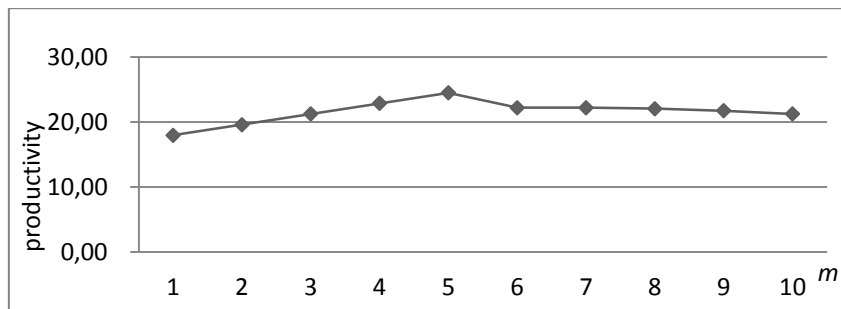
Step 3: Compute the productivity using Equation (1) and values in Table 6. Results are shown in Table 7. Figure 2 illustrates variation in productivity based on increase in team size.

Table 7: Changes in Productivity of Project Team (Case II)

n=10							
<i>m</i>	<i>N</i>	<i>e</i>	<i>t</i>	<i>r</i>	<i>g</i>	1- <i>g</i>	P_{II}
1	11	0.7	0.7	1.00	0.7	0.3	17.97
2	12	0.7	0.7	1.00	0.7	0.3	19.60
3	13	0.7	0.7	1.00	0.7	0.3	21.23
4	14	0.7	0.7	1.00	0.7	0.3	22.87
5	15	0.7	0.7	1.00	0.7	0.3	24.50
6	16	0.7	0.7	0.80	0.7	0.3	22.21
7	17	0.7	0.7	0.75	0.7	0.3	22.21
8	18	0.7	0.7	0.70	0.7	0.3	22.05
9	19	0.7	0.7	0.65	0.7	0.3	20.72
10	20	0.7	0.7	0.60	0.7	0.3	21.23

As shown in the far right column of Table 7, productivity was measured at 17.97 with one additional team member; 19.60 with two additional team members; 21.23 with three additional members; 22.87 with four additional members, and 24.50 with five additional workers. However, productivity was reduced to 22.21 when head count was increased by six. From this point onwards, more team members meant further decline in productivity. Figure 4 also illustrates this trend, showing that productivity reached a maximum of 24.50 when five additional members were added to the team. Expanding the team any further did not have a positive effect on the project, and in fact diminished productivity.

Figure 4: Changes in Productivity (Case II)



4. SENSITIVITY ANALYSIS

In this section, three scenarios were compared to further explore how coefficient variation affects team productivity. Scenario 1 = no diminishing effect on productivity; Scenario 2 = diminishing productivity, and Scenario 3 = diminishing productivity and changes in teamwork. The team comprises 10 members and the duration of the project is 20 days.

Scenario 1: This scenario assumes no diminishing effect on productivity (P0), $r = 1$; $e=0.7$; $t=0.7$, and $g=0.7$. Productivity values as calculated using Equation (1) are shown in the P0 column of Table 8. Productivity increases with additional team members from 17.97 to 32.67.

Scenario 2: This scenario assumes diminishing productivity (P1), $e=0.7$, $t=0.7$, and $g=0.7$. The P1 column of Table 8 shows variation in the value of r , as well as productivity values as calculated using Equation (1). Productivity peaks once the head count of the team has increased by five.

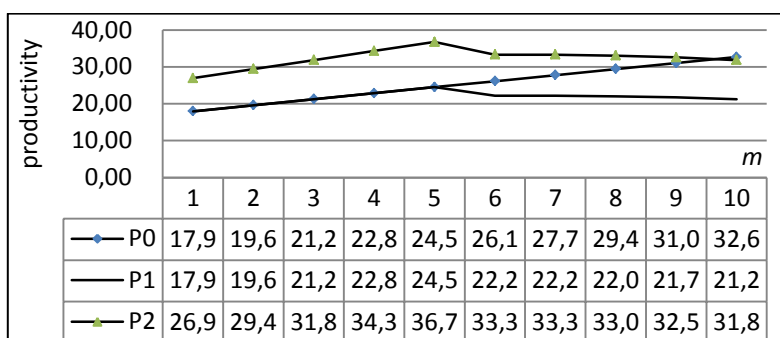
Scenario 3: This scenario (P2) intends to improve diminished productivity through enhancing teamwork. The coefficients are unchanged at $t=0.7$ and $e=0.7$, while g (teamwork) is increased from 0.7 to 0.8. Productivity measures as calculated using Equation (1) are shown in the P2 column of Table 8. Productivity increases from 26.95 to 31.85.

The value of r remains consistent at 1 in P0, as productivity was not diminished in this scenario. In the P1 column, however, increased manpower and the complexity of communications weakens productivity, which is at its maximum of 24.5 when the team is increased by five members. From this point onwards, productivity declines as the team size increases. In the P3 scenario, measures are taken to strengthen weakening productivity, such as promoting teamwork by providing incentives. The differences among the three scenarios are shown in Figure 5.

Table 8: Changes in Productivity of Project Team

N	e	t	P0			P1			P2		
			g	r	$\frac{Net}{(1-g)} r$	g	r	$\frac{Net}{(1-g)} r$	g	r	$\frac{Net}{(1-g)} r$
11	0.7	0.7	0.7	1.00	17.97	0.70	1.00	17.97	0.8	1.00	26.95
12	0.7	0.7	0.7	1.00	19.60	0.70	1.00	19.60	0.8	1.00	29.40
13	0.7	0.7	0.7	1.00	21.23	0.70	1.00	21.23	0.8	1.00	31.85
14	0.7	0.7	0.7	1.00	22.87	0.70	1.00	22.87	0.8	1.00	34.30
15	0.7	0.7	0.7	1.00	24.50	0.70	1.00	24.50	0.8	1.00	36.75
16	0.7	0.7	0.7	1.00	26.13	0.70	0.85	22.21	0.8	0.85	33.32
17	0.7	0.7	0.7	1.00	27.77	0.70	0.80	22.21	0.8	0.80	33.32
18	0.7	0.7	0.7	1.00	29.40	0.70	0.75	22.05	0.8	0.75	33.08
19	0.7	0.7	0.7	1.00	31.03	0.70	0.70	21.72	0.8	0.70	32.59
20	0.7	0.7	0.7	1.00	32.67	0.70	0.65	21.23	0.8	0.65	31.85

Figure 5: Changes in Productivity vs Changes in Members

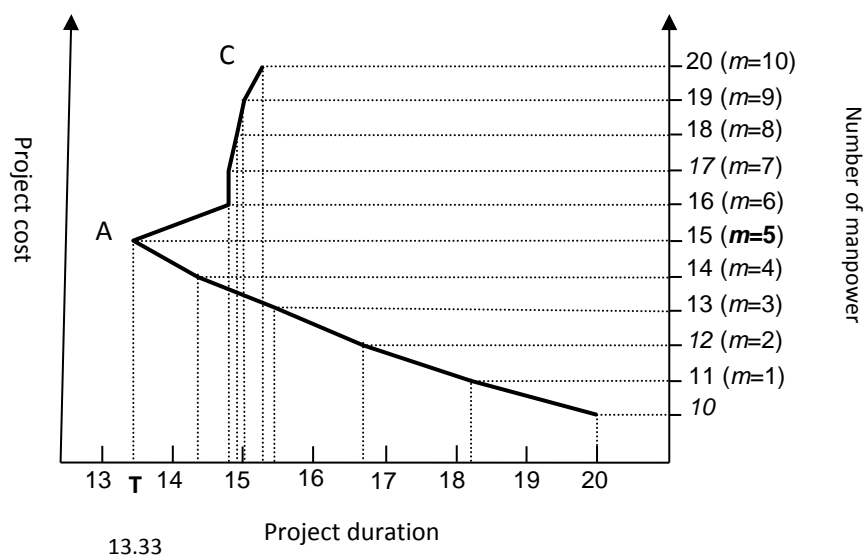


This section explores the effects of crashing on project duration. The original number of team members $N = 10$ and the turnover time $T = 20$ days. Productivity (P_{ij}) values, as shown in Table 7, were converted into completion times as shown in Table 9. One additional team member reduced project duration from 20 to 18.18 days. Two additional team members further reduced duration to 16.67 days. Completion time was reduced to a minimum (13.33 days) when five additional members joined the team. However, once the team had increased by six members, duration increased to 14.71 days. This shows that increasing manpower heightens the complexity of communication, which weakens productivity. Figure 6 shows similar pattern to Figure 2 when crashing the example project, and the most suitable additional number of manpower m is found to be 5, and the corresponding shortest project duration T is obtained as 13.33 days. The project cost related to the number of manpower can also be easily computed, and because cost is not the focus of this study, therefore, it is not shown in Figure 6.

Table 9: Changes in Project Duration

Size of team	10	11	12	13	14	15	16	17	18	19	20
r		1	1	1	1	1	0.85	0.8	0.75	0.7	0.65
Project duration	20	18.18	16.67	15.38	14.29	13.33	14.71	14.71	14.81	15.03	15.38

Figure 6: Law of Diminishing Return of Example Project



5. CONCLUSIONS

In order to maintain their competitive edge in the volatile economy of today, companies must be adept at solving problems and creating opportunities in the shortest amount of time possible. Project management has become a popular way of business management as it allows companies to flexibly allocate human resources. In other words, solving a problem or creating an opportunity is identified as a project. A team is formed by managers to achieve the objective of the project, such as developing the next generation products within a specified timeframe. Projects have tight timeframes due to market competition, and increasing manpower is the most common method of reducing completion time. This is due to the common conception that more workers mean more work can be completed. However, increasing head count also increases requirements for communication, negotiation, and integration, which prevents team members from investing 100% of their time and efforts into the project at hand, diminishing productivity. This is known as the law of diminishing return. Although familiar with this principle, project managers do not have an in-depth understanding of how it can affect the productivity of their teams. This study therefore developed a quantitative model to verify the law of diminishing return by exploring how increasing team size weakens overall productivity. Considering number of team members, their experience, training, and teamwork, the model determines the number of team members that leads to optimal productivity and minimal turnover time. Project managers can use this model to determine how many additional members should be assigned to the team, in order to avoid waste of labor and decline in productivity. Two case studies were conducted, one involving a team of five and the other a team of ten, to demonstrate the applicability of the model, as well as carried out sensitivity analysis using three different scenarios. Results showed that project managers confronted with crashing can use the model to identify the optimal number of additional team members, thus improving human resource management. Authors believe that this study is the first theoretical verification of the law of diminishing returns and provides a more in-depth understanding of crashing, which has both academic and practical value to project management. It is recommended that future studies conduct further research on what factors affect project productivity and provide practical verification of same.

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A RESEARCH ON VALUES POSSESSED BY UNIVERSITY STUDENTS

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ABSTRACT

Purpose - This study was conducted to investigate the value types possessed by university students. Moreover, it was aimed at examining whether value types of students differ in terms of their demographic characteristics.

Methodology - Portrait Values Questionnaire was employed to 328 students studying in a private and a public university located in İstanbul within the sample of the study. Gathering data were analyzed via means, standard deviation, frequency and percentage analysis within descriptive analyses and non-parametric analyses such as Mann-Whitney U and Kruskal-Wallis were used to analyze diversities in terms of demographic characteristics.

Findings - Findings gathered from research were revealed that students mostly identified themselves with universalism, security and self-direction values whereas they identified themselves with power value at least. In addition, it was found out that value types of students differ according to their demographic characteristics.

Conclusion - In light of findings, a conclusion can be drawn as individuals tend to overcome their selfish concerns rather than try to achieve their own personal interests and goals to protect the prosperity of society and the existence of nature.

Keywords: Values, portrait value questionnaire, university.

JEL Codes: M14, I20

ÜNİVERSİTE ÖĞRENCİLERİNİN SAHİP OLDUĞU DEĞERLER ÜZERİNE BİR ARAŞTIRMA

ÖZET

Amaç - Bu çalışma, üniversite öğrencilerinin sahip olduğu değer tiplerini ortaya çıkarmak amacıyla yapılmıştır. Çalışmada ayrıca, öğrencilerin sahip olduğu demografik özelliklerine bağlı olarak değer tiplerinde bir farklılık olup olmadığı araştırılmıştır.

Yöntem - Çalışmanın örneklemini kapsamında İstanbul'da bulunan bir kamu ve bir vakıf üniversitesinde okuyan 328 öğrenci üzerinde Portre Değerler Ölçeği kullanılarak ölçüm yapılmıştır. Elde edilen verilerin analizinde betimsel istatistikler kapsamında aritmetik ortalama, standart sapma, frekans ve yüzde analizi; farklılık analizleri için parametrik olmayan testlerden Mann-Whitney U ve Kruskal-Wallis testleri kullanılmıştır.

Bulgular - Araştırmadan elde edilen bulgulara göre üniversite öğrencilerinin kendilerini en fazla özleştirdikleri değerler evrenselcilik, güvenlik ve özyönelim değerleri; en az özleştirdikleri değer ise güç değeri olarak saptanmıştır. Ayrıca öğrencilerin kişilik özelliklerine bağlı olarak özdeşleştikleri değerler açısından farklılıklar olduğu belirlenmiştir.

Sonuç - Araştırma bulgularından hareketle bireylerin değerlerini kendi kişisel çıkar ve hedeflerini gerçekleştirmeye yönelik olmaktan ziyade bencil kaygılarını aşarak daha çok toplumun refahını ve doğanın varlığını korumaya yönelik olduğu yönünde bir sonuç ortaya çıkmaktadır.

Keywords: Değerler, portre değerler ölçeği, üniversite.

JEL Codes: M14, I20

1. GİRİŞ

Değerler, toplumun insan-doğa mücadelesi ve insanlar arası sorunları çözmeye ilişkin doğrularla ilgili olduklarından toplumsal yaşam kadar eskidir. Değerler kavramının Eski Yunan'da Aristo tarafından geliştirilmiş olduğu, modern anlamda ise J.Bentham'ın faydacılık kuramına dayanan değer anlayışı ile başladığı kabul edilmektedir (Doğan, 2007:38). Değerler konusu, ilk çalışmaya başlandığı dönemlerden beri sosyoloji, psikoloji, antropoloji ve sosyal psikoloji gibi bilim dallarının yanında özellikle örgütsel davranış ve davranış bilimleri alanlarında da geniş bir kullanım alanı bulmuştur. Değerler, kültürel topluluk, grup ve bireyleri sınıflandırmak, zaman içinde yaşanan değişimleri izlemek ve davranış ile tutumların motive edici temellerini açıklamak üzere söz konusu alanlarda sıklıkla araştırılmaktadır (Schwartz, 2012).

Sosyal yaşantıların ölçütlerini oluşturan değerler, bir davranış biçimini öbürüne tercih etmede önemli bir rol üstlenmektedir. Başka bir bakış açısından, değerler davranışların kaynaklarını oluşturduğu gibi ölçütlerini de belirlemektedir. Bu bağlamda belirli bir davranışı oluşturmada etkin olan değer onun nasıl olduğuna da karar vermektedir (Yıldız, Dilmaç ve Deniz, 2013, s.741). Toplumlara oluşturan bireyler, yaşamlarını benimsedikleri değerler sistemine göre düzenlemektedir. Dolayısıyla değerler, herhangi bir sosyal grubun üyesi olan bireyler açısından birbirinden farklı durumları değerlendirme ve yargılamada temel algı kaynağını oluşturmaktadır (Şişman, 2002, s.93).

Bu kapsamda araştırmanın temel amacı üniversite öğrencilerinin sahip oldukları temel değerleri incelemek ve değer tercihlerinin bazı demografik özelliklerine bağlı olarak anlamlı düzeyde farklılaşıp farklılaşmadığını tespit etmektir. İnsan davranışlarını açıklamada temel bir öneme sahip olan değerler, insanların duygu, düşünce ve davranış boyutlarıyla yakından ilgilidir (Dilmaç, Deniz ve Deniz, 2009). Üniversiteler ise bir toplumun bilimsel, sosyal, ekonomik, teknolojik ve kültürel gelişiminin sağlanmasında önemli bir rol oynamaktadır (Şahin, Zoraloğlu ve Fırat, 2011). Dolayısıyla, çalışma konusu geleceğe yön verecek üniversite öğrencilerinin sahip olduğu değerlerin belirlenmesine odaklanarak, mevcut durumun değerlendirilmesi açısından önem taşımaktadır. Diğer taraftan, ülkemizin hızlı gelişimi göz önüne alındığında, dünya toplumsal yapısı ve sosyoekonomik gelişimi içinde arzu edilen yeri alabilmek, bireylerin sahip olduğu değerlerin söz konusu bu gelişme ile uyumlu olmasına güçlü bir şekilde bağlıdır. Bu durum sahip olunan değerlerin ayrıntılı bir biçimde araştırılmasını gerekli kılmaktadır (Kuşdil ve Kağıtçıbaşı, 2000). Bu kapsamda yapılan bu çalışmanın, yaşanan gelişmelere bağlı olarak sahip olunan değerlerde zaman içinde olabilecek olası değişimlerin, farklı çalışma sonuçlarının karşılaştırılması suretiyle incelenmesiyle, geleceğin anahtarı üniversite öğrencilerinin değer eğilimlerinde farklılaşma olup olmadığını ortaya koyması açısından literatüre katkı yapması beklenmektedir.

Çalışma kapsamında öncelikle araştırma konusu olan değerler kavramı üzerinde durularak, Schwartz'ın değer sınıflandırması ve ilgili model açıklanmıştır. Daha sonra, çalışma konusu ile ilgili yapılmış önceki çalışmalardan ulaşılabilenler irdelenerek, konunun yazınsal olarak gelişimi üzerinde durulmuştur. Çalışmanın yöntem kısmında ise araştırmanın anakütlesi, örnekleme, veri toplama yöntemi ve elde edilen verilerin analiz yöntemine değinilmiştir. Makale çalışmasının son kısmında ise elde edilen verilerin analiz ve değerlendirilmesi yapılarak, araştırma sonuçları belirtilmiştir.

2. LITERATURE REVIEW

Çalışmanın bu bölümünde temel olarak değer kavramı üzerinde durularak Schwartz'ın değerler sınıflandırması ele alınacaktır. Ayrıca değer konusu üzerine yapılmış bilimsel çalışmalardan bazıları incelenerek özetlenecektir.

2.1. Değer Kavramı

Değer konusu üzerinde çalışan sosyal bilimcilerin büyük çoğunluğu değerleri bireylerin tutum, düşünce ve eylemlerini yönlendiren veya açıklayan köklü ve soyut güdüleyiciler olarak görmektedir (Schwartz, 2017, s.261). İnsan davranışını anlamada önemli kavramlardan birinin değer kavramı olması, bu konunun uzun yıllardan beri sosyal bilimlerin çeşitli alanlarında incelenmesine neden olmuştur (Asan, 2011, s. 16). Bu nedenle değer kavramının gücü, sosyal bilim alanında bireylere, gruplara, örgütlere, kurumlara, ülkelere ya da toplumlara ilişkin olarak gerçekleştirilen tüm çalışmalar için aynı derecede etkinlikle kullanılabilir olmasından kaynaklanmaktadır (Kabanoff ve Daly, 2002, s. 89). Değerler, toplumun insan-doğa mücadelesi ve insanlar arası sorunları çözmeye ilişkin doğrularla ilgili olduklarından toplumsal yaşam kadar eskidir (Doğan, 2007:38). Sosyal bilimcilerin büyük bir çoğunluğu, değerlerin önemli bir sosyal olgu olduğu ve bilimsel inceleme ve analize konu olabileceği noktası üzerinde birleşmişlerdir. Bu nedenle değer kavramı, başta psikoloji, sosyoloji, antropoloji, ekonomi, siyaset bilimi olmak üzere tüm sosyal bilimlerde kullanılan disiplinler arası bir terim olma özelliğine sahiptir. Örneğin felsefe bilimi değerlerin niteliğiyle ve bunların arasındaki hiyerarşik yapı ve tenkitle ilgilenirken; sosyoloji bilimi ise değerlerin açıklanmasını, oluş yollarını, sosyal olgu, kurum ve süreçlerle etkileşimlerini, türlerini ve bunların oluşturdukları farklı sistemleri ve belli somut durumlarda karşılaşılan değer çatışmalarını ele almaktadır (Güney, 2011, s.31).

Her türlü sosyal alan açısından önemli olan değer kavramı, çok farklı disiplinler tarafından ele alınarak, çıkış noktasına göre birbirinden az çok farklı biçimlerde tanımlanmıştır (Wells, 2014, s.37). Örneğin Fitcher (2002, s.48)'e göre değer, grup veya toplumun, kişilerin, örüntülerin, hedeflerin ve diğer sosyokültürel nesnelere önemliliği üzerindeki değerlendirmelerine dayanan ölçütler şeklinde tanımlanmaktadır. Hosftede (2001, s.5) değeri, diğer bireylerle olan ilişkilerde belirli ve arzu

edilen bir durumu seçme eğilimi olarak tanımlanmaktadır. Değer bir anlamda, çoğunlukla göreceli olarak sabit, sosyalleşmenin yansımaları olan bireysel tercihler şeklinde de ifade edilebilir (Bulut, 2012, s.218). Değer, belirli bir davranış biçiminin veya duruşun, bireysel ya da sosyal olarak karşıt bir davranış biçimine veya duruşa tercih edilmesine neden olan temel bir inancı ifade etmektedir. Bu tanım kapsamında inançlar, bir bireyin neyin doğru, iyi veya arzu edilen olduğuna dair fikirleri taşıyan yargısal unsurları içermektedir (Robbins ve Judge, 2013, s.145). Daha kısa bir ifadeyle değerler, karşılaşılan sorunlarda referans alınan doğrulardır. Bu kapsamda birey sahip olduğu ve karşılaştığı sorunların çözümünde başvurduğu değerlerle, tutum ve dolayısıyla da davranışlarına yön vermektedir (Pazarıcı, 2010, s.13). Bu tanımlamalar çerçevesinde değer kavramı ile ilgili yapılan tanımlamalar aşağıdaki maddeler halinde özetlenebilir. Buna göre değerler (Aydın, 2003, s.122);

- inançlar içeren ve aşkınlıklar taşıyan olgulardır.
- bireylerin yapıp ettiklerini rasyonelleştirip içselleştirmelerine imkan verir.
- genelde ilgi gösterilen ve arzu edilen şeylerdir.
- her alanla ilgilidirler ancak alanların kendine özgü değerleri vardır.
- farklı kaynak ve içeriklere sahip olsalar da bir biçimde sosyaldirler.

Değerlerin kazanılması çocukluk döneminde başlayan bir durumdur. Birey içinde yaşadığı ortamın da özelliklerine uygun şekilde istenilen ve istenilmeyen davranışları algılar ve ortamın gerektirdiği tutum ve davranışları kazanır. Zamanla sayısı artan değerler bazen birbiriyle çatışmakla birlikte, birey zamanla hangi değer için daha önemli olduğu konusunda bir fikir sahibi olmakta ve kazandığı değerleri önemine göre sıralamaktadır (Pazarıcı, 2010, s. 12-13).

Bir bireyin değerlerini bilmek neden önemlidir? Bu sorunun en belirgin cevabı, bireyin değerlerinin genellikle tüm tutum, davranış ve algılarının altında yatan temel sebep ve açıklayıcı unsur olmasıdır. Bu kapsamda bir bireyin sahip olduğu değerler hakkında bilgi sahibi olmak, o bireyi neyin "etkilediği ve harekete geçirdiği" hakkında bir anlayış sağlayabilir (Robbins ve Judge, 2013, s.157).

2.2. Schwartz'ın Değerler Sınıflandırması

İlgili literatür incelendiğinde bireysel değerleri ölçmek için geliştirilen birbirinden farklı ölçüm araçlarının olduğu görülmektedir.

Tablo 1: Schwartz'ın Değer Tipleri ve Tanımlamaları

Değer Tipi	Tanımlaması
İyilikseverlik (benevolence)	Bireyin yakın ilişki içinde olduğu insanların refahını koruması ve iyileştirmesi, sadakat, bağışlayıcılık, dostluk, dürüstlük.
Evrenselcilik (universalism)	Bütün insanlar için anlayış ve hoşgörü; insanların ve doğanın varlığını koruma, sosyal adalet, eşitlik.
Özyönelim (self-direction)	Bağımsız düşünme, keşfetme yönelimi ve yaratıcı olma
Uyarılım (stimulation)	Yaşamdan heyecan duyma; yenilik ve mücadele eğilimi.
Yaşamdan Haz Alma (hedonism)	Bedensel haz ve duygusal doyum arayışı, eğlenceli yaşam, zevk, yaşamda çeşitlilik.
Başarı (achievement)	Sosyal standartlara uygun yetkinliklere sahip olarak kişisel başarı sağlama, hırs, zeka, özsaygı.
Güç (power)	İnsanlar ve kaynaklar üzerinde kontrol ve hükmetme, sosyal statü ve saygınlık sahibi olma.
Güvenlik (security)	Kişinin kendi varlığının, ilişkilerinin ve toplumun devamlılığı, uyumu ve güvenliği
Uyum (conformity)	Başkalarına zarar verebilecek veya toplumsal beklentilere aykırı dürtü ve davranışların kısıtlanması
Geleneksellik (tradition)	Geleneksel kültürün ve dinin gerektirdiği görüş ve adetleri kabullenme, saygı ve bağlılık gösterme

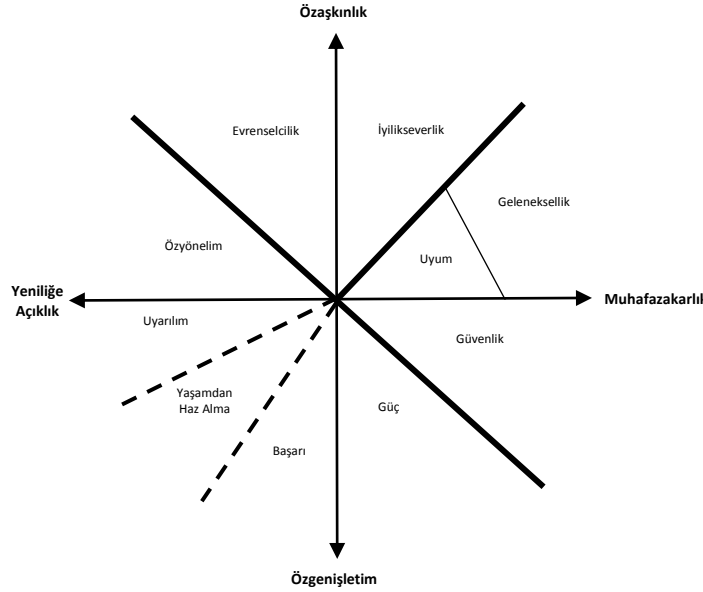
Kaynak: Knoppen ve Saris, 2009: 92; Demirutku ve Sümer, 2010: 18; Kapıkıran ve Gündoğdu, 2016, 623; Doğan, 2007:45-46; Pazarıcı, 2010: 40-42'den uyarlanmıştır.

Bunlar arasında Kahle (1983) tarafından geliştirilen "Değerler Listesi (List of Value-LOV)" ölçeği ve Mitchell (1983) tarafından geliştirilen "Değerler ve Yaşam Tarzı Sistemi (Values and Lifestyle System-VALS)" ölçeği sıralanabilir (Uzkurt, 2007, s. 244). Bunlar dışında özellikle ön plana çıkan ölçümler Hofstede (1980;1991), Rokeach (1967;1973), Inglehart (1971) ve Schwartz (1992) tarafından yapılmıştır (Schwartz, 2017, s.264-266). Özellikle Schwartz tarafından geliştirilen temel birey değerler

kuramı, değer konusu alanında son 20-30 yıldır yapılan çalışmalarda başta gelen kuramlardan biri olup yaygın olarak kullanılmaktadır (Lilleoja ve Saris, 2013: 153). Bu kapsamda değerlerin sınıflandırılması ile ilgili kapsamlı araştırmalar yapan Schwartz, kültürden kültüre farklılık gösteren ancak evrensel anlamda kabul gören on temel değere vurgu yapmıştır (Özcan, 2012, s.27). Söz konusu bu değerler yukarıdaki Tablo 1’de gösterilmiştir.

Devam eden çalışmalarında Schwartz yukarıdaki Tablo 1’de belirtilen on boyutlu değerleri çok boyutlu ölçeklendirme ile bir kadran üzerinde değerlendirmiş ve bu değerleri özgünlük, özaşkınlık, yeniliğe açıklık ve muhafazakarlık olmak üzere dört üst değer olarak ayrıca gruplamıştır (Özcan, 2012, s.27). On yaşam değerinin bu gruplar içerisindeki dağılımı Şekil 1’de gösterilmiştir.

Şekil 1: Değer Tipleri Arasındaki İlişkilerin Kuramsal Modeli, Üst Değer Türleri ve Çift Kutuplu Değer Boyutları



Kaynak: Schwartz, Shalom H. "Universal in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries", Advances in Experimental Social Psychology, Vol. 25, 1992, s.45.

Şekil 1’deki bulgulara göre Schwartz üst değer türlerine ilişkin “yeniliğe açıklık& muhafazakarlık” boyutu ve “özgenişletim&özaşkınlık” boyutu olmak üzere iki ana boyut belirlemiştir. Yeniliğe açıklık&muhafazakarlık boyutu bireylerin belirsiz ve özgürlemeden durumlarda daha çok statükoyu korumaya mı, yoksa kendi entelektüel ve duygusal bilgi birikimine göre mi hareket ettiğine mi odaklandığını göstermektedir. Bu kapsamda “yeniliğe açıklık” alt boyutu özyönelim, yaşamdan haz alma ve uyarılım değerlerinden oluşurken; “muhafazakarlık” alt boyutu ise güvenlik, uyum ve geleneksellik değerlerinden oluşmaktadır. Diğer ana boyut olan özgenişletim&özaşkınlık boyutu ise bireylerin değerlerini kendi kişisel çıkar ve hedeflerini gerçekleştirmeye yönelik mi yoksaencil kaygılarını aşarak daha çok toplumun refahını ve doğanın varlığını korumaya yönelik mi oluşturduğuna odaklanmaktadır. Bu kapsamda “özgenişletim” alt boyutu evrensellik ve iyilikseverlik değerlerinden oluşurken; “özaşkınlık” alt boyutu ise güç ve başarı değerlerinden oluşmaktadır (Schwartz, 1992, s.43-44). Schwartz’a göre değer türleri arasında var olduğu düşünülen uyum ve uyumsuzluklar, birbirine yakın konumdaki değer türlerinin, tutum ve davranış gibi herhangi bir dış değişkenle göstereceği ilişkilerin de benzer olacağını ileri sürmektedir. Örneğin muhafazakarlık ana boyutu geleneksellik, uyum ve güvenlik değer türleriyle yüksek; özyönelim, uyarılım ve yaşamdan haz alma değer türleriyle ise düşük bir korelasyon göstermesi beklenebilir (Kuşdil ve Kağıtçıbaşı, 2000).

2.3. Konu ile İlgili Yapılmış Çalışmalar

Değer konusu üzerinde yapılan çalışmalardan özellikle öğrenciler üzerinde yoğunlaşmış olan çalışmalardan bazıları aşağıda özetlenmiştir.

Wells (2014) öğrencilerin değer tercihleri ile cinsiyet ve sınıf değişkenleri arasındaki ilişkiyi belirlemek üzere ilişkisel tarama modeli ile Schwartz Değerler Ölçeğini kullanarak Marmara Üniversitesi Atatürk Eğitim Fakültesi’nde yaptığı araştırma sonucunda, başarı, iyilikseverlik ve güvenlik alt boyutlarında kız öğrencilerin daha yüksek puanlar elde ettiğini saptamıştır. Ballı ve Ballı (2014) Çukurova Üniversitesi Turizm bölümünde okuyan 346 öğrenci üzerinde Rokeach tarafından geliştirilen değer sınıflaması kapsamında başarı, sükunet, evrensellik ve bireysellik değerlerini araştırmışlar ve çalışmalarını sonucunda öğrencilerin en fazla evrensellik değerine önem verdiğini, cinsiyet ile evrensellik değeri ve ilk ve orta öğretimi geçirilen yer

ile de sükunet değerleri arasında anlamlı bir ilişki olduğunu belirlemiştir. Benzer metodoloji ile Rokeach değer sınıflamasını çalışan Başol, Bilge ve Kuzgun, Kırklareli Üniversitesi, Lüleburgaz Meslek Yüksekokulu'nda sosyal ve teknik programlarda öğrenim gören 356 öğrenci üzerinde yaptıkları araştırma yardımıyla, en yüksek kariyer değerlerinin özel yaşam ve güvenlik-istikrar; en düşük kariyer değerlerinin ise saygınlık ve teknik-fonksiyonel değerler olduğu saptanmıştır.

Büyükebe ve Aydın (2016) üniversitelerdeki bireysel ve örgütsel değerler ile üniversite öğrencilerinin değerlerle yönetime yönelik algılarını ölçmek amacıyla Adıyaman Üniversitesi Besni Meslek Yüksekokulu'nda öğrenim gören 602 öğrenci üzerinde yaptıkları araştırma sonucunda, "dürüstlük" değeri en yüksek, "para" değeri en düşük puanları elde etmiştir. Ayrıca örgütsel değerlerden "yaratıcılık" değerine yönelik algı en yüksek, "bağımsızlık" değerine yönelik algı ise en düşük skorları elde etmiştir. Bunun yanında değerlerle yönetim ölçeğinin demografik özelliklerden sadece cinsiyet değişkenine göre farklılaştığı tespit edilmiştir. Bulut (2012) Gazi Üniversitesi Eğitim Fakültesi'nde öğrenim gören öğrencilerin değer yönelimlerini belirlemek üzere Schwartz Değerler Listesi yardımıyla 432 öğrenci üzerinde yaptıkları araştırmalarında, cinsiyet açısından erkek öğrencilerin uyarılım, kız öğrencilerin ise iyilikseverlik, uyuma ve güvenlik değerleri diğer gruptan yüksek çıkmıştır. Sosyoekonomik açıdan değer eğilimleri evrenselcilik ve geleneksellik boyutlarında, mezun olunan ortaöğretim kurumu açısından ise değer eğilimleri evrenselcilik, uyum ve güvenlik alt boyutlarında farklılaşmıştır.

Bal, Arıkan ve Çalışkan (2016) konuyu iş hayatı açısından ele alarak, çalışanların sahip olduğu değerlerin kullandıkları etkileme taktiklerine etkisi araştırmışlar ve çalışmaları sonucunda özgenişletim değeri yüksek bireylerden yüksek sorumluluk sahibi olanların politik davranış sergileme yaklaşımlarının azaldığını tespit etmişlerdir. Naktiyok ve Timuroğlu (2009) öğrencilerin motivasyonel değerlerinin girişimcilik niyetleri üzerindeki etkisini belirlemeye yönelik Atatürk Üniversitesi İİBF'de yaptıkları araştırmalarında, öğrencilerin girişimcilik niyeti ile yeniliğe açıklık (özyönelim, yaşamdan haz alma ve uyarılım) ve özgenişletim (güç ve başarı) ile ilgili değerler arasında olumlu yönlü ve kuvvetli bir ilişki gözlenmiştir.

Kahyaoğlu ve Kırıktaş (2015), ortaöğretim düzeyinde araştırma yaparak 253 öğrenci üzerinde çevresel davranış ve düşünceler ile bireysel değerler arasındaki ilişki araştırılmıştır. Sonuçlara göre öğrencilerin en yüksek değeri özyönelim olarak saptanmıştır. Ayrıca yardımseverlik ve güvenlik değerleri öğrencilerin cinsiyetleri açısından anlamlı farklılık göstermiştir. Buna göre kız öğrencilerin yardımseverlik ve güvenlik değerleri, erkek öğrencilerden daha yüksektir. Uyguç (2003), öğrencilerin değerlere verdikleri önemde cinsiyet ve fakülte farklılıklarını ortaya çıkarmak üzere Dokuz Eylül Üniversitesinin İİBF ve Buca Eğitim Fakültesinin çeşitli bölümlerinde okuyan 740 öğrenci üzerinde Rokeach Değer Envanteri uygulayarak yaptıkları araştırma sonucunda, faktör analizinden geleneksellik, evrensellik ve hedonizm olmak üzere üç değer grubu elde etmişlerdir. Araştırma sonuçları kız öğrencilerin üç değer tipine, erkek öğrencilerden; erkek öğrencilerin ise dişil değerlere, eril değerlerden, daha fazla önem verdiklerini göstermiştir. Üç değer tipine verilen önemde fakülte arasında herhangi bir farklılık görülmemiştir.

Diğer bir çalışmada Başçıftçi, Güleç, Akdoğan ve Koç (2011) yaptıkları araştırma sonucunda öğretmen adayı kız öğrencilerin özyönelim, yardımseverlik, evrensellik, güvenlik, güç, başarı, uyuma ve uyarılım değerlerinin erkek öğrencilerden daha yüksek olduğunu saptamıştır. Dılmaç, Deniz ve Deniz (2009) üniversite öğrencilerinin özanlayışları ile değer tercihleri arasındaki ilişkiyi araştırmak üzere Selçuk Üniversitesi Eğitim Fakültesi'nde öğrenim gören 534 öğrenci üzerinde bir araştırma yapmıştır. Bunun sonucunda; yaşamdan haz alma değeri erkek öğrencilerde kız öğrencilere daha yüksekken; özyönelim, uyum, güvenlik ve iyilikseverlik değerleri kız öğrencilerde erkek öğrencilere nazaran daha yüksek bulunmuştur. Diğer taraftan 3.sınıf öğrencilerinin evrenselcilik, iyilikseverlik ve güvenlik değerleri 1.sınıf öğrencilerinden daha yüksek çıkmıştır. Başka bir çalışmada Parlar ve Cansoy (2016), İstanbul Ticaret Üniversitesi ve Karabük Üniversite'sinde okuyan öğretmen adayı 210 öğrenci ile yaptıkları çalışmaları sonucunda, disiplin ve sorumluluk değerleri en çok paylaşılan değer olarak belirlenmişken, güven ve bağışlama en az paylaşılan değerler olarak saptanmıştır.

Yine Dılmaç, Bozgeyikli ve Çıkılı (2008) eğitim fakültesinde eğitim gören öğretmen adayı öğrencilerin değer algılarını farklı değişkenler açısından incelemiştir. 637 öğrenci üzerinde Schwartz Değerler Listesini kullanarak yaptıkları araştırma sonucunda evrenselcilik, özyönelim ve güç değerlerinin cinsiyet açısından; özyönelim değerinin yaş değişkeni açısından; yaşamdan haz alma değerinin farklı sosyoekonomik yapıya sahip olma açısından ve son olarak da geleneksellik değerinin ise sınıf düzeyleri açısından farklılaştığını saptamışlardır. Bacanlı (1999) Gazi Üniversitesi Eğitim Fakültesi'nde okuyan 271 öğrenci üzerinde yaptıkları araştırmada, kız öğrenciler evrensellik ve barışçı değerlere daha çok önem verirken, erkek öğrenciler geleneksellik ve dindar olma değerlerine daha fazla önem verdiklerini ortaya koymuştur.

3. YÖNTEM ve BULGULAR

3.1. Anakütle ve Örneklem

Bu araştırmanın evreni bir kamu üniversitesi ve bir vakıf üniversitesi meslek yüksekokullarında öğrenim görmekte olan öğrencilerden oluşmaktadır. İlgili üniversitelerden konuyla ilgili gerekli izin alınarak hazırlanan anket çalışması öğrenim gören toplam 400 öğrenciye uygulanmıştır. Gönderilen anketlerden, geri dönmemesi, yanlış ve eksik doldurması ya da uç değer analizi sonucunda 328 anket değerlendirmeye alınmıştır. Örneklem grubu, 164 kamu ve 164 vakıf üniversitesi olmak

üzere 165 kız ve 163 erkek öğrenciden oluşan toplam 328 öğrenciden oluşmaktadır. Örneklem grubunun demografik özelliklerine ilişkin bilgiler Tablo 2’de sunulmuştur.

Tablo 2: Örneklem Grubunun Demografik Özelliklerine İlişkin Frekans ve Yüzde Dağılımları

Özellik	1	2	3	4	5	6	Toplam
Cinsiyet		Erkek	Kız				-
	n	163	165				328
	%	49,7	50,3				100
Üniversite Türü		Kamu	Özel				-
	n	164	164				328
	%	50,0	50,0				100
Yaş		20 Yaş ve Altı	21-22 Yaş	23 Yaş ve Üzeri			
	n	113	154	61			328
	%	34,5	47,0	18,6			100
Okuduğu Sınıf		1.Sınıf	2.Sınıf	+1	+2		-
	n	152	108	44	24		328
	%	46,3	32,9	13,4	7,3		100
Gelir		500 TL'den az	501-1300 TL	1301 TL ve Üzeri			-
	n	120	139	69			328
	%	36,6	42,4	21,0			100

3.2. Veri Toplama Araçları

Araştırmada anket formunun hazırlanması ve dolayısıyla verilerin toplanması amacıyla Schwartz ve ark. (2001) tarafından geliştirilen ve Knoppen ve Saris (2009)’un çalışmalarında uyguladıkları “Portre Değerler Ölçeği” kullanılmıştır. Ayrıca, katılımcıların demografik özelliklerinin belirlenebilmesi amacıyla da anket formunda demografik sorular düzenlenmiştir.

Araştırmada kullanılan Portre Değerler Ölçeği, toplam 40 madde olup; (1) Güç, (2) Başarı, (3) Hazcılık, (4) Uyarılım, (5) Özyönelim, (6) Evrensellik, (7) İyilikseverlik, (8) Güvenlik, (9) Uyma ve (10) Geleneksellik boyutlarını içermektedir (Knoppen ve Saris, 2009, s.101-102). Ölçekte yer alan her madde “Bana Çok Benziyor” ile “Bana Hiç Benzemiyor” arasında 6 seçenekten birini seçerek 1-6 arasında verilen bir puanlama ile katılımcıların kısa bir portresini çizmeye yönelik hazırlanmıştır.

Schwartz ve arkadaşları (2001), Portre Değerler Ölçeğini geliştirirken iki hedefi göz önüne almıştır. İlk olarak, anketin düşük eğitim düzeylerinde bile değer yönelimlerinin ölçülmesinde kolaylık sağlaması için daha somut ve bilişsel yükünün daha az olmasına dikkat edilmiştir. İkinci olarak ise hem biçim hem de yanıtarken kullanılacak yargılama süreci açısından Schwartz Değer Anketinden farklı olmasına ve böylece Schwartz’ın (1992) değer kuramını sınavabilecek görece bağımsız bir araç olarak geliştirilmesine özen gösterilmiştir (Demirutku ve Sümer, 2010, s.20). Ölçeğin güvenilirliği için hesaplanan Cronbach Alfa değeri 0,914 olarak bulunmuştur.

3.3. Verilerin Değerlendirilmesi

3.3.1. Katılımcıların Değer Yönelimlerine İlişkin Bulguların İncelenmesi

Portre Değerler Ölçeği’ndeki maddelerin ortalama puanları kullanılarak, ilgili maddelere ilişkin değer grup puanları ile boyut ve alt boyut puanları hesaplanmıştır (Tablo 3). Tablo 3’deki yüksek puan ortalamaları, öğrencilerin kendileri ile en fazla özdeşleştirdikleri; düşük puan ortalamaları ise, öğrencilerin kendileri ile daha az özdeşleştirdikleri değer gruplarını ve boyutlarını göstermektedir.

Tablo 3: Portre Değerler Ölçeği Maddeleri, Alt Boyutları ve Ana Boyutları ile Ortalama Değerleri

Madde No	\bar{X}	Değer Grubu	Değer Grubu Ort.	Alt Boyut	Alt Boyut Ort.	Ana Boyut	Ana Boyut Ort.
2	3,42	Güç	3,92	Özgenişletim	4,48	Dikey	4,68
17	3,91						
39	4,48						
4	4,73	Başarı	4,63				
13	4,69						
24	4,44						
32	4,81						
10	4,97	Yaşamdan Haz Alma	4,80				
26	4,45						
37	5,10						
3	5,36	Evrenselcilik	5,07	Özaşkınlık	4,88		
8	4,98						
19	5,18						
23	4,92						
29	5,08						
40	5,12						
12	5,04	İyilikseverlik	4,61				
18	4,88						
27	4,66						
33	4,05						
9	4,10	Geleneksellik	4,10	Muhafazakarlık	4,60		
20	4,24						
25	3,82						
38	4,41						
7	4,44	Uyum	4,60				
16	4,62						
28	4,76						
36	4,77						
5	5,10	Güvenlik	4,96	Yatay	4,71		
14	5,31						
21	4,98						
31	4,65						
35	5,02	Uyarılım	4,55				
6	4,78						
15	4,06						
30	4,91	Özyönelim	5,02	Yeniliğe Açıklık	4,82		
1	5,04						
11	5,23						
22	4,95						
34	5,00						

Portre Değerler Ölçeği'ne ilişkin betimsel istatistikler incelendiğinde maddelere ilişkin puan ortalamalarının 3,42-5,36 arasında değiştiği görülmektedir. Öğrenciler "Dünyada herkesin eşit muamele görmesinin önemli olduğunu düşünürüm. Hayatta herkesin eşit fırsatlara sahip olması gerektiğine inanırım." (\bar{x} =5,36) ifadesini kendileri ile en fazla özdeşleştirmişlerdir. Öğrencilerin kendilerini ifade ettiklerini düşündüklerini diğer maddeler ise "Ülkemin güvende olması benim için çok önemlidir. Devletin içeriden ve dışarıdan gelebilecek tehditlere karşı uyanık olması gerektiğini düşünürüm." (\bar{x} =5,31), "Yaptığım işler hakkında kendi basıma karar vermek benim için önemlidir. Faaliyetlerimi seçip planlarken özgür olmaktan hoşlanırım." (\bar{x} =5,23), "İnsanların doğayı korumaları gerektiğine gönülden inanırım. Çevreye bakıp güzelleştirmek benim için önemlidir." (\bar{x} =5,18), "Doğaya uyum sağlamak ve onla kaynaşmak benim için önemlidir. İnsanların doğayı değiştirmemesi gerektiğine inanırım." (\bar{x} =5,12), "Benim için güvenli bir çevrede yaşamak önemlidir. Güvenliliği tehlikeye sokabilecek her şeyden kaçınırım." (\bar{x} =5,10) olarak ortaya çıkmıştır. Öğrencilerin kendilerini en fazla ifade ettiği düşünülen bu maddelerin evrenselcilik ve güvenlik alt boyutlarında yoğunlaştığı görülmektedir.

Öğrencilerin kendileriyle en az özdeşleştirdikleri madde ise “Benim için zengin olmak önemlidir. Çok param ve pahalı şeylerim olsun isterim.” ($\bar{x}=3,42$) olarak ifade edilen güce ilişkin maddedir. Bu maddeyle birlikte kendileriyle daha az bağdaştırdıkları diğer iki ifade ise “İşleri geleneksel yollarla yapmanın en iyisi olduğunu düşünürüm. Öğrendiğim gelenek ve görenekleri devam ettirmek benim için önemlidir.” ($\bar{x}=3,82$) ve “İşin başında olmak ve başkalarına ne yapacaklarını söylemek benim için önemlidir. İnsanların benim söylediklerini yapmalarını isterim.” ($\bar{x}=3,91$) olarak gerçekleşmiştir.

Alt boyutlar açısından incelendiğinde ise öğrencilerin büyük oranda *özdeşleşme* ($\bar{x}=4,88$) alt boyutu ile kendini özdeşleştirdikleri, bunu sırasıyla *yeniliğe açıklık* ($\bar{x}=4,82$), *muhafazakârlık* ($\bar{x}=4,60$) ve *özgenişletim* ($\bar{x}=4,48$) alt boyutlarının izlediği belirlenmiştir.

Öğrencilerin “yatay” boyut puan ortalaması ($\bar{x}=4,71$), “dikey” boyut ortalamasından ($\bar{x}=4,68$) daha yüksektir. Yatay boyuttaki *yeniliğe açıklık* alt boyutu puan ortalamasının ($\bar{x}=4,82$), *muhafazakârlık* alt boyutu puan ortalamasından ($\bar{x}=4,60$) daha yüksek olduğu belirlenmiştir. Dikey boyutta ise, *özdeşleşme* alt boyutu puan ortalaması ($\bar{x}=4,88$) *özgenişletim* alt boyutu puan ortalamasından ($\bar{x}=4,48$) daha yüksek olduğu görülmüştür (Tablo 2).

Öğrencilerin kendilerini özdeşleştirdikleri değer grupları incelendiğinde ise *evrenselcilik* ($\bar{x}=5,07$) ve *özyönelim* ($\bar{x}=5,02$) değer grupları ön plana çıkmaktadır. *Güç* değer grubu puan ortalaması ($\bar{x}=3,92$) ise öğrencilerin kendilerini en az özdeşleştirdikleri değer grubu olarak görülmüştür.

Katılımcıların kısa portrelerinin sosyo-demografik özelliklere göre farklılık gösterip göstermediği istatistik yöntemlerle değerlendirilmiştir. Çalışmadan elde edilen nicel verilerin hangi yöntemlerle analiz edileceği belirlenmeden önce, Portre Değerler Ölçeği maddeleri alt ve ana değer boyutları açısından puanların normal dağılım gösterip göstermediği incelenmiştir. Dağılımın normal olmaması sebebiyle, bu verilerle parametrik olmayan analizlerin yapılabileceğine karar verilmiştir.

Çalışmada katılımcılardan elde edilen veriler SPSS 23.0 (Statistical Package for Social Sciences) programı kullanılarak analiz edilmiştir. Öncelikle katılımcıların demografik özelliklerine göre dağılımları incelenmiş, daha sonra ise Portre Değerler Ölçeği maddeleri betimsel istatistiklerle incelenmiştir. Betimsel istatistiklerden elde edilen veriler Schwartz Değer Sınıflamasındaki değer grupları, alt ve ana değer boyutlarına göre yorumlanmıştır. Portre Değerler Ölçeği toplam puanları ile demografik değişkenler arasındaki ilişkileri belirlemek için ise istatistiki analizler yapılmıştır. Bu amaçla, cinsiyet ile Portre Değerler Ölçeği toplam puanları arasındaki ilişkiyi belirlemek için normal dağılım varsayımı sağlanmadığı için parametrik olmayan, bağımsız iki grup arasındaki farklılıkların testi Mann-Whitney U ile ($p<0,05$) anlamlılık düzeyinde araştırılmıştır. Diğer demografik özellikler olan bölüm, sınıf, yaş ve gelir değişkenlerinin Portre Değerler Ölçeği düzeyleri üzerinde etkisi olup olmadığı, normal dağılım varsayımı sağlanmadığı için gruplar arası tek yönlü varyans analizinin parametrik olmayan karşılığı Kruskal-Wallis testi ile ($p<0,05$) anlamlılık düzeyinde araştırılmıştır.

3.3.2. Katılımcıların Demografik Özelliklerine Göre Portre Değerler Ölçeği Alt ve Ana Boyutlarının İncelenmesi

Katılımcılar arasında, Portre Değerler Ölçeği değer grupları açısından cinsiyete dayalı istatistiksel olarak anlamlı bir fark olup olmadığını araştırmak için yapılan Mann-Whitney U sonuçlarına göre farklılık bulunan değer grupları Tablo 4’de yer almaktadır.

Tablo 4: Katılımcıların Cinsiyetlerine Göre Değer Gruplarına Yönelik Mann-Whitney U Testi Sonuçları

Değişkenler		Anlamlılık Düzeyi	Açıklama
Bağımsız Bağımlı	Cinsiyet Güç	0,014*	Kız ve erkek öğrenciler arasında <i>Güç değer boyutu ile özdeşleşmeleri</i> açısından cinsiyete dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
Bağımsız Bağımlı	Cinsiyet Güvenlik	0,023*	Kız ve erkek öğrenciler arasında <i>Güvenlik değer boyutu ile özdeşleşmeleri</i> açısından cinsiyete dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.

* $p<0,05$

Mann-Whitney U sonuçları incelendiğinde sıra ortalamalarına göre kız öğrencilerin kendilerini güç değer grubu ile özdeşleştirme düzeyi (151,77) erkek öğrencilerin düzeyinden (177,38) daha düşük olduğu anlaşılmaktadır. Güvenlik değer grubu açısından ise kız öğrencilerin sıra ortalamaları (176,25), erkek öğrencilerin sıra ortalamaları (152,61) ile karşılaştırıldığında özdeşleştirme düzeylerinin daha yüksek olduğu görülmektedir.

Benzer şekilde Portre Değerler Ölçeği değer grupları açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir fark olup olmadığını araştırmak için yapılan Mann-Whitney U sonuçlarına göre farklılık bulunan değer grupları Tablo 5'de yer almaktadır.

Tablo 5: Katılımcıların Üniversite Türüne Göre Değer Gruplarına Yönelik Mann-Whitney U Testi Sonuçları

Değişkenler		Anamlılık Düzeyi	Açıklama
Bağımsız Bağımlı	Üniversite Türü Güç	0,027*	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>Güç değer boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
Bağımsız Bağımlı	Üniversite Türü Evrenselcilik	0,026*	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>Evrenselcilik değer boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
Bağımsız Bağımlı	Üniversite Türü İyilikseverlik	0,028*	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>İyilikseverlik değer boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
Bağımsız Bağımlı	Üniversite Türü Geleneksellik	0,000**	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>Geleneksellik değer boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.

*p<0,05, **p<0,01

Mann-Whitney U sonuçları incelendiğinde sıra ortalamalarına göre kamu üniversitesinde öğrenim gören öğrencilerin kendilerini güç değer grubu ile özdeşleşme düzeyi (152,98) vakıf üniversitesinde öğrenim gören öğrencilerin düzeyinden (176,02) daha düşük olduğu anlaşılmaktadır. Evrenselcilik değer grubu açısından ise kamu üniversitesi öğrencilerinin sıra ortalamaları (176,14), vakıf üniversitesi öğrencilerinin sıra ortalamaları (152,86) ile karşılaştırıldığında özdeşleşme düzeylerinin daha yüksek olduğu görülmektedir. Kamu üniversitesinde öğrenim gören öğrencilerin iyilikseverlik değer grubu ile kendilerini özdeşleştirme düzeyleri (175,96), vakıf üniversitesi öğrencilerinden (153,04) daha yüksektir. Diğer bir değer grubu olan geleneksellik açısından sıra ortalamaları incelendiğinde yine kamu üniversitesinde öğrenim gören öğrencilerin (187,52) özdeşleşme düzeylerinin vakıf üniversitesinde öğrenim gören öğrencilere (141,48) göre daha yüksek olduğu belirlenmiştir. Öğrencilerin yaş, sınıf ve gelirlerine göre değer grupları açısından istatistiksel olarak anlamlı bir fark olup olmadığını araştırmak için yapılan Kruskal Wallis testi sonucunda istatistiksel olarak anlamlı farklılık olduğuna yönelik istatistiksel bulgular Tablo 6'da yer almaktadır. Analiz sonuçlarına göre Portre Değerler ölçeği geleneksellik değer grubu ile özdeşleşme düzeylerinde yaş ve sınıfa göre istatistiksel olarak anlamlı bir farklılık olduğu görülmüştür. Bu farkın hangi grup ya da gruplardan kaynaklandığını ortaya koymak amacıyla sıra ortalamaları dikkate alınarak Mann-Whitney U testi karşılaştırmaları yapılarak sonuca ulaşılmıştır. Gelir değişkenine göre ise öğrencilerin değer grupları açısından özdeşleşme düzeylerinde herhangi bir farklılık olmadığı görülmüştür.

Tablo 6: Örneklem Grubunun Demografik Özellikleri Açısından Değer Gruplarına Yönelik Bulgular

Bağımlı Değişken	Bağımsız Değişken	N	χ^2	Sig.	Açıklama
Geleneksellik	Yaş	328	9,364	0,009**	Öğrencilerin yaşları açısından <i>Geleneksellik Değer Grubu</i> ile kendilerini özdeşleştirme düzeyleri arasında istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
	20 Yaş ve Altı	113			
	21-22 Yaş	154			
	23 Yaş ve Üzeri	61			
Geleneksellik	Sınıf	328	12,638	0,005**	Öğrencilerin sınıfları açısından <i>Geleneksellik Değer Grubu</i> ile kendilerini özdeşleştirme düzeyleri arasında istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
	1.sınıf	152			
	2.sınıf	108			
	+1	44			
	+2	24			

**p<0,01

Öğrencilerin yaşları açısından değerlendirildiğinde ise Mann-Whitney U sıra ortalamalarına göre; 20 yaş ve altı öğrencilerin *geleneksellik* özdeşleşme düzeylerinin 23 ve üzeri yaş öğrencilerden (96,11-71,56) daha yüksek olduğu görülmüştür.

Öğrencilerin sınıfları açısından ise 1.sınıfların *geleneksellik* özdeşleşme düzeyleri okulu bir yıl uzayan +1.sınıf (103,38-81,65) ve okulu 2 yıl uzayan +2. Sınıflara (92,77-61,48) göre daha yüksektir. Benzer şekilde 2.sınıfların da *geleneksellik* özdeşleşme düzeyleri +1.sınıf (81,22-64,92) ve +2. Sınıflara (70,82-47,04) göre daha yüksektir.

Öğrencilerin cinsiyet ve üniversite türüne göre alt gruplar açısından istatistiksel olarak anlamlı bir fark olup olmadığını Mann-Whitney U testi ile araştırılırken, yaş, sınıf ve gelirlerine göre alt gruplar açısından istatistiksel olarak anlamlı bir fark olup olmadığını araştırmak için Kruskal Wallis testi kullanılmıştır. Yaş, sınıf ve gelire göre alt gruplar açısından yapılan analiz sonucunda istatistiksel olarak anlamlı farklılık olmadığı görülmüştür. Cinsiyet ve üniversite türüne göre yapılan Mann-Whitney U testi sonuçlarına göre ise üniversite türü açısından özaşkınlık ve muhafazakârlık alt grupları özdeşleşme düzeylerinde istatistiksel olarak anlamlı bir farklılık olduğuna yönelik istatistiksel bulgular Tablo 6.'da yer almaktadır.

Mann-Whitney U sonuçları incelendiğinde sıra ortalamalarına göre kamu üniversitesinde öğrenim gören öğrencilerin kendilerini özaşkınlık alt grubu ile kendilerini özdeşleştirme düzeyi (176,70) vakıf üniversitesinde öğrenim gören öğrencilerin düzeyinden (152,30) daha yüksek olduğu anlaşılmaktadır. Evrenselcilik değer grubu açısından ise kamu üniversitesi öğrencilerinin sıra ortalamaları (180,33), vakıf üniversitesi öğrencilerinin sıra ortalamaları (148,67) ile karşılaştırıldığında özdeşleşme düzeylerinin daha yüksek olduğu görülmektedir.

Tablo 7: Örneklem Grubunun Demografik Özellikleri Açısından Alt Gruplara Yönelik Bulgular

Değişkenler		Anlamlılık Düzeyi	Açıklama
Bağımsız Bağımlı	Üniversite Türü Özaşkınlık	0,020*	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>Özaşkınlık alt grup boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.
Bağımsız Bağımlı	Üniversite Türü Muhafazakârlık	0,002**	Kamu ve Vakıf üniversitelerinde öğrenim gören öğrenciler arasında <i>Muhafazakarlık alt grup boyutu ile özdeşleşmeleri</i> açısından üniversite türüne dayalı istatistiksel olarak anlamlı bir farklılık bulunmaktadır.

*p<0,05, **p<0,01

Analiz bulguları değerlendirildiğinde evrenselcilik ve iyilikseverlik değer grupları ve bu değer gruplarını kapsayan özaşkınlık alt grubu ile öğrencilerin kendilerini özdeşleştirmeleri, öğrenim gördükleri üniversite türüne göre anlamlı bir farklılık kazanırken, gelirin özdeşleşme düzeylerinde herhangi bir etkisi olmadığı tespit edilmiştir. Bu duruma göre kamu ya da vakıf üniversitesi açısından farklılık olması gelirden bağımsız olarak üniversite yapılanmaları temelinde değerlendirilebilir.

Muhafazakârlık alt grubunda bulunan değer gruplarından sadece geleneksellik değer grubu ile özdeşleşme düzeylerinde farklılık görülmekte ve geleneksellik değer grubu özdeşleşme düzeyleri yaş, sınıf ve üniversite türü açısından farklılaşırken cinsiyet açısından anlamlı bir farklılığa sahip değildir.

Öğrencilerin güç değer grubu ile kendilerini özdeşleştirme düzeyleri ise cinsiyet ve üniversite türüne göre anlamlı bir farklılık ortaya koymaktadır.

4.SONUÇ

Bu araştırmada bir vakıf üniversitesi ve bir kamu üniversitesinde öğrenim görmekte olan öğrencilerin tutum, düşünce ve eylemlerini yönlendiren veya açıklayan köklü ve soyut güdüleyiciler olarak değerler açısından demografik özelliklerine göre farklılık gösterip göstermediği araştırılmıştır. Üniversite öğrencilerinin sahip oldukları değer tiplerini incelemeye yönelik elde edilen bulgular ışığında ulaşılan sonuçlar aşağıdaki gibi özetlenebilir.

Öncelikle üniversite öğrencileri genel olarak kendilerini özdeşleştirdikleri değer tipleri açısından incelendiğinde, en fazla *evrenselcilik*, *güvenlik* ve *özyönelim* değerlerini; en az ise *güç* değerini benimsedikleri saptanmıştır. Konu ile ilgili yapılmış önceki çalışmalar dikkate alındığında Ballı ve Ballı (2004) ile Kahyaoğlu ve Kırıkaş (2015)'in çalışmalarında saptadıkları evrenselcilik değerinin en fazla tercih edilen değer tipi olması bu çalışma ile de desteklenmiştir. Evrenselcilik değer tipinin bütün insanlar için anlayış ve hoşgörüyü, insanların ve doğanın varlığının korunması gibi olgulara odaklanmasının üniversite öğrencileri açısından benimsenmesi dikkat çekici bir sonuçtur. Ayrıca özyönelim değer tipinin de benimsenmesi, özellikle geleceğin Y ve Z kuşağını temsil edecek öğrencilerin bağımsız düşünme, yaratıcılık ve gelişime odaklanmalarını göstermesi açısından önemlidir. Alt boyutlar açısından elde edilen bulgular incelendiğinde ise öğrencilerin büyük oranda *özaşkınlık* alt

boyutu ile kendini özdeşleştirdikleri, bunu sırasıyla *yeniliğe açıklık*, *muhafazakârlık* ve *özgenişletim* alt boyutlarının izlediği belirlenmiştir. Üniversite öğrencilerinin en fazla özleştikleri boyut olan *özdeşlik* boyutu, evrenselcilik ve iyilikseverlik değer tiplerini kapsamaktadır. Dolayısıyla öğrencilerin genel anlamda dış dünyaya duyarlı ve bağlı bir yapıda oldukları söylenebilir. Öğrenciler açısından *yeniliğe açıklık* muhafazakarlıktan daha önem kazanmış ve benzer şekilde de *özdeşlik*, *özgenişletim*den daha fazla özdeşleşilen boyuttur. Diğer bir ifadeyle bireylerin değerlerini kendi kişisel çıkar ve hedeflerini gerçekleştirmeye yönelik olmaktan ziyade bencil kaygılarını aşarak daha çok toplumun refahını ve doğanın varlığını korumaya yönelik olduğu yönünde bir sonuç ortaya çıkmaktadır.

Üniversite öğrencilerinin cinsiyetleri dikkate alındığında erkek öğrencilerin *güç* değerini, kız öğrencilerin ise *güvenlik* değerini en önemli gördükleri değer tipleri olduğu belirlenmiştir. Bu sonuçlar Wells (2014), Bulut (2012), Kahyaoğlu ve Kırıktaş (2016), Başçıftçı, Güleç, Akdoğan ve Koç (2011)'un ortaya koyduğu kız öğrencilerin en fazla özdeşleştiği değer tiplerinden biri olan *güvenlik* değerinin belirlendiği çalışmalar ile örtüşmektedir. Kız öğrencilerin insanlar ve kaynaklar üzerinde kontrol ve hükmetme, sosyal statü ve saygınlık sahibi olmaya daha az önem verdiği, diğer taraftan kendi varlıklarının, ilişkilerinin ve ait oldukları toplumlarının devamlılığı, güvenliği ve uyumunu tanımlayan *güvenlik* değer tipini en fazla düzeyde kendileri ile özdeşleştirmektedir. Kız öğrencilerin bu değer tipine yatkınlıkları özellikle Türk kültürel değer, kazanım ve öğretimi ile açıklanabilir. Öğrencilerin okudukları üniversitelerin kamu veya vakıf üniversitesi olmasına bağlı olarak sahip oldukları değerler karşılaştırıldığında *güç*, *evrenselcilik*, *iyilikseverlik* ve *geleneksellik* değerleri açısından farklılık gösterdikleri saptanmıştır. Buna göre kamu üniversitesinde öğrenim gören öğrencilerin sadece *güç* değer tipi ile özdeşleşme düzeyi, vakıf üniversitesinde öğrenim gören öğrencilerin düzeyinden daha düşük olduğu, farklılık olan diğer üç boyutta ise kamu üniversitesi öğrencilerinin özdeşleşme düzeylerinin vakıf üniversitesinde öğrenim gören öğrencilerden daha yüksek olduğu tespit edilmiştir. Buna göre insanlar ve kaynaklar üzerinde kontrol ve hükmetme, sosyal statü ve saygınlık sahibi olma yani *güç* ile özdeşleşme düzeyinin vakıf üniversitesi öğrencilerinde daha yüksek olduğu; bütün insanlar için anlayış ve hoşgörü, insanların ve doğanın varlığını koruma olarak ortaya çıkan evrenselcilik, bireyin yakın ilişki içinde olduğu insanların refahını koruması ve iyileştirmesini içeren iyilikseverlik ve geleneksel kültürün ve dinin gerektirdiği görüş ve adetleri kabullenme, saygı ve bağlılık göstermeyi kapsayan geleneksellik ile özdeşleşmede kamu üniversitesi öğrencilerinin daha yüksek oranda olduğu belirlenmiştir. Farklılık gözetilen değer tiplerinin kamu üniversitesi öğrencilerinde, vakıf üniversitesi öğrencilerine göre farklılık göstermesi temel olarak iki grubun sahip oldukları sosyo-ekonomik etkilere bağlı olarak açıklanabilir. Son olarak yaş, sınıf ve gelir düzeyleri açısından yapılan karşılaştırmalar sonucunda ise yaş ve sınıf değişkeni için sahip olunan değer farklılığı *geleneksellik* değer tipinde görülmüştür. Yaş açısından 20 yaş ve altı öğrencilerin geleneksellik değeri ile özdeşleşmeleri, 23 ve üzeri yaş grubu öğrencilerden daha yüksek olarak saptanmıştır. Dolayısıyla nispeten daha genç ve ilk sınıflarda okuyan öğrencilerin geleneksel kültürün ve dinin gerektirdiği görüş ve adetlere daha fazla saygı ve bağlılık gösterdikleri söylenebilir. Gelir değişkenine göre ise öğrencilerin değer grupları açısından özdeşleşme düzeylerinde herhangi bir farklılık olmadığı dolayısıyla homojen bir yapı sergiledikleri görülmüştür. Söz konusu bu bulgular literatürde yer alan çalışmalar ile de örtüşmektedir. Wells (2014) ile Ballı ve Ballı (2014)'nın çalışmalarında iyilikseverlik, güvenlik ve evrenselcilik boyutu ön plana çıkarken Büyükbeşe ve Aydın (2016)'ın çalışmasında da para değerinin düşük bir öneme sahip olduğunu belirlemiştir. Başçıftçı, Güleç, Akdoğan ve Koç (2011) yaptıkları çalışmada kız öğrencilerin, güvenlik değerlerinin erkek öğrencilerden daha yüksek olduğu sonucuna ulaşmıştır. Dilmaç, Bozgeyikli ve Çıkılı (2008) ise gelenekselcilik değerinin ise sınıf düzeyleri açısından farklılaştığını saptamışlardır.

Sonuç olarak üniversitelerde yetişen bireyler ülkelerinin geleceğini ve varlığını bir sonraki nesillere taşıyacak en önemli varlıklardan biridir. Söz konusu bu varlığın sahip olduğu değerlerin incelenmesi ve değerlendirilmesi geleceğin planlanması ve inşa edilmesi açısından önem taşımaktadır. Bundan sonra yapılacak gelecek araştırmalarda farklı üniversiteleri kapsayacak şekilde örneklem grubu genişletilebilir ve öğrencilerin değerleri ile farklı değişkenlerin karşılaştırılması ya da ilişkilendirilmesi yönünde modeller yapılarak nedensellik ilişkilerini içerecek şekilde yapılandırılabilir. Dolayısıyla bundan sonraki araştırmalarda örneklem sayısının çoğaltılması önem arz etmektedir. Buna göre çalışma sonuçlarının genellenebilirlik düzeyi artabilecektir. Ayrıca ülkemizde son yıllarda yabancı uyruklu öğrencilerin yoğunlukla yer aldığı üniversiteler temelinde kültürel farklılıkları içerecek şekilde karşılaştırma yapılması gelecek araştırmaların kurgusunu oluşturabilir.

KAYNAKLAR

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A NOVEL BUSINESS MODEL FRAME FOR INNOVATIVE STARTUPS

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ABSTRACT

Purpose- This paper presents a novel business model frame that is meant to explicitly include several approaches of the Theory of Inventive Problem Solving, disruptive strategies, business metrics, problem statement and opportunity formulation, as well as improvements on the profit formula.

Methodology- The analysis first addresses the business model canvas, sketching and framing key points behind the development of startups. The analysis on existing business models covers the firm's value proposition, partners, resources, activities, customer relationships, distribution channels, customers, revenue streams and cost structure. When it comes to innovative startups, the author emphasizes that existing template do not explicitly include innovation measures, no problem/opportunity formulation, intellectual property, or even basic business model concepts as the profit formula. Hence, an innovative frame is developed primarily using the Theory of Inventive Problem Solving technique applied to business and management such as multi-screen analysis of value-conflict mapping, trends of ideality of business system evolution positioning, among others; but also, intellectual property, disruptive strategies, and open innovation, as well as startup metrics.

Findings- A novel frame is proposed, providing general guidelines for each of the sections. Any entrepreneur designing his/her own startup should be able to justify, if not all, most of the items to be able to demonstrate the idea strengths. Regarding the specific building blocks: "Product Formulation and Inventive Problem Solving" and "Disruption Strategy", certain short training should be necessary.

Conclusion- The proposed business model frame visually and concisely sketches, besides accurately stating traditional business concepts, the key innovation concepts that any startup should integrate to be a game-changer in a competitive market. The developed frame is a helpful mapping and evaluation tool to accurately describe the business differentiation and innovation attractiveness to potential investors, incubators and accelerators.

Keywords: Startup, startup financing, business model, innovation management, innovation process.

JEL Codes: M13, M15, O31

1. INTRODUCTION

For many accelerators such as Silicon Valley's Y Combinator, in order to get into their support, they do not require a business plan; but investors are also increasingly becoming less interested in business plans (Altman, 2014). These professionals spend more time working on the business idea, on the product, and talking to users.

For Bill Gross, the founder of Idealab, an incubator of inventions and businesses, the main five success factors across more than 200 companies are: Idea's timing and readiness for the clients (42%), team & execution talent (32%), the idea itself (28%), business model (24%), and funding (14%) (Oppong, 2015). Since the business model also includes the business idea itself, then the business model can be considered as the 52%. Therefore, the business model is a key component in the

creation and justification of a startup, overcoming even the creation of a business plan, and the present paper is meant to enhance the business model with innovation aspects.

2. LITERATURE REVIEW

2.1. The Business Model Concept

On one hand, a business model consists of three steps: 1) Success starts by thinking about the opportunity to satisfy a real customer who needs a job done. 2) Sketch how the company will fulfill the need at a profit. 3) Compare that model to an existing model to see how much we have to change it to capture the opportunity. On the other hand, a business model consists of four building blocks that create value of any business: Customer value proposition, profit formula, key resources, and key processes (Johnson et al., 2008):

Customer value proposition (CVP). This is the most important component, related to the way how to create value for customers, how to get an important job done (problem that needs a solution or need to be fulfilled). “The more important the job is to the customer the lower the level of customer satisfaction with current options for getting the job done, the better your solution is than existing alternatives at getting the job done and, the lower the price, the greater the customer value proposition”. Key questions to this point are: How important is the job to the customer? How perfectly does the offering fit the job? Does the offering eliminate one or some of the most common barriers keeping people from getting particular jobs done: Insufficient wealth, access, skills, or time?

To this regard, Bevis (2014) recommends to entrepreneurs: Start with a business idea that not only fulfills specific customer needs, but has enough market demand. Identify your target audiences, understand what motivates them to act and learn how to grow long-term relationships with your customers.

Profit formula. How the company creates value for itself and to the customer. It consists of: 1) Revenue model (price per volume). 2) Cost structure (assets, direct, indirect costs; economies of scale). 3) Margin model (contribution from each transaction to achieve desired profits). 4) Resource velocity (how well resources (inventory, assets) should be utilized to support expected volume and achieve profits).

Key resources. Only the key assets such as people, technology, products, facilities, equipment, information, channels, partnerships, and brand, that create value and competitive differentiation for the customer and the company, and the way how those elements interact. Develop an organization and management structure so your company is poised for growth, networking and learning from other successful entrepreneurs (Bevis, 2014).

Key processes. This refers to the operational and managerial processes such as hiring, training, design, development, sourcing, manufacturing, marketing, budgeting, planning, sales, service, rules, metrics, and norms, that allow to deliver value in such a way that they can successfully increase in scale.

2.2. The Business Model Canvas and the Lean Canvas

To effectively map out business models, Alexander Osterwalder created the Business Model Canvas (Osterwalder, 2004), then, Ash Maurya generated the Lean Canvas (Maurya, 2010 & 2012). These schemes are the most important models that sketch the main business model concepts. Both focus on problems, top priorities, solutions, key metrics and competitive advantages, as well as capture the information of a traditional business plan in a single page.

The Business Model Canvas is a single page model that includes the following items: Key partners, key activities, key resources, value propositions, customer relations, channels, customer segments, cost structure and revenue streams

Figure 1: The Business Model Canvas Frame

Key Partners	Key Activities	Value Propositions	Customer Relations	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

Unlike the Business Model Canvas, the Lean Canvas includes the “Unfair Advantage”, which means a quality that can’t be easily copied or bought; “Key Metrics” refers to the key activities; the rest of the items are similar to the ones of the Business Model Canvas (Fig. 2). The left half of the frame relates to the product, and the right half to the market.

Figure 2: The Lean Canvas Frame

Problem	Solution	Unique Value Propositions	Unfair Advantage	Customer Segments
	Key Metrics		Distribution Channels	
Cost Structure			Revenue streams	

The advantages of both schemes are that after their completion, the riskiest parts of the business can be quickly identified, so that one can collecting data about those areas to test most fundamental aspects of the model, so to be able to return to the model and update it over and over based on new findings, and finally, help coming up with the key things that matter most (Merrill, 2015).

3. ENHANCING THE BUSINESS MODEL WITH INNOVATION

Being critical to the the Business Model Canvas and the Lean Canvas, both models do not refer to some important aspects of startups that usually matter to investors, incubators and accelerators (Dorantes-Gonzalez *et al.*, 2015) such as:

1. Open Innovation Approaches
2. Disruption Strategy
3. Startup Metrics

In the present paper, besides reaffirming the previous three items in a frame based on the Business Model Canvas, to add:

1. A refinement of the statement of the unique value proposition
2. Introducing Theory of Inventive Problem Solving (TIPS or TRIZ in its Russian transliteration) tools.

3.1. Open Innovation Approaches

The benefits of open innovation were known even before the term Open Innovation was coined in 2003 (Steiner, 2014): Dupont’s TechnologyBank™ eased spreading its own technology licences to become industry standards; IBM’s Ventures in Collaboration program helped entrepreneurs to adopt its patented technology, as well as supplied its software in open source license with the interest of linking the enterprises to IBM technologies; Intel has relayed on the extensive use of external knowledge with universities, labs, and venture capital; Procter & Gamble opened internal research to outside participants to improve internal collaboration and to detect and adapt patented technologies from external actors, this way, doubling its rate of innovation success and decreasing costs.

Open innovation is “the use of purposive inflows and outflows of knowledge to accelerate internal innovation and to expand the markets for external use of innovation, respectively” (Chesbrough et al., 2006). Open innovation is usually contrasted with closed innovation, supposedly its predecessor, where companies generate their own innovation ideas, and then develop, build, market, distribute, service, finance, and support them on their own (Chesbrough, 2003).

Chesbrough enabled both academics and practitioners to rethink the design of innovation strategies in a networked world, coinciding with the current interest for outsourcing, core competences, collaboration, and the internet. He also connected the processes of acquiring external knowledge and exploiting internal knowledge externally by placing them both under the open innovation umbrella.

Open innovation comes in many forms based on the openness of both the process and the outcome of innovation as shown in Table 1 (Huizingh, 2011).

Table 1: Forms of Open and Closed Innovation

	Closed innovation outcome (proprietary intellectual property)	Open innovation outcome (give away outcome for free)
Open innovation process (from external partners inputs or by externally exploiting an internally developed innovation)	Private open innovation (Huston and Sakkab, 2006)	Open source innovation (von Hippel, 2010)
Closed innovation process (available to others)	In-house closed innovation (Chesbrough, 2003)	Public innovation (von Hippel and von Krogh, 2006)

3.2. Disruption Strategy

Regarding the disruption approaches, that often require business model change into an unknown market and business model territories, Johnson (2008) pointed out five strategies:

1. Democratize products in emerging markets at the “Bottom of the Pyramid”. Address through disruptive innovation the needs of large potential customer groups who are shut out of a market entirely because existing solutions are too expensive or complicated for them.
2. Capitalize on a brand-new technology by deploying a new business model around it or leverage a tested technology by bringing it to a whole new market.
3. Fulfilling an entirely unmet customer service where that does not yet exist, especially in markets where existing products tend to increase commoditization over time, by integrating its key processes and resources in a vastly more efficient way.
4. The need to fend off low-end disrupters, such as the Indian cheap car Nano threatening other automobile makers.
5. The need to respond to a shifting basis of competition over time, leading core market segments to commoditize, such as Hilti’s approach turning products into a service: Rather than sell tools at lower and lower prices, sell a “just-the-tool-you-need-when-you-need-it, no-repair-or-storage-hassles” service.

Of course, this list is not comprehensive, but it can be extended to many other creative approaches.

3.3. Startup Metrics

When raising capital from investors, it is significant to demonstrate a quick and clear executive evaluation of the startup’s performance for the venture capitalists or stakeholders, since they just accept or reject the proposal without a clear understanding of the factors that influenced the decision.

Metrics are very informative about the various dimensions of a startup's performance. Even though metrics are not usually sufficient to guarantee an outcome, they are necessary to successfully fundraise. At the end of the day, investors want to know why it is safer to invest in a product.

A venture capital investor guide of the most important metrics analyzed when judging an early-stage startup is divided in five groups: financial, user, acquisition, sales, and marketing (Crichton, 2014).

1. Financial Metrics: Monthly Revenue Growth, Revenue Run Rate, Gross/Net Margins, Burn Rate and Runaway.
2. User Metrics: Daily Active Users / Monthly Active Users, K-value (virality), Proportion of Mobile Traffic, Cohort Analysis and Churn.
3. User Acquisition and Marketing Metrics: Cost of Acquiring a Customer and Payback (paid and free channels), Net Promoter Score
4. Sales Metrics: Magic Number, Basket Size (Average Sales Price) and Order Velocity, Average Sales Cycle, Long Term Value.
5. Market Metrics: Total Addressable Market, Average Wallet Size.

Table 2 shows a more detailed explanation and form of computation for these metrics.

Table 2: Startup Metrics

Financial metrics

	Computation	Comments
Monthly revenue growth	<i>Take the current month’s revenue, subtract last month’s revenue, and then divide by last month’s revenue</i>	It is used more by founders than venture capitalists. A growth rate of 40 percent per month is very good. A growth rate below 40 percent can be considered good if you can convince an investor that additional capital placed in sales and marketing will drive the growth rate higher
Revenue run rate	<i>Take the revenues recognized in the most recent month and multiply by 1</i>	Vcs often talk about the current revenue run rate as well as the projected run rate in 12 months. For example, the company may be currently at a \$2 million run rate, but will be \$10 million by the end of the year. So when evaluating a startup, VCs are thinking about where the business has to be in 18–24 months when the next fundraise will happen
Gross/net margins	<i>Gross margin is calculated as total revenue minus the “cost of goods sold” divided by the revenue. Net margin is similar, except we also subtract the total expenses of the business as well (except for taxes and a handful of other accounting line items)</i>	Margins are important because they show the ability of your startup to spend venture capital and get significant return. Investigate what is the margin for your particular business. For example, services companies can reach margins of 90%, software businesses of 70%, and hardware companies often struggle to get above 40%. Margins become tighter when competition is greater, so successful businesses must develop strategies to avoid margin compression from new entrants, and lead startups to fail to receive funding
Burn rate and runaway	<i>This is the operating loss per month. To calculate runway, take the amount of available capital and divide by the monthly burn rate to get the number of months until your start-up runs out of cash</i>	These numbers show the efficiency of a business, the timeline for fundraising, and the need for capital. While startups are often run quite cheaply until their first fundraise, VCs will want to understand how you will increase your expenses to grow the business more quickly with any new infusion of capital. Lest anyone get the wrong impression, most investors expect their entire investment to be spent within 18–30 months. So if you’re asking for a fundraise of \$10 million, but your monthly burn rate is \$100,000, you must develop a very clear plan on how the burn rate is going to increase, and how that will propel the growth of the business
User metrics		
Daily Active Users / Monthly Active Users		Are well-known metrics, but a couple of other metrics provide keen insight into a startup’s quality
K-value (virality)	<i>Choose a time frame, such as one week. Take the number of users at the beginning of the week as a base. Now, track all invites that these users make to other people (for example, using an “Invite Your Friends” link). Aggregate the number of new users entering through</i>	The k-value is a measure of virality, and is borrowed from epidemiological studies of disease progression. This number is exponential, and defines the magnitude of the user growth rate by word of mouth (as opposed to paid acquisition). For social media startups, this is often the only metric that matters (the other is retention). A value less than 1 means that the population is dying and will cease to exist. A value of 1 means that the population is stable. A value of 1.2 is strong, and a value of over 1.4 means incredible growth. If you start with 1,000 users and have a k-value of 1.2 per week, after 30 weeks you will have about

this channel and then calculate the ratio of new users to old users and add 1. So, if you start with 1,000 users, and they bring on board 200 new users, we have a ratio of .2 + 1 (our base population) and that leads to a k-value of 1.2

200,000 users. But if you have a k-value of 1.4, you will have more than 17 million users within the same period. Growing at such a speed usually doesn't last long, since old users are not as likely as new ones to bring additional users to the product (they already invited everyone!). However, some companies like Facebook and Snapchat have exhibited extremely high growth like this for an extended period of time, so it is certainly possible

Proportion of Mobile Traffic

Take the number of visits from mobile and divide by the total number of visits to your product

This is a simple ratio, but an important one in a world where more and more of our time is spent on mobile. Nearly every company that targets consumers and talks to an investor today will have to discuss their mobile strategy. Data today shows that people are potentially spending a majority of their computer usage on mobile devices. Engaging such users is crucial today

Cohort Analysis and Churn

Take all of the users who joined a product in a given time frame (usually a week). Then calculate how many of these users engaged with the product over every successive week. Churn is slightly different and is calculated by taking the number of users who leave and dividing by the number of total users (regardless of start time)

Cohort analysis is a metric by which we see the decay in user engagement. Users leave even the stickiest products for any number of reasons. For instance, small and medium businesses may leave your product because they are shutting down operation. VCs really like to see cohort-analysis tables, because they give us a perspective on when users are leaving the platform.

First-week retention is probably the most immediately interesting number. For social media, 80 percent one-week churn is very high, 40 percent is good, and only 20 percent is phenomenal. For paid products like SaaS, churn and other conversion metrics tend to make more impact here rather than pure cohort analysis. SaaS churn in the low single digits (1–3 percent) is strong.

Seasonality can be an important component to elucidating cohort analysis. Education startups often see their users return at the beginning of the school year as people think through their software choices. Be sure your story includes all facets of your cohort analysis

User acquisition and marketing metrics

Cost of Acquiring a Customer and Payback (paid and free channels)

Take the amount spent on all forms of user acquisition (search engine marketing, content marketing, public relations, etc.) and divide by the number of new users within a given period. Thus, if we spent a total of \$100,000 acquiring users, and we have 100 new users, we just paid \$1000 per user (fully-blended)

Free acquisition is what it sounds like – someone started using a product without seeing an advertisement, perhaps through word of mouth, or maybe reading about it in the press. In contrast, paid acquisition is generally synonymous with advertising. If you spend \$60 on Google AdWords and get one customer, you had a CAC of \$60. We often express the number of free versus paid acquisitions as a ratio, since this can show if the growth of the user base is primarily organic. In general, the higher the average revenue per user (ARPU), the higher the cost of acquiring a customer can be. In social media, this number needs to be as low as possible (and can be near zero if growth is purely viral). In e-commerce, great CAC prices are around \$30–\$60 per user. Acquisition prices above that are not uncommon, but they do require more diligence. Prices above \$200 are pretty rare in successful online businesses. Then again, financial services often have CACs in the upper hundreds, so, as always, there are exceptions

Net promoter score

Run a survey among your customers asking how likely it is that they will recommend

This is one of my favorite metrics. It shows **how satisfied your customers are with your product and your overall experience**. NPSs of 50 are considered excellent, and companies like Amazon and Google generally

(i.e. promote) your product to other people on a 1 to 10 scale. Promoters are those who give an answer of 9 or 10, and detractors are those that respond with a 1 or 2. Calculate the proportion of both groups as a total of the survey population. The net promoter score is the proportion of promoters minus the proportion of detractors. Thus, if 50 percent of your customers are promoters and 10 percent are detractors, your net score is 40

hover around such numbers. However, scores as high as 80 or even 90 are possible. Businesses that inculcate such fervency in its customers are highly valuable, and should raise capital easily

Sales metrics

Magic number

Take the net growth of subscription revenue over two quarters, multiply by 4, and then divide by the total spend on sales and marketing. So if in Q1 we had \$200,000 in subscription revenue, and in Q2 we have \$400,000, and we spent \$300,000 in sales and marketing in Q1, we would have \$400,000-\$200,000, which is \$200,000 net growth, multiplying by 4, we have \$800,000, and dividing by our expenses, we have a ratio of 2.66

This is arguably the best-named metric here, and a favorite of Scale Venture Partners, which popularized it. Essentially what this metric calculates is our **return on investment of spending a dollar on sales and marketing**. For each dollar we spend, we get the magic number back in additional revenue. A magic number above 1 means that a company has found a way to scale sales and marketing to build sustainable profit growth. A number below 1 isn't necessarily terrible, but it also means that the company is not scaling as efficiently as other companies

Basket Size (Average Sales Price) and Order Velocity

The average sales price (ASP) is the price of a typical order. Order velocity is the time it takes for a customer to make a repeat purchase

For e-commerce businesses, these are among the most important metrics to calculate. ASP often drives the rest of a startup's fundamentals, and so like run rate, acts as a clustering algorithm to quickly assess a startup's business model for VCs. A high ASP generally means wealthier customers, fewer repeat purchases, more flexibility on the cost of acquiring a customer, etc. Order velocity also is influenced by ASP. For instance, Uber is a low ASP, high-velocity e-commerce business, whereas One Kings Lane tends toward a high ASP but low-velocity business. There is no "best" answer regarding these metrics, but generally, the lower the ASP, the higher the velocity of sales needs to be to compensate

Average Sales Cycle

Take the date that a customer is first contacted, and then the date that they make their first purchase. The difference is the sales cycle. Average across all customers

Like ASP, the average sales cycle often determines a lot of the fundamentals of a startup's business, and therefore tells us about how to think about a company rather than its performance. We tend to use average sales cycle for enterprise and subscription sales, whereas we use order velocity for e-commerce and other repeatable purchases. Sales to government and education institutions generally have the longest cycles, possibly two years or even longer. Sales to Fortune 500 businesses are

	<p>shorter, generally 6–18 months depending on the product (for instance, software is easier to purchase than storage infrastructure). Converting a customer in a freemium model can take 18 months or more, but generally a cycle below one year is good</p>
<p>Long Term Value</p> <p><i>This is the total value of a customer over the life of that customer’s relationship with the company</i></p>	<p>This metric is really well-known, so I won’t cover it in-depth. It works hand-in-hand with churn, since the length of the relationship is inversely proportional to the churn. Calculating this value tends to be really hard, and getting to a number that is actually comparable across companies is challenging. VCs often have to substitute more objective metrics like ASP to get to values that are more easily measurable. Nonetheless, this number is crucially important, particularly as a company scales for the long-term</p>
<p>Market metrics</p>	
<p>Total Addressable Market</p> <p><i>This is the total amount of money spent in a startup’s defined space</i></p>	<p>While incredibly important, there is a huge amount of fuzziness in any sort of market analysis. Startups may want to define themselves a certain way, and venture capitalists may have an entirely different market in mind when they analyze a startup. Generally speaking, markets greater than \$1 billion are good, and any market definition that uses the word “trillion” is likely to get a laugh from a venture capitalist. Often, describing the TAM is more an opportunity for a founder to demonstrate an understanding of their startup’s market than it is about actually getting a quantitative figure</p>
<p>Average Wallet Size</p>	<p>This is a key metric for a lot of businesses, particularly enterprise companies. Average wallet size is the total amount that a single customer can spend in a given period of time for a category of services (i.e. its budget). This metric is important because it gives a sense of the financial capabilities of your customers, and it allows a VC to judge how expensive your product is relative to a customer’s appetite. This number cuts both ways. Startups that charge small amounts compared to the average wallet size are just as risky as those that charge a very high proportion of the wallet size as their product’s price. You don’t generally want to be insignificant, nor do you want to be so large that you knock out an entire budget</p>

3.4. Further Improvement of the Unique Value Proposition

The unique value proposition is a differentiating factor that would compel a prospect to choose a specific company over a competitor. This item is central, and it is insufficiently stated. Some tips for identifying a unique value proposition and for standing out in a competitive market were pointed out by Lord (2014):

1. Critical focus and features. Why it’s so critical for the prospects, and how focused the company is on this.
2. Partnerships and platform integrations. Show off how convenient and powerful a platform is when integrated with other products of value to prospects.
3. Customer service. If competitors are standing on low prices as their unique value proposition, invest in a customer-service team, which can be a great way to stand out.
4. Design, user interface and user experience. Make the experience of discovery, comparison, decision, easy use and understanding, and ongoing user experience stunning. People are willing to pay for quality and a beautiful design.
5. Focus on the “why” of the Golden Circle Theory. His premise is based on that the best companies focus on “why” they do what they do, getting at the heart of introducing prospects to the core values and motivations for building this product and sharing it with the world. Innovative enterprises think and act by communicating from inside out, by explaining what their beliefs, purpose, inspiration and cause are; hence inspiring, building trust, loyalty, so justifying

why we should care (Sinek, 2014). For Sinek, "Why" means "what is your purpose and believe? Why does your organization exist? Why should everybody care? Why is what we trust, are loyal to, our cause, purpose and believe in challenging the status quo (Murphy, 2013).

6. Spin your price in your favor. If you cost more, then it costs more because it comes with account management, development cost, scales better, more reliable, or better customer service? Whatever the reason, put it front and center and explain that price delta.

Again, this list is not comprehensive, but it can be extended to many other creative approaches.

3.5. Applying Theory of Inventive Problem Solving's Tools to Business Model Definition

The Theory of Inventive Problem Solving (TIPS or, from Russian, TRIZ-Teoriya Resheniya Izobretatelskikh Zadach) is becoming one of the leading practices at large and small industrial companies in the world to support innovation and intellectual property by solving inventive problems and generate breakthrough ideas. In its origins, TRIZ was created for technical systems (Altshuller, 1988), however, it has been successfully applied in arts (Murashkovsky, 2007), advertisement (Vikentiev, 2007), social problems (Altshuller, 1994), business and management (Souchkov, 1998; Mann, 1999). Even though TRIZ has been used specifically for business model innovation (Ishida, 2003; Gomila, 2009), both papers dealt with a vague definition of a business model. Only Souchkov (2010) has proposed a more structured approach based on business modelling:

- **Ideality/Value formula in Business Models.**

$$\text{Degree of Ideality} = \frac{\text{Value Creators of the Value Proposition} - \text{Value Reducers}}{\text{Costs}}$$

The higher the degree of Ideality of a specific Value Proposition within a certain market segment is, the more competitive this Value Proposition will be.

- **Contradictions and Value-Conflict Mapping.** These are contradictions between growing market and customer demands that impose limits on value propositions. TRIZ provides a number of tools to help overcoming identified contradictions and the psychological inertia by using the available resources of time, space, material, energy, structure, supersystem, and so forth. Such tools are:
 - Root Conflict Analysis, RCA, (Souchkov, 2007)
 - TRIZ-based Function Analysis (Mann, 2004; Souchkov, 2009)
 - Multi-Screen or the 9-window Analysis to get a "big picture" of key driving contradictions across several system levels (Souchkov, 2009)
 - Special version of the Contradiction Matrix and 40 Inventive Principles developed for business and management applications (Mann, 2004)
 - 7 generic principles of conflicts elimination (Souchkov, 2009)
 - The adapted version of Inventive Standards and the Trends of Business Systems Evolution can be used for more complex cases (Souchkov, 2009)
- **Trends of Business Systems Evolution.** Some trends of business evolution can be applied to building block of a business model, such as the Trend of Increasing the Degree of Dynamics, while some other trends address more specific building blocks, such as the trend of Customer Purchase Focus Evolution, addressing the Value Proposition and Revenue Streams (Mann, 2004; Souchkov, 2009).
- **Building Block Patterns.** Each building block has its own content, depending on the type of business, product, service etc. At the same time, each building block can include generic patterns which can be reused across different business domains. For instance, in (Osterwalder, Pigneur, 2010) the following patterns are identified for the "customer relationship" building block: Personal assistance, dedicated personal assistance, self-service, automated service, communities, co-creation.

As a contribution to the application of TRIZ in Business Model, the author also recommends to use the following TRIZ tools:

- Ideal Final Result
- Dynamization and Adaptivity Increase

- Trend of Functionality Increase

In the following section, these key aspects will be integrated in the design of a new business model frame.

4. DESIGN OF A NEW BUSINESS MODEL FRAME

On the basis of the business model canvas, aforementioned topics can be integrated into it. The new proposals are highlighted in red color in Fig. 3. This frame represents an improvement to the frame presented in (Dorantes-Gonzalez, 2015).

Figure 3: The Proposed Business Model Frame

<ul style="list-style-type: none"> • Key Partners • Crowdsorce • Intellectual Property (IP) Policy • Type of Open Innovation 	<ul style="list-style-type: none"> • Product formulation and inventive problem solving: • Situation Analysis (needs, demands, expectations of business owners/executives) • Problem/opportunity/constraint formulation • Ideality/Value formula • TRIZ Function Value Analysis • Multi-Screen or the 9 window Analysis of Value-Conflict Mapping • Contradiction Matrix and 40 Inventive Principles for business & managt. • 7 generic principles of conflicts elimination • Inventive Standards and Trends of ideality of business system evolution • Dynamization and Adaptivity Increase • Trend of Functionality Increase • Ideal Final Result 	<ul style="list-style-type: none"> • Value Propositions • Critical focus and features • Partnerships and platform integrations • Customer service • Design, user interface and user experience • Focus on the “why” of the Golden Circle Theory • Spin the price in our favor • Others 	<ul style="list-style-type: none"> • Customer Relations • User Experience Feedback • User Metrics: Daily Active Users / Monthly Active Users, K-value (virality), Proportion of Mobile Traffic, Cohort Analysis and Churn 	<ul style="list-style-type: none"> • Customer Segments • Market Metrics: Total Addressable Market, Average Wallet Size
	<ul style="list-style-type: none"> • Key Activities 	<ul style="list-style-type: none"> • Disruption strategy: • Democratize products in at the Bottom of the Pyramid • New business model around a new technology or tested technology on a new market • Fulfilling an unmet customer service where that does not yet exist • Fend off low-end disrupters 	<ul style="list-style-type: none"> • Distribution Channels • Sales & Marketing Strategies • Sales Metrics: Magic Number, Basket Size (Average Sales Price) and Order Velocity, Average Sales Cycle, Long Term Value • User Acquisition and Marketing 	
	<ul style="list-style-type: none"> • Key Resources • IP policies for own patents 			

		<ul style="list-style-type: none"> • Leading core market segments to commoditize (turning products into a service) • Others 	Metrics: Cost of Acquiring a Customer and Payback (paid and free channels), Net Promoter Score	
Cost Structure		<ul style="list-style-type: none"> • Revenue Streams • Profit Formula • IP Policy benefits • Financial Metrics: Monthly Revenue Growth, Revenue Run Rate, Gross/Net Margins, Burn Rate and Runaway 		

There are two new building blocks created within this frame related to “Product formulation and inventive problem solving” and “Disruption Strategy”, which is shaded in red color. Besides, new key items were added to most of the building blocks to enhance the frame.

The entrepreneur designing his/her own startup should be able to justify if not all, most of the items to be able to demonstrate the idea strengths. And regarding both building blocks “Product Formulation and Inventive Problem Solving” and “Product formulation and inventive problem solving”, certain training should be necessary to fill in these blanks. But the learning is worthwhile.

5. CONCLUSION

Current business model frames such as the Business Model Canvas and the Lean Canvas do not address aspects of open innovation, problem definition, innovative problem solving, business metrics and disruptive strategies; therefore, a novel business model frame is introduced to cover these aspects. This new frame is addressed to startup entrepreneurs, incubators, accelerators and investors interested in supporting these new companies.

Besides Open Innovation Approaches, Disruption Strategy, Startup Metrics, the new business model frame adds a refinement of the statement of the unique value proposition, and introduces tools of the Theory of Inventive Problem Solving.

The entrepreneur designing his/her own startup should be able to justify if not all, most of the items to be able to demonstrate the idea strengths. And regarding both building blocks “Product Formulation and Inventive Problem Solving” and “Product formulation and inventive problem solving”, certain training should be necessary to fill in these blanks. But the learning is worthwhile.

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THE ROLE OF DESIGN IN COMPETITIVE STRATEGIES OF TURKISH CERAMIC SANITARY WARE INDUSTRY

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ABSTRACT

Purpose- Ceramic industry has a critical importance for the Turkish economy, as it is one of the sectors with the least use of indigenous resources and the least import dependency as well as having a strong presence in the world market with its export potential. Today, the pressure of price-based competition from developing countries is seen in the ceramic sanitary ware industry. In developed countries, average product prices have been kept high due to design, brand and product quality. Although Turkey is the largest exporter in Europe in terms of capacity, it is third in terms of turnover. The European Union countries' ceramic sector focuses on competitive strategies based on strengths such as innovation, design, and branding abilities to move countries away from the market, such as Turkey, where they cannot compete through cost leadership. Turkey has a great investment in ceramic sanitary ware industry. In order to expand the market share and the use of idle capacities, companies need to produce high value added products through design and branding investments.

Methodology- In the study, literature review about design as a competition element is made and national and international sectoral reports are examined to understand drivers of competition and explain the value of design in the related industry.

Findings- As a result of the study, it is revealed that the product design is one of the most important added value elements in the industry.

Conclusion- The added value role of the discipline for Turkish ceramic sanitary ware industry and possible competition strategies based on design are introduced.

Keywords: Product design, competition strategies, ceramic sanitary ware industry.

JEL Codes: A12, L10

1. INTRODUCTION

Trade globalization has given companies the advantage of offering their goods to larger markets while it has made competition more intense for global industries. The ceramic sanitary ware industry is one of the industries with high added value and fierce competition in global terms and Turkey competes with many countries such as Italy, China, Mexico, Germany and Thailand. To increase competitiveness of this industry has a critical importance for the Turkish economy. Porter (2010) points out that the country's economy cannot be competitive unless the companies within it are competitive. According to Porter, in order for an enterprise to achieve competitive advantage, it must either have lower costs than its competitors in the value creation process, or introduce differences through innovations.

Today, a great deal of value is created through technological developments, customer service, branding and styling (Busbin et al, 2008). Customer value is the cornerstone of competitive advantage since consumers choose a product based on the value it offers relative to the cost. (Busbin et al, 2008). Design is a strategic competitive factor that creates value for companies through innovations. Marketing management ensures achieving organizational goals depends on identifying the needs and desires of target markets and delivering desired satisfaction more effectively and efficiently than competitors

(Kotler and Armstrong 2004). Accordingly, the commercial success of a firm depends on determining the user needs and desires of the market and providing new products that satisfy these needs and desires more effectively and efficiently than competitors. The profession of industrial design is also responsible for optimizing the firms’ profit expectation and users’ utility expectation from the same product by taking into account the mutual benefit of the producer and the consumer.

The added value of the ceramic sanitary ware sector is often related to design, branding, quality and cost. Considering the fact that the biggest disadvantage is the energy and distribution costs of these products which are too high compared to those of their competitors, the price competition policy cannot be maintained in the Turkish ceramic sanitary ware industry. Considering the differences in the industry's own value ranges, competition patterns and market conditions, it appears that competition based on new product development has become more and more important in ceramics sanitary ware industry. It is thought the strategy that the sector should carry out is product differentiation. For this purpose, the development of design based strategies is also important for the competitiveness of the country.

In this study, it is aimed to put forth the importance of industrial product design discipline within the competition strategies of Turkish ceramic sanitary ware industry which is one of the sectors that create the greatest added value in Turkish Industry. It is believed that the effective use of product design, which is a strategic factor in terms of competitiveness, in the firms will be effective in creating demand to turn the unused capacity of this potentially high sector into production.

In order to clarify the role of the product design in the competitiveness of the Turkish ceramic sanitary ware industry, firstly, the concept of competition is briefly explained and competitive role of design is discussed.

2. COMPETITIVENESS

Competition is the ability of convincing customers to prefer goods and services offered by firms to alternatives, on a sustainable basis (Turkish Industrialist's and Businessmen's Association, 1997).

Competition dynamics of companies and countries change. Competitiveness is approached in two ways. One of them is price competition, the other is non-price competition. In price competition, firms compete by reducing the cost of the product they produce with various methods such as profit and productivity. In the case of non-price competition or product competition, firms compete by differentiation of goods through elements like quality, reliability, ease of use etc.

In order to achieve the competitive advantage, the value in comparison with cost offered to the customer must be higher than the value offered by the competitors. (Busbin, 2008). In order for the firm to achieve competitive advantage, it must either have lower costs than its competitors in the value creation process, or introduce differences through innovations. Design is a critical competitive factor that contributes to value creation for both conditions.

3. DESIGN, VALUE AND COMPETITIVENESS

In terms of user-product relationship, design is one of the most effective means of creating value. Design contributes to both tangible and intangible assets in value creation (Cooper, 2000) Design decisions affect not only non-price-based factors such as authenticity, reliability, ease of use, quality, robustness, firm image, delivery time, after-sales services, but also cost-based factors such as production costs, product life-cycle costs. (Trueman and Jobber, 1995; Walsh et al, 1988; Roy and Riedel, 1997).

The effect of the tangible and intangible values created by the design in the competition factors of the company is shown in the following table.

Table 1: The Effects of the Tangible and Intangible Values Created by the Design in the Competition Factors

Factor in Competitiveness	Influence of Design	
Price	Sales price	Is product designed for economic manufacture?
	Life cycle costs	Is product designed taking into account costs of use and maintenance?
Non Price (Product related)	Product specification and quality	Design affects product performance, uniqueness, appearance, materials, finish, reliability, durability, safety, ease of use, etc.
Non Price (Company related)	Company image and sales promotion	Product presentation, packaging and display design affects image and promotion

Delivery to time	Is the product designed for ease of development and to meet delivery schedules?
After-sales service	Is product designed for ease of service and repair?

Source: Walsh et al, 1988. *Competitive by Design. Journal of Marketing Management.*

Since competition-based competition mostly loses validity, the value of design activity is increasing with each passing day in the creation of creative and unique products that responds to the rapidly changing desires and needs of customers as well as price competition to ensure sustainable competitive advantage in the 21st century information economy.

It has been put forward by countless studies (Design and innovation in a successful product competition, Competing through design, Winning by design: technology, product design and international competitiveness, How integrating industrial design in the product development process impacts on company performance, The Impact of Industrial Design Effectiveness on Corporate Financial Performance, Creativity, design and business performance etc.) and emphasized by academicians that the design is an important factor in increasing the competitiveness of firms, even countries. Design is an important tool in increasing the competitiveness of the company. (Kotler and Rath, 1984; Dumas and Whitfield, 1989; Gemser and Leenders, 2001). It is widely known that design is an important factor contributing to the success of firms due to the potential to increase competitiveness (Hertenstein et al, 2001; Roy and Riedel, 1997).

But before looking at the value of the design for the firm, it is necessary to look at the dynamics of the industry since each sector has its own specialized growth potential and norms (Mozota, 2006).

4. COMPETITIVENESS OF CERAMIC SANITARY WARE INDUSTRY AND TURKEY’S POSITION

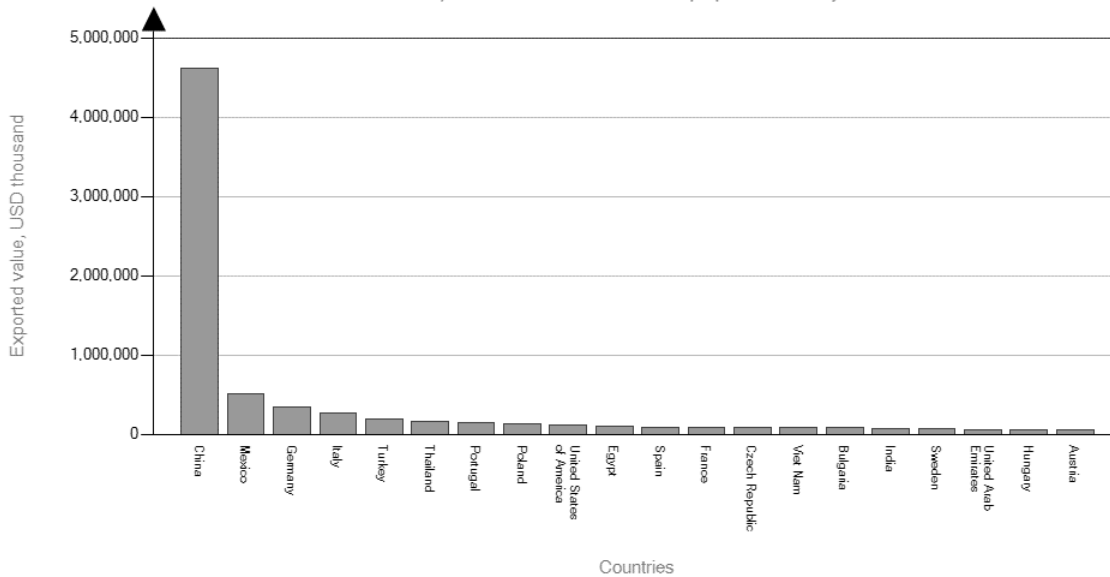
According to the *Competitiveness of the Ceramics Sector Report 2014*, the challenges of globalization have been manifested by the rise in energy and raw material prices, tax barriers and intellectual property rights issues, with low-cost competitors entering the market. The European ceramic sector has come to the conclusion that it cannot continue to compete with its low cost leadership strategy and has begun to seek ways to compete on higher terms. Evaluating the strengths and opportunities of the ceramic sub-sectors, the European Union plans to achieve success with new technologies, strong brands, innovation and knowledge-intensive initiatives in order to become a market leader with high added value products.

According to the report, the competitiveness of the ceramic sector and the ceramic sub-sectors is based on the following conditions as a whole;

- Environmental regulations (energy use (CO2 emissions), pollution prevention, waste);
- Energy cost and availability;
- Issues related to intellectual property rights;
- Information and innovation;
- Globalization (low-priced imports) and trade barriers (access to third countries).

When it comes to the ceramic sanitary ware sub-sector, according to the Turkey’s Tenth Development Plan, Ceramic Working Group Report (2014), world ceramic sanitary ware production is approximately 200 million pieces per year. Europe (with the exception of Eastern European countries) is the largest producer in the world after China with production of about 50 million pieces. The most important producers of Europe are Italy, Spain, Turkey, France, England and Germany. The top 10 producers have a production capacity of about 150 million units. According to this report, since the 1990s there has been a continuous rise in the production of ceramic sanitary ware and the increase in the use of products with population growth has been the main reasons for this development. Growth slowed in the 2000s despite the rapid increase in the 1990s. China is the largest manufacturer in the world. Brazil, Mexico and Turkey follow this country, which has become the production center of the world.

Table 2: Export Values of Ceramic Sanitary Ware Industry in 2016



Source: <http://www.trademap.org/Index.aspx> March, 20, 2017

In reference to the *Competitiveness of the Ceramics Sector Report 2014*, the difficulty of transporting ceramic sanitary ware products from a logistical point of view, the standardization documents required at the entrance to the market, the strong presence of local producers in distribution channels makes Turkey, the largest producer in Europe, advantageous in this region.

According to the report, Germany is the most important producers in the European Union with 23%, Italy 15%, England 10%, Spain 9% and France 8% production rates. The total market share of these countries in the European Union is 74%. Most of the import share belongs to China and Turkey. Despite the high distribution costs, China has been ahead of Turkey in the European market.

Figure 1: List of Exporting Countries for the Ceramic Sanitary Ware Industry in 2016



Source <http://www.trademap.org/Index.aspx> March, 20, 2017

According to the report, the important competitive factors in the ceramic sanitary ware sector are;

- Distribution restrictions due to high weights
- Challenging competition against low cost sanitary ware products
- Construction and renovation driven demand dependence
- Increased competition in substitute goods
- High energy intensity in the sector

In the production of ceramic sanitary ware, the pressure of price-based competition from developing countries is seen. In developed countries, average product prices have been kept high by design, brand and product quality.

In the study, a SWOT analysis on the competitiveness of the European Union ceramics industry was made, and the following trends can be followed for the firms are stated;

- Technology-focused companies. Technology companies guarantee their customers that they will be technology leaders using their own products.
- Customer focused companies. These companies achieve their leadership by identifying customer needs and desires and designing customized products that will respond to them.
- Companies with a focus on price performance. Price performance leaders focus on delivering high volume, high standard, efficient and attractive pricing products.

The European Union countries' ceramic sector focuses on competitive strategies based on their strengths to remove countries from the market, such as Turkey, where they cannot compete through cost leadership. Turkey needs to focus on these strengths in order not to lose its competitive advantage and even to expand its market share, which is stated in the report of the Tenth Development Plan Ceramics Working Group. In this report, it is said that the main concept that needs to be focused on the transition to high value added products is innovation. According to this report, average product prices in developed countries could be kept high with the importance given to design and brand. These factors have been identified as strengths in the SWOT analysis of the competitiveness of the European Union ceramics industry.

Although Turkey is the largest exporter in Europe in terms of capacity, it is third in Europe on turnover basis.

Table 3: Trade Indicators of Exporters in 2016

Exporters	Trade Indicators				
	Value exported in 2015 (USD thousand)	Trade balance in 2015 (USD thousand)	Quantity exported in 2015	Quantity Unit	Unit value (USD/unit)
World	6696075	1365081	0	No quantity	
China	3369718	3327042	1283630	Tons	2625
Mexico	464580	413533	322169	Tons	1442
Germany	405276	48103	79130	Tons	5122
Italy	247128	117090	49616	Tons	4981
Turkey	211985	204794	128603	Tons	1648
Thailand	172692	146536	81016	Tons	2132
Portugal	167490	149559	93891	Tons	1784
Poland	134438	64796	80324	Tons	1674
United States of America	101287	-1012008	44898	Tons	2256
India	100800	22921	135776	Tons	742

Source <http://www.trademap.org/Index.aspx> March, 20, 2017

According to the Ceramic Federation of Turkey, there are 39 producers in total, 5 of which have a capacity of more than one million per year. The share of exports in the world market is 2.5%. The sector has a critical value for the Turkish economy because of the high added value it creates and the low dependency on imports. The majority of these exports are made to England, Germany, France, America and Italy.

Table 4: Trade Indicators of Importers in 2016

Importers	Trade Indicators					
	Value exported in 2015 (USD thousand)	Trade balance 2015 (USD thousand)	Share in Turkey's exports (%)	Quantity exported in 2015	Quantity unit	Unit value (USD/unit)
World	198,112	189,013	100	121,964	Tons	1,624
Germany	29,344	26,968	14.8	14,938	Tons	1,964
United Kingdom	24,132	24,064	12.2	13,494	Tons	1,788
France	16,464	16,377	8.3	13,563	Tons	1,214
Italy	16,392	15,037	8.3	13,317	Tons	1,231
United States of America	10,299	10,059	5.2	5,202	Tons	1,980

Source: <http://www.trademap.org/Index.aspx> March, 20, 2017

The ceramics industry is an energy-intensive industry. Energy costs contains about 30% of total cost. Energy prices in Turkey are much higher than the countries we compete with in the world. Ceramics are a heavy products. The shipping cost is high. 15 million tons of ceramic raw materials and finished product circulate on highways in the country annually. Transportation in our country takes place mainly highways. Railway transportation is not available since there is no factory-port connected railway transportation in our industry. Shipping stocks of existing stations and shipping capacities is low. Ports are inadequate. Product innovation is the main concept that needs to be focused on for high value added products.

The ceramics industry needs to use the unused installed capacities. The added value to be created in the sector is over 800 million dollars if the unused capacity, which is seen as 65.000 tons in sanitary ware industry, is transformed into production. The unused capacities are above \$1 billion. The great investment in this value is idle in our country. In the case of unused capacities turn into production, exports will increase, production costs will decrease, and competitive power will increase. A market needs to be created to increase these capacities. One of the main elements used in the market creation process in the sector is design.

5. CONCLUSION

In the study, the international competitiveness of the ceramic sanitary ware industry and the current situation of the Turkish ceramic sanitary ware industry within this competition have been put forward by examining the national and international institutions' and organizations' reports related to the sector.

The added value of the ceramic sanitary ware sector is often associated with cost, design, branding, quality and technology. The biggest disadvantage of the Turkish ceramic sanitary ware industry is that energy and distribution costs are very high compared to their competitors. Therefore, cost leadership competition is not sustainable in this industry.

Turkey is similar or superior in terms of quality and technology in this industry. Considering the value chain and the competition patterns of the focused industry, competition based on new product development and branding has become increasingly important.

Achieving a sustainable competitive advantage against European countries is only possible with knowledge-intensive initiatives. In this context, it is considered that the product design is the most effective element in influencing customer preferences and in expanding the market share.

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EXAMINATION OF THE EVOLUTIONARY DEVELOPMENT OF THE CONCEPT OF SOCIAL INNOVATION BY THE SCIENCE MAPPING METHOD

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ABSTRACT

Purpose- The main objective of this study is to investigate the evolution of the concept of social innovation from 1966 to the present day.

Methodology- Bibliometric analysis enables researchers to examine statistically the country, author(s), cooperation among authors, citations, institutions, and published years of selected publications and to put forward the general structure of a certain discipline using obtained statistical findings. On the other hand, scientific mapping analysis is a method that concentrates on determining the evolution of a scientific field and its constrained scientific areas. In order to better understand how the evolution of the concept of social innovation changes and develops during the sample period, firstly, a bibliometric and secondly a scientific mapping analysis were performed and the findings were interpreted.

Findings- SciMAT package program was used to perform scientific mapping analysis. Results reveal that there are 1,428 publications concentrating social innovation under Scopus database, while 58.1% (830) of them were articles, 16% (229) of them were conference papers, 11.2% (160) of them were book chapters and the rest of them was other publications.

Conclusion- A thematic change was generally found for the concept of social innovation for the sample period of 1966-2016. The corresponding thematic change was generally evolved by the prominence and the decline of some associated scientific areas.

Keywords: Bibliometric analysis, science mapping analysis, social innovation, innovation, strategic management.

JEL Codes: M10, M14, M16

1. INTRODUCTION

The purpose of this research is to examine the scientific publications produced in the field of social innovation in the world in the period of 1966¹-2016 by means of bibliometric analysis. Despite the fact that there are theoretical and practical studies on the concept of social innovation in the literature, no science mapping analysis study on the development of social innovation studies in the post-1966 period has been found. In this context, it is possible to attain social innovation studies and produced scientific publications through bibliometric databases, and to analyze and comment on them.

This research was carried out by bibliometric analysis method which is increasingly used in different disciplines day by day. Bibliometric analyzes are made with a variety of purposes in relation to scientific publications, such as making comparisons between countries, identifying prominent topics, seeing how a daily concept changes compared with the past, and finding out how these concepts relate to other concepts. In this study, how social innovation studies have changed and developed and the relation with other concepts will be revealed by bibliometric analysis method. In this context, the main concerns are the number of articles published in the Scopus database during the period of 1966-2016 concentrating the concept of

¹ Because there is no access to any data prior to 1966 on SCOPUS databases, the data after this year has been considered.

social innovation, the distribution of the corresponding articles regarding the topics on the basis of keywords, the difference among the topics in the field of management during the sample periods, and the themes that emerge when they are separated into periods (1966-1999, 2000-2008, 2009-2016). The rest of the paper is as the following. Second section gives information about the concept of social innovation along with reviewing the existing literature. Third section introduces the methodological background about bibliometric analysis and scientific mapping. Fourth section presents the findings obtained from bibliometric analysis and scientific mapping and interprets the corresponding findings in line with the existing literature. The paper concludes with the recommendations with respect to analysis results and suggestions for future studies.

2. THE CONCEPT OF SOCIAL INNOVATION

The concept of social innovation is as old as mankind (Sims, 2006) but social innovation works in literature has received rapidly growing scholarly and policy interest during the last decade (Adams and Hess, 2010). The interest in social innovations has grown approximately since 2000 (Dainiene and Dagiliene, 2015).

Although the concept of social innovation was mentioned more often in the literature in the last decade, it did not receive as much interest as technological innovations. The most important reason for this is that, unlike concrete and well-defined technological innovations, it is not easy to observe social innovations and distinguish them from the social environment (Eren, 2010).

As a result of innovation (or, in other words, the innovation tendency) and the continuous and good operation of the cycle of change, civilizations and the world which they are in are developing and progressing. It is thought that innovation is not just an economic process or system. It is now an accepted fact that innovation is the process involving a set of subsystems that are the sum of social trends that eliminate inequalities, generate employment and contribute to the protection of the environment (Halaç et al, 2014).

The heart of the long run economic growth in the all economic growth models is technological change and innovation. In this context, countries must design economy policies in order to develop science-technology-innovation environment in the society and economy, leading sustainable economic growth and global competitiveness (Şener and Saridoğan, 2011; 816).

Joseph Schumpeter is the first person to emphasize the necessity of social innovation in parallel with technological innovation in order to provide economic efficiency (Schumpeter, 1942). Schumpeter also noted the importance of the role of social innovation in other areas of society (social, political and cultural life) as well as in the economy (Eren, 2010).

The basic characteristics of the existing social and cultural structure in the society must be well known and analyzed so that innovativeness can sustain a social continuity independent of individual achievements. Drucker (1985) and Osborne et al (1992) point out that assessments made on innovation will help managers and politicians with their long-term planning to improve the quality of life of societies. (Halaç et al, 2014).

In today's world, governments, public institutions and organizations, non-governmental organizations and companies have begun to meet on common grounds in solving the problems of societies. This union brings the concept of social innovation to the foreground.

The term social innovation, as used here, refers to the generation and implementation of new ideas about how people should organize interpersonal activities, or social interactions, to meet one or more common goals. As with other forms of innovation, the products resulting from social innovation may vary with regard to their breadth and impact (Mumford, 2002).

The term 'social innovation' has had two meanings in the academic literature. In its earliest scholarly uses, primarily in sociology, it was used to refer to the creation of new patterns of human interaction, new social structures, or new social relations. The second focuses on innovations designed to address a social or environmental issue or to meet a specific social market failure or need (Nicholls and Dees, 2015). Social innovation; adopt a process perspective and consider it to be "the generation and implementation of new ideas that are motivated by the goal of meeting a social need" (Hernandez and Cormican, 2016).

The role and importance of social innovations is growing nowadays as the traditional solutions are not enough to address deep-rooted social problems. Social needs and solvency of these problems become mainstream in terms of education, social mobility, trust and community life, obesity, violence, child well-being and etc. The reason for such increase was a demand for developing a new approach, which helps to review and analyze social challenges (Dainiene and Dagiliene, 2015).

Examples of this sort of social innovation may be found in the lives of Martin Luther, Henry Ford, and Karl Marx. At the other end of this continuum, social innovation might involve in the creation of new processes and procedures for

structuring collaborative work, the introduction of new social practices in a group, or the development of new business practices (Mumford, 2002).

There is an example about Professor Muhammad Yunus founded The Grameen Bank in 1976 as a microfinance organization that gives micro credit loans to impoverished people without demanding collateral. The bank was founded with the belief that one could fight poverty by bringing financial services to poor people and helping them to establish profitable businesses. The project turned out to be a driver of social change and has established a new method of money lending and fighting against poverty. Eventually, Yunus won the Nobel Peace Prize for his ‘...efforts to create economic and social development from below’ (Santana, 2014). . It has been a driver of social change and has been presented as a successful example of social innovation.

The concept of social innovation appears to be taking place more and more in discussions on political, scientific and public issues. The belief that social innovation is necessary in overcoming important problems that societies are and will be struggling with today and in the future is increasingly becoming widespread among researchers, policymakers and practitioners (Özdemir and Ar, 2015).

Social innovation is a phenomenon that is realized by introducing new services in areas where social problems such as health, culture, art, employment, accommodation, education, environment can be observed, identifying new routes for existing services, expanding beneficiary masses of services and the adoption of strategies to find new sources (Özdemir and Ar 2015).

Table 1: Summary of Contribution to Social Innovation in the Literature

The Field in which Contribution is Made to the Definition of Social Innovation	The Details of the Field	The Author who Contributed to the Definition
Participants	A process created with the involvement of the society	Crozier and Friedberg (cited from 1993 Fujisawa et al 2015: 680)
Target Group	Targeting individuals and societies facing social and economic difficulties	Goldenberg (2004:1)
	Creating value for the whole society rather than individuals	Hubert (2010: 7); Edwards-Schachter et al (2012: 680)
Areas of Interest	Introducing new services in areas where social problems can be observed, implementing new revenue generating activities	Haugh (2005: 5)
	Restructuring of existing assets (social capital, historical heritage, traditional craftsmanship, accessible advanced technology)	Mulgan (2006: 8)
	It can be applied in many different fields such as government services (new model for public health systems), commercial markets (organic foods), social movements (fair trade), academic field (educational models in child care) and social enterprise	Fujisawa et al (2015: 2)
Goals	Improving economic and social performance	Heiskala and Hämäläinen (2007: 59)

	Including innovative applications not previously applied	Citing from Phills et al (2008) Fujisawa et al (2015: 1)
	An initiative, product, process or program that profoundly changes beliefs of the social system	Cahill (2010: 259)
Used Concepts	Institutional capacity is needed and concepts such as "learning regions" and "learning institutions" are the most important elements in the social innovation process	Andrew and Klein (2010: 22)

Source: Kazançoğlu and Dirsehan, 2016

3. DATA AND METHODOLOGY

Bibliometric analysis will be applied in the research. For this, the "SCOPUS" database will be scanned using the keyword "social innovation". The analysis, visualization and interpretation of the data will be carried out using the SciMAT program, one of the science mapping tools.

3.1. Bibliometric Analysis and Science Mapping Analysis

Bibliometric analysis is generally a tool for measuring international scientific activities. Science mapping, on the other hand, has widely been accepted as a new developing field in a short time. Science mapping analysis is a method that evaluates the structure and change of information and facilitates access to information. (Saka and Igami, 2007:1).

Science mapping or bibliometric mapping is an important research topic in the field of bibliometry. It is a tool that explains different disciplines, fields, articles, authors and their relations with each other. Science mapping analysis is a method focused to identify a scientific field with limited research areas and the evolutionary development of these areas. In other words, the purpose of science mapping is to demonstrate the structural and dynamic image of scientific research (Cobo et al, 2012:1609). Bibliometrics is also an important tool for analyzing and evaluating the progress of academic research in countries, universities, research centers, research groups and journals (Martinez et al, 2015: 257).

Citation networks constitute the basic principle of bibliometric analysis. The bibliometric method features two components. These are citation analysis and science mapping for research performance evaluation. Both can be obtained by the same network methods (Van Raan, 2014:19).

We can evaluate mapping studies that have been published until today in two ways: The first of these is mapping a specific topic, the domain of the cluster of topic, and the second is mapping all databases. Science mapping aims to find the dynamically changing structure of scientific knowledge and representations of intellectual bonds within the system (Small, 1997:275).

Web-based online bibliographic databases ISI, Web of Science, Scopus, CiteSeer, Google Scholar or NLM and MEDLINE or others are common data sources for bibliometric research (Cobo, 2015:43).

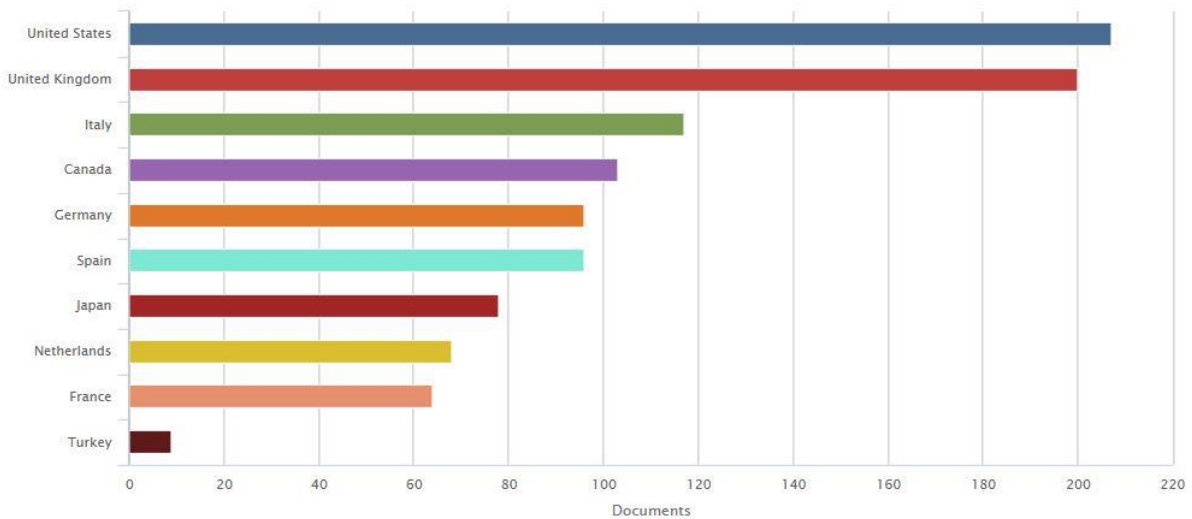
The research was carried out using science mapping analysis and the Science Mapping Analysis Software Tool (SciMAT) program was used for this analysis. This program was selected among data editing options because it is a science mapping program that can perform rich and diverse analysis methods alone (Cobo, 2012).

4. FINDINGS AND DISCUSSIONS

Within the scope of this research, the period of 1966-2016 was chosen as the time interval to be taken as basis in the analysis. According to the results of the inquiries made in the SCOPUS database according to the title and keywords of scientific publications, a total of 1,428 publications have been published throughout the world as of February 2017. A significant increase was observed in the research in the number of publications after 2007.

As can be seen in the following figure, the US ranks first with 207 publications, while the UK ranks second with 200 publications, and Italy ranks third with 113 publications. However, 144 publications were included in the "undefined" category by SCOPUS. Turkey is in the 31st place with 9 publications.

Figure 1: Numbers of Publications Based on Countries

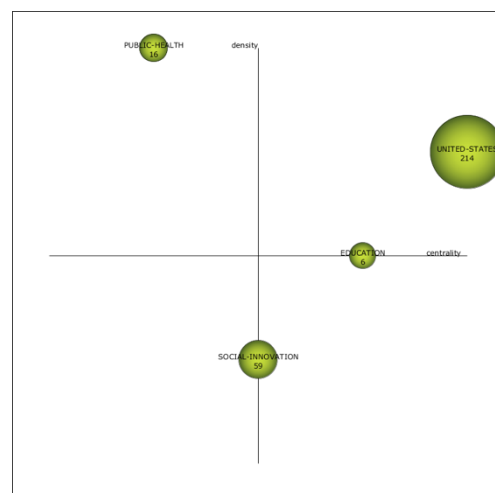
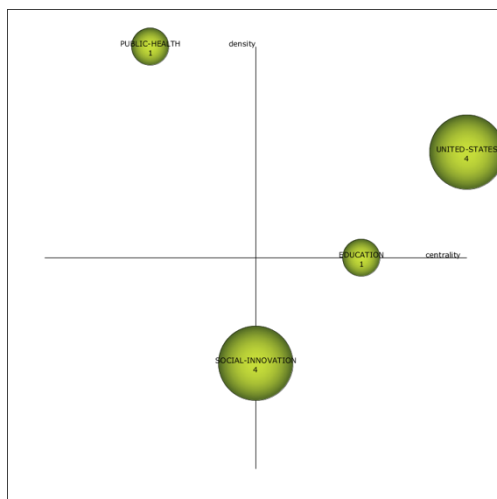


As a result of the analysis made with SciMAT, strategic diagrams were examined by periods. "Centrality" on the horizontal axis in the strategic diagram refers to the degree of strength of the related theme's relation with other themes or thematic areas. The relation strength increases towards the right direction on the horizontal axis while it decreases towards the left direction. The "density" on the vertical axis in the strategic diagram expresses the abundance of the number of scientific publications. The intensity of the theme, i.e. the frequency of work, increases upwards on the vertical axis while it decreases downwards. The themes in the upper left part of the diagram are the themes that have strong bonds in research field but have weak bonds with other thematic fields. The themes in this field, which have been studied hard and in which the specialization increased much, remained weak in establishing relations with other themes. The themes in the bottom left part of the diagram are either new emerging or disappearing themes. These themes are both poorly studied and weakly related to other thematic fields. The themes in the lower right part are the ones that are important for the development of the research field but have not been studied adequately. Finally, the themes in the upper right part of the diagram are the advanced themes in the center of the field with high concentration and high centralization (Monica et al, 2015: 2260).

Figure 2: Strategic Diagrams of the Period of 1966-1999

a) Strategic Diagram (Number of Documents)

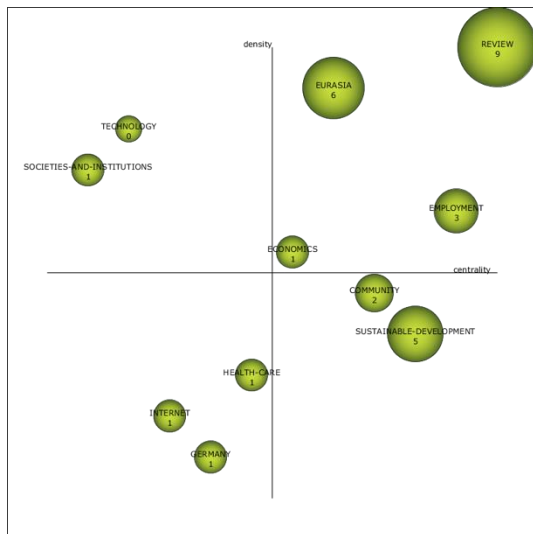
b) Strategic Diagram (Number of Citation)



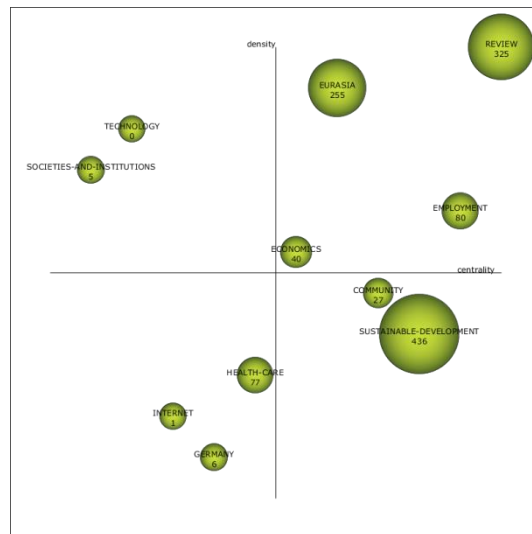
When the strategic diagrams obtained from the analysis of the social innovation studies between the years of 1966 and 1999 were examined, 4 themes came to the forefront. Two of these themes are engine themes and basic themes, and they appear as United States and Education themes. The theme of social innovation, on the other hand, emerges as a rising or disappearing theme. Public-health theme in this period has a strong but isolated structure.

Figure 3: Strategic Diagrams of the Period of 2000-2008

a) Strategic Diagram (Number of Documents)



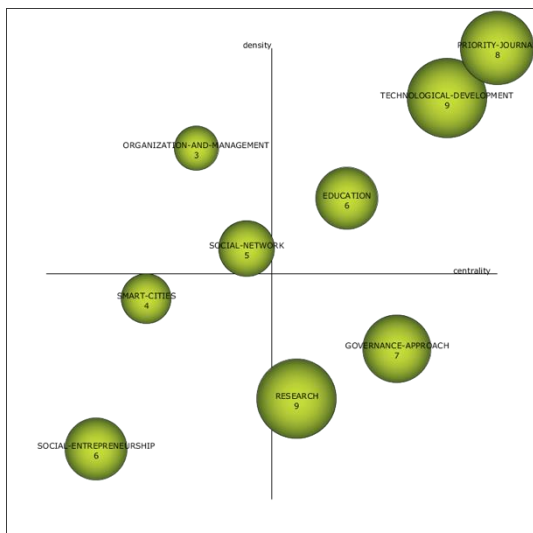
b) Strategic Diagram (Number of Citation)



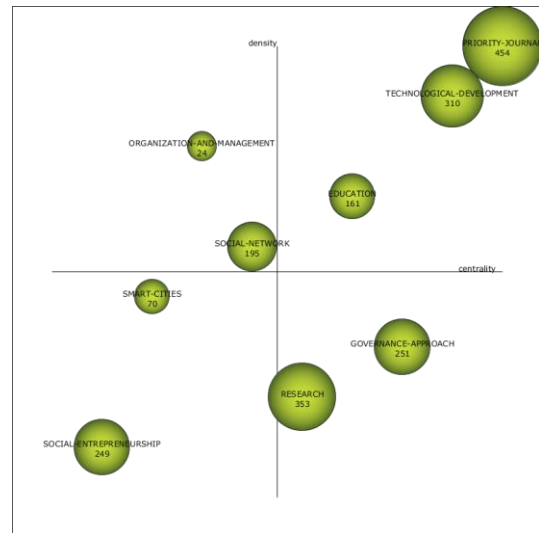
When the strategic diagrams obtained after the analysis of social innovation studies between 2000 and 2008 are examined, 11 themes came to the forefront. Six of these themes are engine themes and basic themes, and they are Review, Eurasia, Employment, Economics, Community, Sustainable-Development themes. Health-Care, Germany and Internet themes appear as rising or disappearing themes. Technology and societies-institutions themes in this period have strong but isolated structures.

Figure 4: Strategic Diagrams of the Period of 2009-2016

a) Strategic Diagram (Number of Documents)



b) Strategic Diagram (Number of Citation)



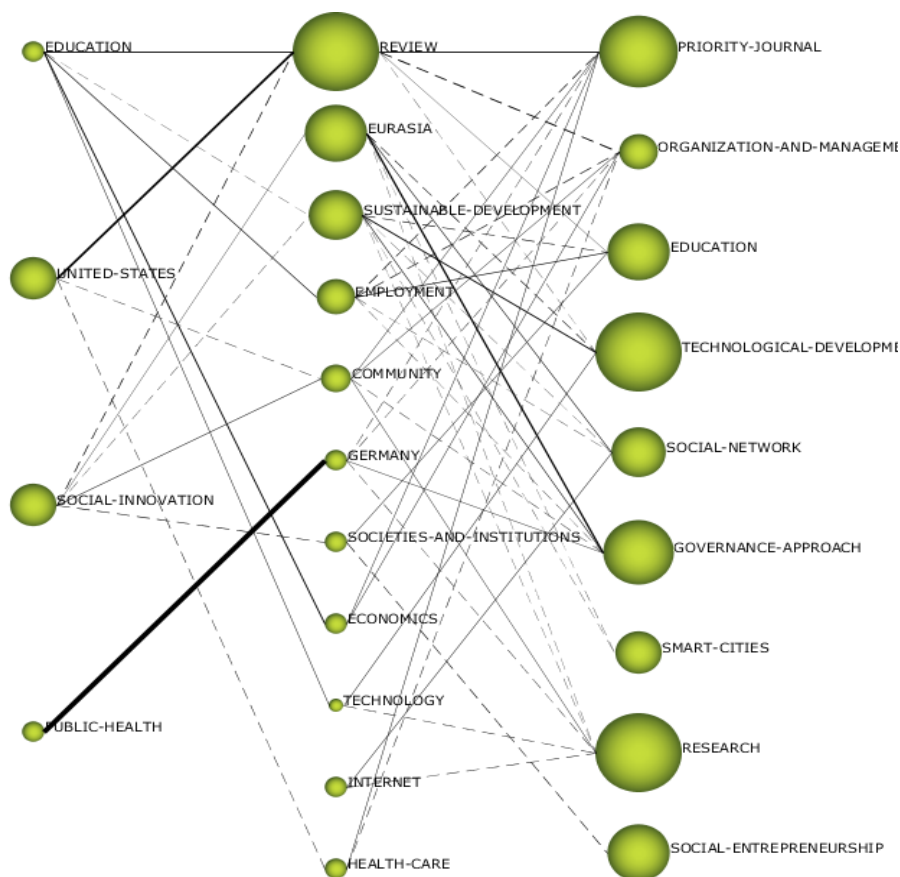
When we look at the strategic diagrams obtained from the analysis of social innovation studies between 2009 and 2016, 9 themes came to the forefront. Five of these themes are engine themes and basic themes and they are Priority- Journal, Technological-Development, Education, Governance-Approach and Research themes. Social-Entrepreneurship and Smart-Cities appear as rising or disappearing themes. The social-Network and Organization-Management themes in this period have strong but isolated structures.

An evolution map was developed in the research in order to see the evolution of social innovation studies on the basis of the period studied after the strategic diagrams. Evolution map reveals the periodical connections of themes to each other

that came to the forefront in each of the three (3) periods. The straight lines on this map show the thematic link and the dashed lines show that interlinked themes share common key words.

The evolution map of the period 1966-2016 is shown in Figure 5. Considering the number of themes by the periods during the period of 1966-2016, it was observed that 4 themes in the period of 1966-1999, 11 themes in the period of 2000-2008 and 9 themes in the period of 2009-2016 came to the forefront.

Figure 4: Thematic Evolution Map of the Social Innovation Field (1966-2016)



5. CONCLUSION

In this research, the conceptual structure and development of the concept of social innovation in the period of 1966-2016 was tried to be found by conducting science mapping analysis. The research was carried out using scientific publications for all fields in Scopus. In the analysis, it has been tried to identify the concepts and fields which are prominent based on the keywords of scientific publications. Science mapping analysis was conducted with the SciMAT program, and the themes highlighted by these keywords were determined during the examination period.

When we look at the period of 1966-2016 in general, it is observed that the thematic change emerged for the periods in which this study is based. This thematic change takes place, in general, by the prominence of some of the fields related to each other and the regression of others. The number of scientific social innovation publications made in Turkey and published in SCOPUS is 9. The number of these publications increased in the 2000s in line with the trend in the world, but this increase is not at a sufficient level. However, it is regarded necessary that publications made on this field be increased. In conclusion, bibliometric analysis and science mapping analysis can be used to understand the development of the concept of social innovation. In this context, the themes that emerge in terms of periods, the sub-themes that stand out or fall back from these themes, and the conceptual relationships of the themes both within the period and between the periods can be revealed.

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KNOWLEDGE OF CUISINE: INTELLECTUAL PROPERTY PROTECTION IN THE TURKISH FOOD SECTOR

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ABSTRACT

Purpose- This paper examines the overall IP solutions/options that are applicable in the Turkish food sector under the new Law on Industrial Property of Turkey which governs so-called industrial property rights, that is to say patents, trademarks, designs and geographical indications, and aims to serve the interests of all relevant stakeholders, ranging from individuals to all scaled companies which seek IP protection in for various reasons. Although it's not considered as one of the conventional IP issues, the relationship between foodstuff, and traditional knowledge (TK) is also discussed in this paper for the purpose of demonstrating the overall IP protection that can be offered under the Turkish law.

Methodology- In this paper, the applicability of the new Law on Industrial Property, and the overall IP solution on the food sector are discussed. For this purpose, some important questions are addressed, and the new Law, the old Decree-Laws and some other jurisdictions are compared. The criteria of this comparison are the goals of the industrial property system, and the needs of the food sector. The study analyses these considerations with the help of some important examples demonstrating IP protection on the foodstuff.

Findings- The findings show that the food industry can be protected by the copyright regime, the recipes can be patented, and the companies can be protected by the new Law concerning geographical signs, designs and trademarks.

Conclusion- The paper claims that the existing IP system in Turkey, i.e. the conventional IP tools along with the TK protection, have important benefits for the companies operating in the Turkish food sector to use IP protection as business strategies.

Keywords: copyright, patent, traditional knowledge, geographical signs, trademark

JEL Codes: K00, K19, K20

1. INTRODUCTION

Food sector in Turkey is considered as having a strategic importance when considering its place in the overall economy, its capacity to create employment, and its share of export. Turkey's capacity to compete in the international markets is closely associated with its diversified and plentiful raw material content, a multicultural and ancient food culture, and the unique geographical position. (ITO, 2006, 21 pp) IP protection in the Turkish food sector is, therefore, never an outdated issue. On the contrary, it becomes more significant as the innovative methods in food industry, and IP sensitive issues have gained importance. The IP protection helps to cultivate the country's potential, and has a positive impact on the economy. It is, therefore, crucial for all stakeholders who would like to participate in the sector to be alert on the latest issues concerning IP regime in Turkey, and their rights in association with the food industry.

This paper examines the overall IP solutions/options that are applicable in the Turkish food sector, and serves the interests of all relevant stakeholders, ranging from individuals to all scaled companies which seek IP protection in Turkey for various reasons. In this sense, this paper also aims to summarize of the existing IP law respecting the food industry. To give a general overview concerning the IP protection over the food sector under the conventional IP laws in Turkey, some important questions should be addressed. These are as follows: how can the food industry be protected under the Turkish

copyright regime, can recipes be patented under Turkish law, in which ways can the geographical signs serve the Turkish food sector, and what are the requirements of having a design or a trademark for a food company as a business strategy etc.? Although it's not considered as one of the conventional IP issues, the relationship between foodstuff, and traditional knowledge (TK) is also discussed in this paper.

In the field of IP law, Turkey has two main laws: The Law on Intellectual and Artistic Works (LIAW),¹ and the New Law on Industrial Property (LIP).² Before the adoption of LIP, Turkey used to have various Decree-Laws, such as the Decree-Law on Patents numbered 551, the Decree-Law on Trademarks numbered 556, The Decree-Law on Designs numbered 554 and the Decree-Law on Geographical Signs numbered 555. However, this had been criticized by many scholars alleging that the rights should be regulated, and restricted by Codes enacted by the legislative organ, not by Decree-Laws enacted by the government. (Bak, 2015, p. 302)

LIP governs so-called industrial property rights, i.e. patents, trademarks, designs and geographical signs. This new law codifies the previous Decree-Laws, and heralds a new era in Turkish IP law. It also sets forth some important amendments in this area. However, this paper does not intend to give an overall analysis of LIP, or aim to introduce all the amendments. Yet, as it is a brand-new law, the information in this paper is given in accordance with this new legislation, and comparisons are made only where it is relevant.

2. IP PROTECTION IN THE TURKISH FOOD SECTOR UNDER CONVENTIONAL IP LAW

The IP regime in Turkey over the food industry can be analysed by examining the following IP issues: copyright law, patent law, geographical signs law, design law and trademark law.

2.1. Protection by Copyright

The Law on Intellectual and Artistic Works (LIAW) sets forth provisions for the works that are protected within the framework of Turkish copyright system. It aims to protect the economic and moral rights of the authors of all intellectual and artistic creations, and of the owners of the neighbouring rights. According to Art. 1/B of LIAW, a work should be original, and fall into the scope of one of the four work categories enumerated between the Articles 2-5. These are literary and scientific works, musical works, works of fine arts, and cinematographic works. In Turkish copyright system a work must fall into one of these categories, and be original in order for copyright to subsist. In this sense, the Turkish copyright system resembles the closed list approach of the UK. However, in each category, the number of the sub-categories or the work types that belong to a specific category may be increased. So, in the Turkish system only the main categories are listed, and the sub-categories are not considered as being exhaustive.

According to Art. 2 of LIAW, the literary and artistic works are "*works that are expressed by language and writing in any form (...)*". As the Turkish copyright law does not require an exhaustive list of sub-categories, recipes fall into the category of the literary and artistic works. However, when it comes to the discussion as to whether the recipes can be protected under Turkish copyright law, the main argument lies within idea of how the notion of 'originality' is perceived.

In UK copyright law, originality means originating from the author (i.e. not copying from another work), and requires skill, labour and judgement of the author (Aplin & Davis, 2017, p. 107-110). However, the test of "*author's own intellectual creation*" has been incorporated into the Section 3A of CDPA³ as a test of originality for the databases.

In US copyright law, for a work to be original it must not be copied from another material, and must be an evidence of creativity. For the creativity criterion, the courts have sought for the presence of a "*modicum of creativity*" since the Supreme Court's decision in *the Feist case* (1991),⁴ instead of the "*sweat of the brow*" which implies the labour alone. (Sterling et. al., 2017, p. 42-43; Schechter/Thomas, 2003, p. 22).

As Turkey is part of the Continental European Law System, the originality threshold is higher than the traditional UK approach, and than the US approach which generally approximates to the civil law concept of originality more than the UK approach. (Schechter/Thomas, 2003, p. 24-26). Under Turkish copyright law being original means that "*bearing the characteristic of the author*" (Art. 1/B of LIAW).

¹ Fikir ve Sanat Eserleri Kanunu, Number: 5846, OJ 13.12.1951-7981. The Law is abbreviated, and hereinafter referred as LIAW.

² Sınai Mülkiyet Kanunu, Number: 6769, Date: 22.12.2016, OJ 10.01.2017-29944. The Law is abbreviated, and hereinafter referred as LIP.

³ Copyright, Designs and Patents Act 1988 is abbreviated, and hereinafter referred as CDPA. For this criterion, also see the important CJEU ruling called '*the Infopaq decision*' where the court set a universal standard of originality, and decided that "the author's own intellectual creation" criterion should apply to any subject matter (*Infopaq International A/S v Danske Dagblades Forening Case C-5/08 C-5/08* [2009] ECDR 16).

⁴ Feist Publications Inc v Rural Telephone Service Co Inc 499 US 340; 111 S Ct 1282 (1991).

In Turkish copyright law these two conditions must be fulfilled for a recipe to be protected as an independent work: the recipe must fall into one of the existing work categories, and must be original. A piece of recipe can be contemplated as an example of "literary and artistic works" as "it is expressed by language and writing in any form". However, a mere listing of ingredients cannot qualify of being original, and therefore protectable under Turkish copyright law due to the lack of 'bearing the characteristic of its author'. In other words, only the recipes that bear the characteristic of their authors are eligible to be protected. As it's only the legal explanation, it makes little sense when it comes to the reality, because it is not very common that recipes meet with this criterion in real life. However, it is much more common that recipes are compiled in cookbooks or as databases.

According to Art. 6 of LIAW, databases are protected as compilations if they are obtained by the selection and compilation of data, and materials in accordance with a specific purpose and plan. If the content of a database consists of selection and arrangements, which are the results of intellectual creativity, then these databases are protected under copyright law.

If some recipes are collected randomly in a database without having a specific plan or purpose, this database will not be protected as a separate work under Turkish copyright system although it contains every single dish in the Turkish cuisine. On the other hand, if the recipes are collected in a database (or published in a cookbook) according to a specific plan or purpose (e.g. traditional meat dishes of Turkey or the Ottoman cuisine etc.), it will be protected by copyright law even though the single recipes are not original. (Ateş, 2006, p. 66) Because in the latter, the author of this database or cookbook chooses the recipes according to a specific plan, arranges the compilation, and organizes it according to his or her taste, knowledge and effort. This means the compilation bears the characteristic of its author, i.e. a touch from his or her personality.

2.1.1. Protection by Patents

According to Art. 82 of LIP, technological inventions that are novel, applicable in the industry, and having an inventive step are eligible to be protected by patents unless they are in the scope of non-patentable subject matters.

An invention is considered as 'novel' if it surpasses the State of Art. The invention is deemed as 'having an inventive step' if it is not obviously realizable by an expert in the related field when the State of Art is taken into consideration. The invention is deemed as 'applicable in the industry' if it is produced, and utilized in any field of industry. (Art. 83 of LIP) Upon the entry into force of LIP, the system of granting patent without substantive examination has now been abolished.

Under Turkish patent law, recipes are patentable if the recipe meets with the patentability requirements set forth by LIP. Therefore, if a recipe that is applicable in the food industry is novel, and having an inventive step, it is eligible to be granted by patent protection. It is also not important for a recipe to be a main dish or a regular foodstuff. The type of recipe is also irrelevant. For instance, in 2006 a national patent application with the number of 2006/04113 was filed for the recipe of 'tomato jam with almond', and succeeded to grant patent protection in Turkey (TürkPatent, Patent Search). Thus, in Turkey, granting patent protection even for jams is possible as long as the recipes are in conformity with the patentability requirements prescribed by the law.

The patent holders have some rights on the patented invention, and are able to prevent others from violating their rights. However, before choosing to protect the recipes by patents it should be kept in mind that patenting a recipe would also make it publicly available, and the owners of this recipe would no longer hold it as a secret. It should also be noted that the term of patent protection is a non-renewable period of 20 years from the filing date of the patent application (Art. 101 of LIP), and when the term of protection is elapsed, the patent protection will no longer exist.

2.1.2. Protection by Geographical Signs

Geographical signs which indicate the origins of products that possess a specific quality, reputation or other characteristics attributable to a place, a region or a country of origin can be found in the form of either appellation of origins or geographical indications (GI). (Art. 34/1)

Appellation of origin is the product which originates in a place, a region or (in exceptional cases) a country, whose all or main characteristics are exclusively due to the inherent natural and human factors of that geographical area, and whose production, processing and preparation methods take place within that geographical area. On the other hand, geographical indication is the product which originates in a place, a region or (in exceptional cases) a country, possesses a specific quality, reputation or other characteristics attributable to that geographical area, and whose at least of the activities of production, processing or preparation takes place within that geographical area. (Art. 34/1, a,b)

The non-geographical names that have become customary in the current language may also be used as either appellation of origins, or geographical indications if the products meet the above-mentioned criteria. (Art. 34/2 of LIP)

As the provisions concerning geographical signs also aim to protect natural and agricultural products (Art. 33 of LIP), foods, *inter alia* food companies, are eligible to receive protection if/when the products are registered. With the adoption of LIP, the scope of persons who are eligible to file application for the registration of foodstuffs has been enlarged: *i)* producer groups, *ii)* public institutions and professional organisations with public institution status concerned with the product or the geographical region, *iii)* public interest associations, foundations and cooperatives in connection with the products, operating for the protection of their members, and *iv)* the sole producer if the product has only one producer. (Art. 36 of LIP) Moreover, the protection conferred by LIP are available to Turkish citizens, to all natural and legal persons domiciled or having industrial or commercial establishments within the territory of the Turkish Republic, to persons having application rights deriving from the terms of the Paris or Berne Conventions or the Agreement Establishing the World Trade Organization, or to nationals of other states that accord protection to nationals of the Turkish Republic in accordance with the principle of reciprocity. (Art. 3 of LIP)

By LIP, the registration process has been diminished, and the scope of inspection towards persons who register geographical signs has been extended. As of 10.01.2018, it will also be mandatory for all products to bear a logo to indicate that the products are registered in accordance with LIP. This logo should be used on the product, or on the package, or by other means enabling it to be seen from the outside when it is not possible to put the logo on the product, or on the package due to its nature of the product (Art. 2 and 44 of LIP).

As the consumers are paying more attention to specific characteristic of products nowadays, it is important for all stakeholders in the market to protect the food industry by the help of the provisions stipulated for the geographical signs. The geographical signs do not give exclusive rights. However, as they serve the food industry by enabling consumers to distinguish the products with geographical origin-based qualities or characteristics, stakeholders may benefit from this protection by preventing others (free-riders) from using the same indication without meeting the requirements of the indication, or having the special characteristics of that product attributable to a region, in most cases associated with a special production technique.

For instance, 'Baklava' is a well-known sweet pastry in Turkey "*made of layers of filo pastry filled with semolina cream and Antep pistachio and sweetened with syrup*" which is registered as a geographical indication under the name of 'Antep Baklava' by the Chamber of Commerce of the city of 'Gaziantep' (TürkPatent, Geographical Sign Registration). This means that only producers who make Baklava by using the special ingredients, and the specific methods specified in the geographical sign registration certificate are able to call their products 'Antep Baklava'. Thus, these producers may benefit from the reputation of 'Antep Baklava' since having this specific geographical indication may affect the behaviours of consumers substantially. It also helps to prevent the value of Baklava from being diminished, and eventually lost without a proper protection. It also prevents third parties from registering the same indication as a trademark, and limit the risk of becoming generic.

Geographical signs are valuable and intangible assets also for companies as they can bring competitive advantage, more added values, increased export opportunities, and eventually a strengthened brand. (WIPO, GIs) The main problem that the geographical signs face today is the fact that the protection is initially national. However, there are some international systems to hinder this obstacle. Some geographical signs are protected at the EU level by registering the products in EU after their registrations at home. There is also an international system called "The Lisbon Agreement for the Protection of Appellation of Origins and Their International Registration" which provides a wider range of protection at the international level, albeit sets forth provisions only for appellation of origins. Turkey is not a contracting state of the Lisbon Agreement, but the former protection is also applicable in Turkey. In fact, 'Antep Baklava' has received the EU protected status as becoming the first Turkish registered food in the EU (European Commission, Baklava).

2.1.3. Protection by Designs

Design is the appearance of the whole or part of a product or its ornament derived from the features such as lines, shapes, form, colour, material or texture. This product can comprise of any industrial or handicraft item, parts of complex systems, packaging etc. (Art. 55 of LIP) A design must be novel, and have individual character in order for design protection to subsist. Thus, designs that differ only in immaterial details are not 'novel'. Also, their overall impressions on the informed user affect the criterion of '*having individual character*', in other words show its threshold of '*distinctiveness*'. (Art. 56 of LIP)

Registered designs are protected within 5 years starting from the filing date of the design application, and the term of protection is renewable for periods of 5 years each up to a total term of 25 years. (Art. 69 of LIP)

Food companies may benefit from design protection for their products, including the appearance of the packaging because designs make a product more appealing, and have direct effect on consumer's purchase decision. In the food sector, designs are also of importance for all scaled companies. Design protection prevents others from commercially exploiting or copying the same design within the term of protection, and therefore gives exclusive rights to its holder. It helps to

strengthen brands and images of companies, and contributes to obtain return on investments. (World Intellectual Property Organization [WIPO], Designs) For companies in the food industry the design is as important as other IP rights.

Design may also come into question for the appearance of a foodstuff. Any stakeholder including a single individual may protect the appearance of his or her foodstuff if it is new and distinctive, and seek design protection. In this case, it is also important that this person could repeat the same design whenever he or she wants. Moreover, it does not matter whether the food has been made industrially, or “*by craftsmanship where the same prototype is reproduced by hand inevitable with small variations in the shape of the various products*” (European Commission, Green Paper, 5.4.12). Hence, it can also be argued that in order for design protection to subsist the design should not be made randomly, without the ability of being repeated ever again even this requirement is not prescribed explicitly by LIP.

LIP has also opened a new possibility for unregistered designs. With the adoption of the new law, the unregistered designs which have been made available to the public are also protected. Making available to the public covers putting in the market by exhibiting or selling etc. (Art. 57 of LIP). Thus, even a single dish created by a chef which has not been protected but made available to the public can be protected under the circumstance where the design of this food is new, and has an individual character.

2.1.4. Protection by Trademarks

Trademarks are the signs that distinguish the goods and services of one undertaking from the goods and services of other undertakings. Manufacturers, wholesalers, retailers, agents and consumers use trademarks to identify, advertise, sell, buy and/or catalogue their products (Firth/Lea/Cornford, 2005, p. 5). If the subject matter of the protection given to the holder of a trademark is shown in the registry explicitly and precisely, all words including personal names, designs, colours, letters, numerals, sounds, shapes of products and packaging may be registered as trademarks. (Art. 4 of LIP) The option to register colours, and sounds is conferred by LIP for the first time.

Trademarks should be distinctive, and not deceptive. Trademarks that conform with these criteria, and other requirements enumerated in the relevant provisions of LIP can be registered, and hence protected. (Art. 4 and 5 of LIP) The term of protection is 10 years with the possibility of renewal for further 10 years in each time. (Art. 23 of LIP)

Trademarks benefit all scaled food companies by distinguishing their products from the products of others. However, the holder of a trademark can be any undertaking, including individuals. This means a person can register the name of a special dish that he or she creates which has an individual character, and prevents others from using the same trademark even he or she does not run an enterprise. Think of a person who creates a distinctive dessert, and names it ‘a thousand and one nights’. If the food conforms with all the requirements that a registered trademark should have pursuant to LIP, then ‘a thousand and one nights’ will be protected. So, the holder of this trademark can prevent others from using the same name for the same purpose without permission. The only problem in this hypothetical case is the requirement of ‘utilization’ stipulated for registered trademarks. Therefore, if ‘a thousand and one nights’ has not been used seriously in Turkey by the person who has created it, or by some other person with the consent of the creator without a justifiable reason within the period of 5 years following its registration, or if its utilization has been suspended for an uninterrupted period of 5 years, the trademark will be invalidated (Art. 9 of LIP). Nevertheless, this trademark would still be in effect if no lawsuit were filed against its invalidity.

3. PROTECTION AS AN EXAMPLE OF TRADITIONAL KNOWLEDGE

Traditional knowledge (TK) is a body of living knowledge that is passed down from generation to generation within a community, in most cases forming community’s cultural identity. It encompasses all kinds of knowledge including know-how, skills, practices, techniques, and the cultural expressions that the knowledge is embodied. The term “tradition” does not mean “antique”. On the contrary, TK lives within the community, and associates the traditional link between the knowledge and the community who holds it. (WIPO, TK)

The protection of food culture or cuisine of a given country can be protected by TK. However, the TK itself is neither properly understood, nor protected. The problem is not only the threats against the preservation of TK in a community but also the shortcomings of the conventional IP tools. Therefore, an urgent need for a *sui generis* protection for TK has been emerged.

Turkey has not a *sui generis* TK law. Having said this, however, there has been an ongoing codification process in Turkey for the adoption of a new law concerning ‘Intangible Cultural Heritage’. When it will be codified, this will serve the need of a *sui generis* protection for TK. Although the terms ‘intangible cultural heritage’, and TK may be used interchangeably, there are still some nuances which might matter when it comes to the types of protection. In UNESCO discussions about safeguarding, the term ‘intangible cultural heritage’ has been favoured, while at WIPO discussions, in an IP context, rather it is used as TK (WIPO, Glossary).

In spite of not having a *sui generis* TK code, Turkey has numerous examples of TK, especially in relation to food. For instance, 'kefir' is a "probiotic-dairy product with nutritional and therapeutic aspects. It is basically fermented milk only made from kefir grains and kefir cultures, and its grains are the mixture of beneficial bacteria and yeast with a polysaccharide" (Ötleş&Çağındı, 2003, p. 54). It is believed to be originated from the Central Asia, and the 'Turkish method' of producing kefir, along with the kefir grains and kefir cultures as genetic resources, has been transmitted over for thousands of years.

Nevertheless, the lack of a *sui generis* protection for TK, and the loss of traditional methods make foodstuffs impossible to be legally protected by TK. Today, much TK is protected by geographical indications. That is to say, there is a distinct overlap, and intersection between the subject matters of GIs, and TK in most cases. In Turkey, there are 203 registered GIs (TürkPatent, Registered GIs, 2017). Most of them are food products that are also made by special production methods, and practices passed down from generations to generations within communities who live in specific regions surrounded by endemic genetic resources that are closely associated with the production of these foods.

The distinction between GIs, and TK has become even more vague after the adoption of LIP. LIP has introduced a new concept into Turkish IP law, called "traditional product". The term itself resembles the term what is called "traditional speciality guaranteed (TSG)". TSG is a EU food designation. According to the Council Regulation (EC) No 509/2006 of 20 March 2006 on agricultural products and foodstuffs as traditional specialities guaranteed, a foodstuff is registered if "i) it is produced using traditional raw materials; ii) it is characterised by a traditional composition or by a method of production/processing that corresponds to a traditional production/processing method. In order to be registered, i) the name must be specific in itself; ii) indicate the specific character of the agricultural product or foodstuff." (European Commission, TSG)

Under Art. 34/3 of LIP, names which cannot be considered as geographical indications or appellation of origins, and are proved to be used traditionally for at least 30 years in the relevant market are defined as "traditional products" under the circumstance where they are derived from traditional production or processing methods or traditional composition, or if they are produced using traditional raw materials. For instance, 'Aşure' or so-called Noah's pudding which is a Turkish porridge-like dessert made of a mixture of grains, dried fruits and nuts, and served at a specific month of the year called 'Muharrem month', can be perceived as an example of traditional products. Although the name is originally Arabic, it is also a part of culinary tradition of Turkey with having some religious and cultural meanings, especially when considering that the mountain Agri (Ararat), where it is believed that the Prophet Noah had landed on with his ark, is within the territory of Turkey. As having historical and traditional meanings, the preparation method of this food has been known, used, and transmitted through ages. Moreover, 'Aşure' is made by traditional production methods. It can be, therefore, seen as a traditional product of Turkey. It is also a good example of TK because 'Aşure' is associated with the cultural, and spiritual identity of its specific holders.

As discussed above, the term "traditional product" has been introduced into Turkish IP law with the adoption of LIP. The traditional product resembles what is called TSG with some nuances. The most obvious of these nuances is that the TSG is a designation for foodstuff, whereas according to LIP traditional products can comprise of any products as there is no limitation regarding the types of traditional products in the relevant articles. However, it is not clear how these articles will be interpreted in the future, and which products will be deemed as "traditional".

4. CONCLUSION

The conventional IP tools such as patents, trademarks and designs give exclusive rights to their holders to prevent third parties from using the formula, the name or the same appearance without permission. Although geographical signs do not give exclusive rights, the holders may also prevent others (free-riders) from using the same sign without meeting the requirements. Copyright may also play an important role in the protection of the exclusive economic and moral rights of all economic operators in the food business. (International Chamber of Commerce, 2017, p. 7-11) Furthermore, even though it does not offer protection in a conventional IP context, traditional products, and products produced by traditional methods with the help of traditional practices may comprehend a great public interest.

The food industry would benefit from all the above-mentioned IP tools by using the IP regime practically. To create an awareness on the subject is not only an updated issue in Turkey due to the enactment of the new law called the Law on Industrial Property, but also very crucial for the enhancement of the industry, *inter alia* the overall economy.

The introduction of applicable rights, solutions and options offered to stakeholders doing business at the market helps to boost the sector and the innovations, and to increase the market value of the products belonging to all operators. It also serves a moral purpose by guaranteeing the preservation, and the introduction of traditional and local foodstuffs. Moreover, it is of great importance for consumers when making informed choices for specific products. Likewise, it encourages every individual in the society to make innovations. It, therefore, instigates all scaled companies to make profit-making investments for further economic growth and wealth creation. (International Chamber of Commerce, 2017, p. 1-2)

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A PICTURE OF WOMEN'S ENTREPRENEURSHIP: A FIELD STUDY ON MOTIVATION FACTORS, REGIONAL DIFFERENCES and VALUE PERCEPTIONS

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ABSTRACT

Purpose- It is a fact that the active participation of women in business life began later in developing countries. The socio-economic systems of the nations and systems of values caused this delay; however, other versions of the glass ceiling in business life exist for female entrepreneurs. The issue of female entrepreneurs is a painful issue for developing countries such as Turkey, although women's entrepreneurship is still on the rise. As well as state-sponsored projects, non-governmental organizations also try to support women's entrepreneurship.

Methodology- The materials used in this study mainly depend on the outcomes and analyses of the questionnaires administered to the aspiring female entrepreneurs who participated in educational programs in Gaziantep, İzmir, Kastamonu, Adana, Çanakkale and Konya within the corporate social responsibility project (My Idea is My Future) carried out by the Inclusive Growth Association and the Boğaziçi University Lifelong Learning Centre with the support of the Union of Chambers and Commodity Exchanges of Turkey (TOBB) and the General Directorate for SME Development (KOSGEB) and sponsorship of JTI Turkey in last two years.

Findings- This study describes the demographic characteristics of the aspiring female entrepreneurs who participated in the educational program, the attitudes towards women's entrepreneurship, the factors that obstruct entrepreneurship activities, the effects of the choice to be an entrepreneur on family roles, the preferred women entrepreneur models and women's perception of being valued.

Conclusion- These statements allow to create a picture of aspiring female entrepreneurs in different cities in Turkey and is expected to guide the planning of the next steps of other social responsibility programs.

Keywords: Entrepreneurship, female entrepreneurship, types of women in entrepreneurship, socio-economic aspects of entrepreneurship.

JEL Codes: M13, J11, J16

1. INTRODUCTION

One of the most important indicators of a country's economic development and growth is the status of its application of an innovation-driven economic model. Needless to say, today, entrepreneurship activities form the grounds for this economic model. According to the Global Entrepreneurship Monitor (GEM)¹, entrepreneurship is defined as "any new business

¹ Global Entrepreneurship Monitor (GEM) is an academic research project initiated in 1997 by Babson College and London Business School to study the significance of entrepreneurship in the process of economic growth. Initial results of this research, which started out with 10 participant countries, were published in 1999. Since the inception of this project, 100 countries have participated in the GEM research. The

establishment activity carried out by current companies, or individual(s) who are self-employed, setting up a new business or enlarging an existing business” (Karadeniz, 2014). The International Labour Organization (ILO) defines an entrepreneur as an individual who “foresees new business opportunities, builds and develops a new initiative on their own or by borrowed capital, takes potential risks and makes profit in return for all their endeavours” (Karim, 2015).

GEM’s 2016 report states that innovation and intensive knowledge-based business practices take on significance in line with advances in economic development (Kelley et al., 2016). It was noted in this report that entrepreneurship’s power of creating business was crucial for economic growth and stability in all parts of the world.

The growth of entrepreneurship is even more significant for developing countries and countries facing problems with generating employment. Participants of the GEM project were categorized by the World Economic Forum. According to this categorization in the 2013-2014 period, Turkey was in a transition phase, moving from the category of a productivity-driven economy to the category of an innovation-driven economy (Karadeniz, 2014). For this reason, Turkey stands out as a country wherein entrepreneurship activities and investment planning acquire even more importance.

The entrepreneurial characteristics of individuals and the development of such characteristics are extremely important factors for increasing a country’s entrepreneurial performance. Hereof, the support mechanisms directed towards educating and training individuals who want to become entrepreneurs are particularly significant. In Turkey, for individuals interested in becoming entrepreneurs, their development is supported by trainings and investments provided through the cooperation of universities and industries, the latter of which includes the Small and Medium Industry Development Organization (KOSGEB).

According to the 2014 GEM report, in Turkey, during the years of 2006-2010, the average rate of individuals who wanted to become entrepreneurs was 22.67%, while this rate dropped to 11.32% in 2011. However, starting in 2012 an upward trend emerged with the rate of increasing to 31.64% in 2013. In 2014, this upward trend continued and reached to 35%. During this same period, there was a decrease in women’s participation in early entrepreneurship activities. In 2013, 31.51% of early entrepreneurs were women, while in 2014 this rate dropped to 22.24 % (Karadeniz, 2014).

As a consequence of the decrease in women entrepreneurs, the issue of women’s entrepreneurship has recently become a growing topic of concern in studies centered on entrepreneur candidates. According to the review of the literature on woman’s entrepreneurship, woman entrepreneurs were described as women who work either on their own, with a partner or with other people, at a work place – outside their home –established under their own names as the owner of a business. In terms of their tasks, the literature reported that women entrepreneurs carry out activities related to the production of a commodity or a service, organize the distribution, marketing and sales of these goods or services, and establish relationships with individuals, organizations or institutions necessary for her business. Furthermore, they make their own decisions about the organization of the business process, including the planning of production, operation, closure or development of the work place. Thus, a woman entrepreneur has a say over investment and the use areas of her business profit (Ecevit, 1993).

According to Moore (2000), women entrepreneurs not only establish or run a business, but also are in charge of their own careers. These new careers involve innovation, creativity, risk-taking, vision, and bravery. Women entrepreneurs are intelligent, independent and outstanding individuals, who have goals and the ability to overcome difficulties in attaining these goals. They constantly revise their expectations and business endeavours, and their social consciousness is notably high (Keskin, 2014). According to another definition, a woman entrepreneur is someone who produces and sells transferable goods or services of monetary value that are oriented directly to the market by taking calculated risks within the market economy. As owners of businesses, women entrepreneurs have a tax registration number, are registered with merchant and craftsman chambers, and are affiliated with the Confederation of Turkish Tradesmen and Craftsmen, or with the Union of Chambers and Commodity Exchanges of Turkey. They are self-employed or hire other people (Saray, 1993).

The distinction evident in definitions pertaining to women’s entrepreneurship does not arise from a sexist approach, but rather from the fact that current conditions of employment are not in favour of women. Today, women are exposed to double standards in work life. This double standard is a frequently encountered condition, not only in Turkey, but also in developed countries. In order to circumvent the social and economic loss caused by this double standard, women who intend to become entrepreneurs are supported through certain initiatives, such as trainings, which are provided under both public and social responsibility projects. The data on the economic losses arising from the non-participation of women in the work force over recent years display once again the significance of this situation. According to the IMF, the exclusion of

project, which collects longitudinal data on entrepreneurship from around the world, has become the most important research project on this topic (Karadeniz, 2014).

women from the work force in many parts of the world is harming the global economy, with some countries facing an economic loss that exceeds 30% of their gross domestic product. The IMF report shows that Turkey is at the top of the list among countries where women's contribution to the economy is not being utilized very well. In Turkey, the economic loss arising from the low female-to-male ratio in the workforce is around 25% of gross domestic product. In other words, Turkey does not make use of the economic potential of hundreds of millions of dollars that can be provided by women (Küçük, 2015). As the GEM 2015 Special Report on Women Entrepreneurs shows, if the rate of women's participation in the workforce grows, the developmental power of these economies will be higher. In addition, women's participation in the workforce is a preventive tool against poverty, because if the woman in a household works, the risk of losing all income after a negative event will decrease for all members of the household. The same report also states that the tendency of women to re-invest and transfer money towards the health, education, and nutrition of the family is higher than men (Kelley et al, 2015, Kelley et al, 2016).

This study aims to analyze the effect of the socio-economic structure of the cities where female reside on the limitations that exist for women's entrepreneurship of which main theme was given above and to make recommendations on increasing the effectiveness of educational programs on this subject. Whether the female entrepreneur candidates' motivations to be entrepreneurs, limitations, the areas in which they want to work, their choice of entrepreneur type, awareness and expectations change by region and the perception of gender roles in that region were analyzed by the study. This study analyzes the regions where the female entrepreneur candidates live, the social behavior patterns of family relationships and the entrepreneur types they prefer based on this question. The third section shows the findings of this study, and the fourth section includes the study results and recommendations. The fifth section is the discussion section.

2. FIELD RESEARCH ON MOTIVATION FACTORS, REGIONAL DIFFERENCES AND VALUE PERCEPTIONS

2.1. Aim of the Research

The aim of this research is to explore whether or not women entrepreneur candidates believe that the economic and socio-cultural structure of the cities where they live has any influence on becoming entrepreneurs, and to present the expression of this perception by these women. Within this context, this research covers a number of issues, including the demographic characteristics of women entrepreneur candidates, their attitude towards women's entrepreneurship, factors restricting their entrepreneurial activities, the perceived advantages or disadvantages of the cities where they live, the effects of choosing to become entrepreneurs on their family roles and the type of entrepreneurship models that they choose.

2.2. Scope of the Research

The scope of this research extends to candidates participated in an educational program within the corporate social responsibility project carried out by the Inclusive Growth Association and Boğaziçi University Lifelong Learning Centre with the support of the Union of Chambers and Commodity Exchanges of Turkey (TOBB) and General Directorate for SME Development (KOSGEB) and sponsorship of JTI Turkey in last two years. As part of the project "My idea My Future"², 180 women entrepreneur candidates participated in the training programs in 6 cities of Turkey, namely Gaziantep, İzmir, Kastamonu, Adana, Çanakkale, and Konya. The majority of participants in the training program submitted responses to the survey (74%; n: 134).

2.3. Research Methods

The survey method was used for data collection, with open-ended and closed-ended questions being used in forming the surveys. These surveys were arranged as a Likert-type rating scale. Surveys used in previous research on the subject were reviewed and taken into account in forming this survey. Some questions were revised after the first implementation of the survey.

Observation and comments obtained during trainings were also used in evaluating survey data. The survey was administered at the end of trainings. In İzmir and Gaziantep, the surveys were carried out via e-mail, while in Kastamonu, Konya, Adana and Çanakkale, the surveys were carried out face-to-face.

The survey consists of three sections. The first section includes questions that serve to identify demographic and individual characteristics of the women entrepreneur candidates, while questions in the second section seek to find out women's attitudes toward entrepreneurship and the difficulties that they faced. Moreover, in this second section of the survey, there

²The CSR Project "My Idea is My Future" is designed to provide opportunities for economically disadvantaged women and to create new women entrepreneurs. The project aims to support women entrepreneur candidates who want to actively participate in economic growth, to create business in line with their entrepreneurial skills and to present a sustainable business model. In this way, the project seeks to support women on their path towards achieving equality in opportunity. http://fikrimgelecegim.com/fikrim_gelecegim_nedir.aspx

are questions on the perceptions about the characteristics that a woman entrepreneur should have. The third section focuses on the relationship between family life and entrepreneurship – an area in which regional differences are believed to be most on display – effects of the region on women’s entrepreneurship and the type of entrepreneurship model respondents chosen as women.

3. RESEARCH FINDINGS AND DISCUSSIONS

The findings obtained through the survey method were categorically classified and are shown below.

3.1. Demographic Characteristics of Women Entrepreneur Candidates

The demographic characteristics of women entrepreneur candidates (age, education status, work experience marital status and average number of children) are presented in Table 1 according to the cities in which the women reside.

Looking at the age profiles of the women entrepreneur candidates, it can be seen that a great majority of respondents (49%) fall within the 35 and above age group, both on the provincial level and on the general level. This finding overlaps with the evaluations in Hisrich and Peters’ study (1998), which shows that male entrepreneurs establish their first business between the ages of 25-35, while women entrepreneurs do not attain their potential of becoming entrepreneurs until between the ages of 35-45 (cited from Morçin, 2013).

The respondents living in different cities are observed to have similar rates in terms of their marital status. Overall, 65% of all respondents are married. The similarity between different cities, both in terms of respondents’ age profiles and their marital status, is related to the distribution of their ages and motivation factors for getting into business life. This motivation is attributed to the fact that women respondents’ desire for economic independence becomes more dominant at certain ages and during certain social periods (i.e. the desire to raise children and to make herself more independent). Data on this issue were also provided through the responses to the question on motivation factors of women entrepreneurs. Education levels indicate that the percentage of respondents with associate, graduate and postgraduate degrees is as high as 74%. Furthermore, it can be seen that a great majority of respondents (82%) have work experience in line with their education level and age profiles. The study by Hisrich and Peters (1998) highlights that many women decide to become entrepreneurs after they quit their jobs due to high level of job dissatisfaction (cited from Morçin, 2013). This runs parallel to the findings of this study, which show that there is a high percentage of women entrepreneurs (57%) with more than 7 years of work experience.

Table 1: Demographic Characteristics of Women Entrepreneur Candidates

		Gaziantep		İzmir		Kastamonu		Çanakkale		Konya		Adana		General	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Age Profile	18-23	3	20%	1	6%	2	8%	2	7%	3	11%	1	5%	12	9%
	24-29	4	27%	3	19%	5	21%	4	14%	8	28%	2	9%	26	20%
	30-35	2	13%	2	13%	6	25%	6	21%	12	43%	2	9%	30	22%
	35+	6	40%	10	62%	11	46%	17	58%	5	18%	17	77%	66	49%
	Total	15	100%	16	100%	24	100%	29	100%	28	100%	22	100%	134	100%
Education Status	Primary School	1	7%			2	8%			1	4%	1	4%	5	4%
	Secondary School	1	7%			3	13%	1	3%					5	4%
	High School	5	33%			4	17%	7	24%	1	4%	7	32%	24	18%
	Associate Degree	2	13%	9	56%	12	50%	6	21%	5	18%	4	18%	38	28%
	Undergraduate	6	40%	7	44%	2	8%	11	38%	15	53%	7	32%	48	36%
	Postgraduate					1	4%	4	14%	6	21%	3	14%	14	10%

	Total	15	100%	16	1	24	100%	29	1	28	100%	22	100%	134	100%
Marital Status	Married	9	60%	9	56%	16	67%	21	73%	16	57%	16	73%	87	65%
	Single	5	33%	3	19%	3	12%	7	24%	12	43%	5	23%	35	26%
	Divorced	1	7%	4	25%	5	21%	1	3%					11	8%
	Widow											1	4%	1	1%
	Total	15	100%	16	100%	24	100%	29	100%	28	100%	22	100%	134	100%
Work Experience	No	3	20%	2	12%	4	17%	7	24%	3	11%	5	23%	24	18%
	Yes	12	80%	14	88%	20	83%	22	76%	25	89%	17	77%	110	82%
	Less than 1 year	2	25%	1	7%	1	6%	0	0%	3	14%	1	6%	8	8%
	1-3 years	3	38%	0	0%	6	33%	5	23%	4	19%	0	0%	18	18%
	3-5 years	0	0%	2	14%	2	11%	0	0%	1	5%	2	13%	7	7%
	5-7 years	1	12%	1	7%	1	6%	3	14%	3	14%	1	6%	10	10%
	More than 7 years	2	25%	10	72%	8	44%	14	63%	10	48%	12	75%	56	57%
	N/A	4		0		2		0		4		1		11	
Average Number of Children		2.35		1.5		1.75		1.48		2.08		1.88		1.8	

3.2 Respondents’ Perception of Entrepreneurship, Their Motivation Factors and the Obstacles

In the second section of this research, respondents were asked questions about their perceptions of expected knowledge and skills, their motivation sources, as well as the obstacles and opportunities that they could face while setting up a business. Mainly, regional differences among responses are checked. 5-point Likert scale questions were asked and analyzed on the basis of previous field research. In addition, the statements given in open-ended questions about the obstacles and opportunities that respondents could face while setting up business were evaluated. Results of the factor analysis on the knowledge and skills of a woman entrepreneur can be grouped in four dimensions: virtuousness, leadership, extroversion, and potential personal traits. The average points of respondents’ sub-characteristics in each dimension fall between 4 (important) and 5 (very important). These four dimensions are presented below:

- i. **Virtuous characteristics:** Being adaptive to context, being honest, trustworthy, brave, and patient.
- ii. **Leadership characteristics:** Having management skills, being creative, risk-taking, innovative, ambitious, decided, and winner.
- iii. **Extroversive characteristics:** Being curious, dreamer, extroversion, inclined to team work, and having communication skills.
- iv. **Potential personal traits:** Educated, responsible, intelligent, loves her profession, well organized.

The highest average of responses among all these personal characteristics and inclinations can be listed in sequence as follows: “Being trustworthy” (4.8), “having communication skills” (4.8) and “being responsible” (4.7). In other words, “virtuousness” comes to the fore with the highest average (4.7) among all other identified dimensions.

Another subject explored in this research concerns the motivation factors leading women entrepreneur candidates to establish their own business. Reviewing the classification made by different scholars on this subject, it is seen that Barton and Martin (1998) divide motivation factors in three groups: personal traits, life conditions and contextual factors. Shapero

and Sokol (1982); Sexton and Vasper (1982); Hisrich and Brush (1986) distinguish two groups of motivation factors: push and pull factors. Employment problems arising from economic conditions of the country, working conditions inappropriate for women, and discrimination of women in paid work can be listed among *push factors*. The desire for independence, self-realization, self-employment, and balancing family and work can be considered among *pull factors* that lead women to establish their own business (cited from Okafor and Amalu, 2010).

The research results of this study show more correlation in particular subjects. The result of the factor analysis indicates that there are three main motivation factors leading women entrepreneur candidates to set up their own businesses. These factors are given below:

i) Personal Factors: Doing the job in which you were educated for, realizing an ideal, using skills, getting in business life, feeling self-worthy, working in more flexible working hours, being involved in trading

ii) Social-Familial Factors: Attaining social prestige, being an example for one's children, proving oneself, working in harmony with the spouse, being independent

iii) Financial Factors: Economic independence, contributing to the household income, escaping from financial difficulties, working after retirement

It is found that "*the desire to be independent*" (2.5) has the lowest average point among the listed motivation factors, while "*realizing an ideal*" (4.5) and "*economic independence*" (4.3) are factors with the highest average. At large, "*personal factors*" (4 important) has the highest average point in the category of motivation factors, while the lowest average is identified as "*economic factors*" (3.5).

It was also investigated whether there is a correlation between motivation factors, and knowledge and skills that women entrepreneurs are expected to have (correlation is significant at the 0.05 level (2-tailed)). The results of this correlation indicates that those respondents, who give importance to the *leadership trait*, value *personal and social-familial factors* the same, while valuing financial factors less (Respectively Sig=0.466 and 0.385<0.05). Those who *value extroversion* lean towards entrepreneurship by being influenced more *by social and familial reasons* (Sig=0.468 <0.05). Respondents, who value *potential (education, intelligence, and feeling fit for the job occupation)*, tend towards entrepreneurship by being more influenced by *personal reasons* (Sig=0.443 <0.05). For respondents, who value personal characteristics such as trust, honesty and bravery categorized under "*virtuousness*", economic factors (Sig=0.405 <0.05) constitute their entrepreneurship motivation the most. The reason why economic factors are found to be relatively lower among other motivation factors may arise from the fact that the research group consists of more urbanized and well educated individuals as well as individuals with work experience. In addition, personal factors relating to gender roles have a significant place in motivation factors leading women to establish their own business. This is an indicator of women's self-awareness about their strengths.

Previous researches investigating the obstacles or limits women may face when setting up a business pinpointed the following problems: being unable to carry out financial management, problems about monetary flow, being inexperienced and incompetent in management, lack of books and publications on the subject, problems about marketing and sales, being unable to form a team, experiencing problems with corporations/unions, not receiving expert views, limited social and business network, low demand in the local economy, systems and values about the right to property, problems in accessing financial resources, lack of work experience, skills and role models (Mayoux, 2001; United Nations, 2006-cited from Okafor and Amalu, 2010). Perceptions about potential problems rely on socio-economic indicators of the country as much as culture and values, which form the social capital, of that country. The results of that effect are clearly seen in the study on women entrepreneurship carried out by Minniti and Arenius (2003) in 37 countries. According to their research, factors influencing entrepreneurship were demographic context and family structure, literacy and education, socio-economic context, workforce and employment, gender and organizational forms, and sectoral employment and economic development.

The factor analysis in this research results grouped the obstacles or limitations which participants, as women individuals, may face in setting up new business *under three different headings*. These three identified obstacles are given below:

i) Personal shortcomings: Not having the necessary knowledge of the market, being inexperienced, having difficulties in accessing equipment and tools, being unable to keep up with new technologies, family disputes, having difficulty in finding a partner.

ii) Financial difficulty: Lack of capital, being unable to get a loan or credit.

iii) Contextual factors: Social values about women, bureaucratic barriers, value judgements of market conditions, difficulties about procuring personnel, difficulties in arranging the work place.

Considering the average points of these dimensions, the strongest obstacle category expressed by respondents is *financial difficulty* (avg. 3.79). This is followed by *contextual factors* (avg. 3.51) and *personal shortcomings* (avg. 2.77). It is important to note that while financial factors are not in the forefront among respondents' motivation factors for becoming entrepreneurs, respondents highlight this financial dimension as a barrier. Considering the work experience of women, it may be argued that women do not have the necessary savings or they are anxious about transferring their existing saving to the business they are planning to establish.

When it is examined the correlation between the characteristics an entrepreneur and the obstacles for a women entrepreneur, the respondents who value potential identified contextual factors (Sig=0.234 <0.05) as obstacles that entrepreneurs will face. Considering the differences by cities in these three stage questions, the most significant difference (One-Way-ANOVA Sig (p value)=0.002 <0.05) is found in "*contextual factors*" of obstacles that the respondents may face. The average points of "*contextual factors*" perceived as obstacles by women entrepreneurs are listed as follows: Konya (3.4), Kastamonu (3.8), İzmir (3.2), Gaziantep (3.5), Çanakkale (3.6) and Adana (3.4). Participants in the cities of İzmir, Konya and Adana reported that the barrier, which grouped under "*contextual factor*", has less effect on setting up a new business. Detailed information about contextual factors will be presented through participants' statements in the following section of this study. In order to complete these three stage questions, the advantages and disadvantages of the regions were analyzed. Here, the main motive was to find out whether the socio-economic and cultural structure of the city has any influence on this behavioural and ideational tenet. It was also desired to identify provincial divergences in shaping personal shortcomings or their choices. Responses to the open-ended questions on this matter are categorized and presented here in quotations.

According to the categorization of respondents' statements, results can be summarized as follows. The potential of a city is defined by market conditions, transportation, geographic structure, demographic conditions, gender characteristics, cultural and social structure and a familiar environment. Women's personal competence and their motivation to succeed is the primary factor, independent of a city's advantages. Overall, 24% of all respondents underlined this issue. In the second place, there is the statement - with a rate of 22%- that factors such as potential of the city, market conditions and transportation, and compactness of the city provide an advantage in establishing business. In the third place, there is the statement, expressed by 18% of all respondents, that cultural and social structure of a city creates a positive space for women's business and social lives. The last advantageous condition, expressed by participants, relates to the economic benefits and networks provided by the familiar environment of the city in establishing business. 10% of respondents underlined this point. The percentage of respondents who did not express any opinion on this issue is 19%. The percentage of those, whose statements are outside the identified categories is 6%.

It is important to note that respondents residing outside İzmir and Çanakkale trust primarily in their own personal characteristics and tendencies, i.e. the power of their gender differences. It is also important to see the extent to which this power has an effect in identifying and fighting threat risks a city may bring. Within this context, the respondents' views about the perceived sources of negativity pertaining to the current socio-economic and cultural structure of their city were also analyzed. Their views on this issue were obtained through the categorization of open-ended questions. The results can be summarized as follows: *cultural and social structure*, *incompetence*, and lastly the *potential of the city* including its market conditions and demography. According to the results, *values and beliefs*, all of which are expressed as family pressure, male hegemony, conservative structure of the society, closed society, negative glances and the negative perception of women's role in the society, rank in the first with a percent rate of 36%. Here, it is significant to note that patriarchal cities such as Konya, Kastamonu and Adana are at the forefront and no respondent from İzmir expressed any opinion on this issue. In the second place, there are views that focus on *the issue of incompetence*, such incompetence about knowledge, equipment and economy. Lastly, 13% of all respondents stated that *economic and demographic structure of the city* constitutes a disadvantage. While those residing in Çanakkale and İzmir mainly expressed that the city is not a disadvantage for them, respondents living in Konya, Kastamonu and Adana noted that the patriarchal and oppressive character of the city and its perception of women constitute a disadvantage. Respondents from the city Gaziantep, with a more introverted attitude, chose to share limited information and their opinions about the socio-economic structure and social capital of the city.

These results are in fact a projection of Turkey's social structure. Analysis of this projection is significant in understanding women entrepreneurs' motivation factors and obstacles they face in line with the socio-economic and cultural values of the region they reside in. In return, this understanding informs support mechanisms and planning activities that might ensure the permanence of entrepreneur candidates' motivation to establish their own businesses.

3.3. Being a Woman Entrepreneur: Work or Family? Getting Lost in Between

When positioning women in the sociocultural structure of Turkey, it is seen that the family-child-spouse triangle is of primary importance for women in Turkey in line with their gender roles. While this prioritization informs women's social behavioural patterns, it also influences their education, career plans, their sectoral choice and its quality. Problems about

women's prioritization begin when the women start to step outside their normal routine. In addition, the pressure arising from cultural and social structures, i.e. the social capital of the society, make the pressure on women entrepreneurs about their household roles more visible. Within this context, considering that most of the respondents are married and have children, the finding about this pressure becomes crucial. More specifically, since the patriarchal family structure in Turkey is influential primarily in the rural area relatively in urban areas, a woman's household roles have importance in terms of family order for her spouse, family of her spouse and her own family. Even if the woman is not married, her "expected" household roles continue to be the same. Respondents' perception of the idea that women's integration to business life would prevent her from fulfilling her household roles sufficiently and the concern that traditional family union could be disintegrated is seen as a complementary research problem. Besides, the answers to questions on this issue will be influential in understanding both women's motivation factors and the entrepreneurship types they choose.

When it was asked to the respondents whether or not their household roles would be affected, a great majority - 56% - of all participants stated that their household roles would be affected in a positive way. 41% of all respondents noted that their household roles would not be effected at all, whereas a very low rate as 3% of respondents stated that their household roles could be negatively affected. 81% of respondents from Izmir stated that their household roles would not be affected. Among six cities, Konya ranks the last with its 21% by stating that their roles would not be affected. Konya has the highest rate (75%) with an expectation of positive change in their household roles, while in Izmir respondents did not identify any condition that could be defined as a positive effect. This finding is very significant. At large, 41% of all respondents claimed that their household roles will not change. It is believed that their prior experience in business life has an effect in these responses. Another reason for this response may lay in their perception that household roles will not change as long as they choose entrepreneurship type in line with the social capital of the city of residence.

The common ground for those, who expressed positively for their household roles, is the reflection of their awareness of *personal motive for achievement, self-realization, self-knowledge and self-worth*. The financial gain is not very apparent in the answers. This is related to women's prioritization to succeed, be respected in society and become a role model for their children.

Besides such positive effects, respondents were also asked whether or not being women entrepreneur candidates affected their household roles negatively. While statements about negative effects are very few, only 19% of respondents in Izmir and 7% of respondents in Konya reported statements about such negative effects. In addition, the high average age of the respondent group means that their tasks as child bearers are fulfilled. This situation brings forward the feeling of fulfilling another need, i.e. being respected as a role model. Therefore, it is evident that the expectation about household roles evolves to another meaning.

In the last section this research, it was asked respondents' choice of female entrepreneurship types³ among the four definitions, namely *innovative, conventional, radical* and *domestic* (Goffe and Scase, 1985). 70% of the correspondents responded as innovative entrepreneurship, 16% chose conventional entrepreneurship, while 11% stated that they were radical entrepreneurs and 3% of all respondents claimed that they were domestic entrepreneurs. It is seen that innovative type of entrepreneurship is most chosen in Çanakkale with a rate of 28% and this is followed by Izmir with a rate of 25%. For radical entrepreneurs Kastamonu ranks the first with a percent rate of 33%, which is followed by Adana (14%) and Gaziantep (11%). There is an inverse relationship between advantages and disadvantages of the cities respondents reside. The desire to become radical entrepreneurs increases in the cities with the most social pressure towards women. The same rate is visible in the choice of conventional entrepreneurship. Çanakkale (28%) and Izmir (25%) are the first two cities with the highest rate of conventional entrepreneurship. Another data converging with this finding is the relationship between findings about the obstacles that those respondents may face when establishing a business and the entrepreneurship types. According to the previous findings, problems faced when establishing a business are grouped under three headings: personal shortcomings, financial difficulties and contextual factors. Values given to contextual factors significantly vary in line with entrepreneurship types (Sig=0,041<0.05).

There is no significant variance in different entrepreneurship types about financial difficulties and personal shortcomings (respectively; Sig=0.460 and 0.140<0.05). However, different entrepreneurship types give varying values to contextual

³ **A conventional Entrepreneur** pursues both entrepreneurial ideals and conventional gender roles. Trying to fulfill both simultaneously, this type of entrepreneurs balances work-family lives and they do not seek to expand their business too much. **An Innovative Entrepreneur** values her entrepreneurial ideals over conventional gender roles and expanding business is among her prioritized goals. **A Domestic Entrepreneur** values conventional gender roles above entrepreneurial ideals and perceives entrepreneurship merely as a subtask. **A Radical Entrepreneur** seeks to prevent exclusion of women in business life rather than maintaining the work-family balance. This type of entrepreneurs perceive work as a means to achieve this goal (Goffe and Scase, 1985 cited from Kutanis,2006)

factors. The value given to contextual factors by entrepreneurship types can be listed in sequence as follows: radical entrepreneurs (3.9), domestic entrepreneurs (3.5), innovative entrepreneurs (3.2) and conventional entrepreneurs (2.7).

The respondents who choose *innovative entrepreneurship* explained their choice through statements such as life style, balancing work and career, goals, working in a respected business, being innovative and different. While those who choose *domestic entrepreneurship* highlighted the idea of not neglecting their families in explaining their choices. On the other hand, the respondents, who choose *conventional entrepreneurship*, underlined the difficulty of finding the balance between innate roles of a person and gender roles of women. Finally those who choose *radical entrepreneurship* pinpointed their desire for self-realization and independence against the exclusion of women.

When these findings of entrepreneurship types are compared with Kutanis's (2006) findings, it is seen that Turkish women display more the characteristics of conventional and domestic entrepreneurs. It is not clear whether these respondents will lean towards service industry based areas such as market research, advertising, public relations, education and media for the business they will set up in the future. Nevertheless, their high education levels ensure the precondition that their choice will be oriented towards this direction. In addition, the pressure deriving from contextual factors such as social oppression and household roles leads women to perceive "entrepreneurship" as a side job. In this way, they get squeezed in between conventional and domestic entrepreneurship types, one of the most significant obstacles against women's entrepreneurship.

4. FINDINGS AND DISCUSSIONS

Women's active participation in the economy is a significant factor in solving countries' economic problems. It should be noted that in Turkey, which has a fragile economy, women entrepreneurs could play a particularly important role in growing the economy, increasing employment and creating business on a global scale. Especially in countries with regularly increasing young and female populations like Turkey, women's active participation in economy is no longer a wish, but rather an imperative. Within this context, Turkey will have the power to increase the interest for women entrepreneurship with the design and success of its training programs for enhancing women entrepreneurship.

Considering that economic and sociological differences among regions in countries like Turkey have a great influence on women entrepreneurship. Age profile is a leading factor among demographic characteristics of women entrepreneurs. In countries like Turkey, the age at starting entrepreneurship for women is generally 35 and older. While this demographic finding is not a contribution to previous sociological studies on this matter, sustainable and consistent women entrepreneurship requires the integration of a younger population of women in entrepreneurship. Only then will entrepreneurship be a factor for economic and social integration for women.

Virtuousness, leadership, extroversion and potential personal characteristics are defined as characteristics of women entrepreneurship candidates by many scholars. Motivation factors leading women to become entrepreneurs are mainly informed by these personal traits. Self-realization is the primary factor motivating women in the process of setting up a business. Besides, social and financial motivation factors vary according to the perceived level of needs, socio-economic and cultural values of the region of residence. Another significant point is that the motivation power of financial factors diminishes as women's education level increases. High levels of financial expectations lead women to be more conventional and act more slowly in entrepreneurial activities. Obstacles constitute an important factor in women's choices for giving up entrepreneurship activities at an early stage. The scope and strength of these obstacles are related to social and economic structure of the city of residence. At this point, "patriarchal cities" – due to the patriarchal oppression on women - affect women's motivations in handling problems. Effects of patriarchal social structure in Turkey are clearly visible in the inability to sustain a regular increase in the number of women entrepreneurs. Under these circumstances, women's solidarity system has an informative mission. Another significant issue relates to the question of how women will utilize the perceived advantages of patriarchal cities against the feeling of despair created by this patriarchal pressure. In general, women develop social and economic awareness of the cities they live in; however, they have problems in transforming this awareness into business ideas. Here, the most crucial issue for women's entrepreneurship is the transformation of ideas into living and developing projects.

Women in Turkey tend to choose "conventional" and "domestic" entrepreneurship types. However, in early stages of entrepreneur candidacy, they sometimes choose the "innovative" type. The moment when women entrepreneur candidates begin to become independent entrepreneurs, their entrepreneurship plan changes. Although education levels of women entrepreneurs lead women to become "innovative" entrepreneurs, obstacles faced during the application of ideas change women's choices. Training programs designed for women's entrepreneurship need realistic planning and efforts for teaching women how an appropriate entrepreneurship model will be applied in all sectors from agriculture to manufacturing. If women are guided towards entrepreneurship without taking into account the existing conditions, their entrepreneurship stories will consist of short and repetitive episodes. Training programs for women require practices and support mechanisms i.e. guidance, finance, etc. and that can discover their ideas and merge these ideas with their skills.

5. CONCLUSION

The study results were obtained from the participants of the education program in different cities prepared as one of the social and economic support mechanisms to increase women's entrepreneurship. The results implied that women who applied for the women entrepreneurship program strongly felt the effect of social gender norms despite their education levels and professional experience. Even though a relatively lower number of women expressed the effect of these norms in Western Turkey, their work plans are still affected by this social gender concerns. Regional differences affect the degree to which women feel the visible or invisible pressure of social gender norms. Social policies and strategies should be developed to be implemented along with educational programs in order to eliminate social gender-based barriers and ensure a holistic perspective. A sufficient number of female entrepreneurs to create an economic and social value cannot be achieved if a holistic approach cannot be ensured.

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THE EMERGENCE OF THE NEW TECHNOLOGIES IN EDUCATION IN ALGERIA: CASE STUDY ON ENGINEERING SOFTWARE

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ABSTRACT

Purpose- This work aims to situate the introduction of new techniques, in particular Computer Science in educational institutions and Universities.

Methodology- The work begins by an overview on the practice of the new technology in some European countries. This is to analyze the European experience and its benefits for to adapt them to the Algerian context. The school and education are not immune to the new information and communications technology: Knowledge transfer is no longer only by the book and the mediation of a teacher, but now goes through audiovisual technology and multimedia. The challenges are twofold: mastering by the student of the new technologies in them cultural and economic context in which they are increasingly present on the one hand; and other hand the diversification of forms of learning in relation with reforms in the education system in Algeria.

Findings- The study finishes by a thinking on the causes which delays the emergence of the new technologies in Algeria. After investigations, some remarks and deductions are make.

Conclusion- Significant results were obtained in some universities, particularly the University of Science and Technology Houari Boumediene (USTHB), in terms of allocation of computers and Internet connection. But, it remains to make great efforts in the field of software acquisition, video training and in the computer-aided design.

Keywords: Emergence, new technologies, education, computer science, Algeria.

JEL Codes: G10, G32

1. INTRODUCTION

Higher education institutions play a central role in terms of education, economy and employment in society. The sectors of education from primary and secondary school are closely related to each other. Higher education trains teachers for all levels of the system and depends on the good level of the students trained by the sectors of primary and secondary schools which will in turn become students.

This work aims to situate the introduction of new techniques, in particular Computer Science in educational institutions and Universities. This is to analyze the European experience and its benefits for to adapt them to the Algerian context. The school and education are not immune to the new information and communications technology: Knowledge transfer is no longer only by the book and the mediation of a teacher, but now goes through audiovisual technology and multimedia. The challenges are twofold: mastering by the student of the new technologies in them cultural and economic context in which

they are increasingly present on the one hand; and other hand the diversification of forms of learning in relation with reforms in the education system in Algeria.

The introduction of information science and information technology in particular in education and training has created a powerful momentum, evidenced among others by the inclusion of this dimension in educational programs, the proliferation of educational sites, mobilization of actors around the creation of digital campus and the massive purchase of personal computer. Aware of this evolution, the Algerian public Authority leads, since 2005 year, through the Ministries of Education and Higher Education, a proactive policy to develop the use of information technology and communication within the school and higher education.

Don Knezek, the Director of the International Society for Technology in Education, compares education without technology to the medical profession without tools. "If in 1970 you had knee surgery, you got a huge scar," he says. Kessler (2011) says "Now, if you have knee surgery you have two little dots". Richey (2008) gives this definition to the education: Educational technology is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. "Our aim was to encourage far higher levels of active student engagement, where knowledge is obtained by sharing, problem-solving and creating, rather than by passive listening. The digital learning and research are considered as Knowledge Creation approach, increasing the ability of students, citizens, and the workforce to innovate, produce new knowledge, and benefit from this new knowledge. Liz Burdon of Britain's Durham University (Burdon 2012) asserts that this type of classroom enables both active engagement and equal access to researchers.

2. THE COMPUTER SCIENCE IN EDUCATION

2.1. Historic

The analysis concerns some experiences and reports published by some institutions affiliated to UNESCO.

The idea of using computers in education dates back to the early 60s when there appeared, following the theories of Skinner (1968), teaching machines, already media, since resulting from the assembly a computer, a tape recorder and still image projectors and / or films. The only material that had a commercial life was the IBM 1500 system but his career was extremely short. The invention of the "time-sharing operation", that is to say the ability to connect to a powerful computer a large number of terminals that share the processing power of the computer, led the company Control Data Corporation (CDC) to fund the project PLATO (Programmed Logic for Automatic Teaching Operations) from the University of Illinois. Pantages (5) reports that Morris, Vice President of Executive Administration Office for the CDC compagny did not hesitate to predict that about 1985 PLATO is the cause of half the turnover of CDC.

The countries formulate, increasingly, national policy on the use of computers in education as a response to the increasing number of computers used in the private sector and in response to domestic political pressures that are emerging face of the global information revolution. Such a national policy is also necessary to introduce computers in public education because of the relatively high cost of operation.

According to Hebenstreit (1969, 1998 and 1992), in the early 70s, It is are launched various projects including French project known as the " Expérience des 58 lycées " and the English project NDPCAL "(National Development Program for Computer Assisted Learning) under Authority of the Council for Educational Technology of Waterloo University wich will be the first experimental ground for a semi-massive use of computers in education in Europe.

The massive arrival of computers and lack of instructional teacher preparation has led experts to address a number of the optimistic findings:

- a) The Carnegie Report "The Fourth Revolution" (1972) indicates that, compared to initial assumptions, the New Information Techniques (NIT) in education come more slowly than expected, cost more than expected, and go s' add to what exists rather than replace it.
- b) The Office for Technological Assessment (OTA) of US Congress (1994) considers that the computer needs more creativity and more time spent with the teacher (Office for Technological Assessment 11).
- c) The Carnegie report discovers that teachers who work to develop software are usually not rewarded for their efforts.
- d) The report of the OTA of US Congress (95) concludes: " Although much educational software are judged favorably by rating agencies and by professional magazines, the most widespread opinion among teachers (and also among publishers of educational software) is that quality educational software could be much better ".

2.2. The French Experience

The French experience is characterized by the following actions:

1. The development of the French supply of the Open and Distance Higher Education

Two calls for proposals for the establishment of digital campuses were launched in 2000 and 2001 to support and structure the national offer open and distance training. Universities, institutes, engineering schools and colleges have responded massively to it. Consortia thus constituted include corporations (50), associations and local authorities (48). An Amount of 12.12 million euros were allocated to them for study and implement the Open and Distance Training.

2. Information and communication

The specialized site for information and communication technologies has emerged since 1997. Educnet: Opened in 1998, this site of information and communications technology for teaching gathers reference texts, examples of teaching practices, lists of resources but also a legal topic to guide users, a topic standby documentary and new section. He welcomes every month more than 300,000 visits.

3. The research effort

The whole French experience strategy is based on two axes:

a) Innovation Audiovisual and Multimedia Network: Established in 2001 and with a budget of 20.58 million euros, the network aims to promote cooperation between companies and teams of public research in the field of audiovisual and multimedia. The field of education is widely considered (European residence dedicated to educational technology: Villa Media, urban community of Grenoble Alpes Métropole).

- Support for Educational Research: The need for a database of all research groups working on these issues is now available.
- Anticipation and foresight actions: Permanent technological monitoring, missions, seminars and conferences are organized. Studies are also being conducted on some emerging themes.
- Support the creation and enterprise development: Law on innovation and research in July 1999: It allows offering, for civil servants of public services, the opportunity to exercise their skills with French companies, creation or development of educational multimedia sector.
- National Incubator "Belle de Mai" dedicated to educational and cultural media: Created in 2000, following the call for "Incubation and seed capital for technology companies" projects, the Incubator of educational multimedia products and services and business cultural "Belle de Mai" in Marseille, provides support to entrepreneurs in this sector.
- Seed capital "C-source": Established in 2000, the C-Source seed capital fund of an estimated amount of about 15.25 million euros. A quarter of contribution comes from the Government, associations public (mainly INRIA, ENSET Cachan and the Caisse des Dépôts et Consignations) and private investors. It can support young companies in the media sector, including education, for the acquisition of shareholdings.

b) The International partnership

- International electronic learning networks: The networks of schools are woven around common projects such as the hands-on, or Mesoe that respect the environment. France has organized in November 2000, as part of its EU Presidency, the conference and exhibition "eEducation". Numerous actions have also been undertaken in the framework of the European Union and the "eEducation" initiative launched by President Romano Prodi: European Schoolnet, mentioned above, participation in the European Year of Languages, Netdays, E- Schola. Multilateral and bilateral relations.
- Multilateral relations: The Ministry of Education actively participates in work conducted in international organizations in which France is represented: Council of Europe, OECD, G8, Unesco, Seameo.
- Bilateral relations: The offered education must be built on innovative applications of information and communications technology (internet, interactive online documentation, etc.) and it permits for students the realization of creation conditions of an international learning cooperation with many countries as Greece, the regions of North African and Middle East.

2.3. The Algerian Experience

Many actions have been taken to achieve these objectives at the announcement of the government's action plan for the academic year 2000. These include:

- Infrastructure development and support during this period:

- Creation and development of a park of computers,
- Tax relief with respect to the importation of computer tools,
- Connect to the network,
- Sites for schools,
- These results were obtained by a strong mobilization of local authorities and a substantial assistance of government.
- The evolution of teaching content and teaching practices.
- The technologies of information and communication have been gradually introduced since september 2000, into the new programs of primary and secondary. New features and particularly at the disposal of the rooms equipped with computers allow to the students the diversification of modes of knowledge acquisition and practice of computer tools such as software.
- The raising awareness of the educational and personal coaching

Since January 2000 several national conferences were organized. They were for managers and training actors and thus supported the training effort in Universities. They have focused on issues related to the new technologies, training for the network and the establishment and exploitation of the web databases. By example, in January 2002 a conference was organized by the National Institute of Informatics (ENI), the Research Center on Scientific and Technical Information (CERIST) in collaboration with Oracle Corporation. In year 2010, the Algerian government has signed a deal with Microsoft Corporation for the maintenance of software and the data bases.

Training has referred in particular in the City of Algiers, the school managers who have all been endowed with a particular computer.

Many actions are underway in the universities to stimulate the use of computers and the software in daily work.

3. CASE STUDY OF CIVIL ENGINEERING TEACHING

This investigation was making during two years with my Students in Master degree during 2012 and 2013 into the faculty of civil engineering in University of science and technology Houari Boumediene (USTHB) of Bab Ezzouar, Algiers, Algeria.

Four questions were put:

- Are you satisfied by the availability of computer material?
- Are you satisfied by the knowledge of teachers in this domain?
- Are you satisfied by the availability of technical software?
- Think you that the tutorials and workshops concerning these tools, are widely ensured?

The responses must be formulated as follow:

- Yes=3,
- Well enough=2,
- NO=1.

On a population composed of 100 persons, the answers are represented by table 1 and figures 1 to 4.

Table1: Answers of Questions

Questions	Answers			
	1	2	3	Total
1 Satisfied by the availability of computer material?	40	30	30	100
2 Satisfied by the knowledge of teachers in this domain?	50	30	20	100
3 Satisfied by the availability of technical software?	60	20	20	100
4 Tutorials and workshops concerning these tools, are widely ensured?	70	20	10	100

Figure 1: Answers for question 1

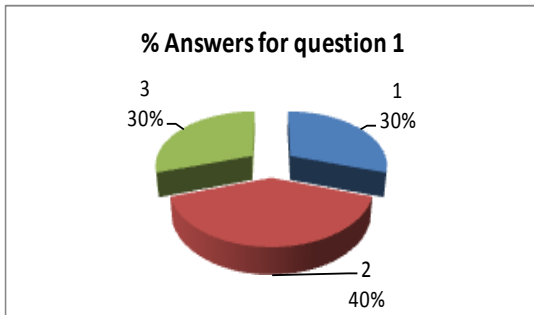


Figure 2: Answers for question 2

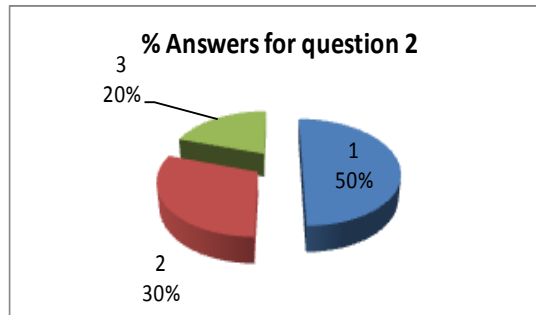


Figure 3: Answers for question 3

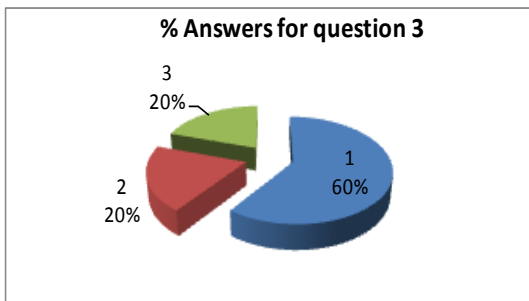


Figure 4: Answers for question 4

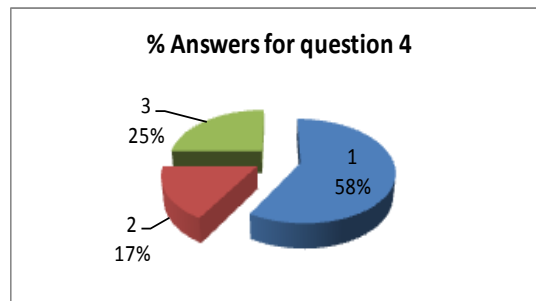


Figure 5: Evaluation of answer for question 1

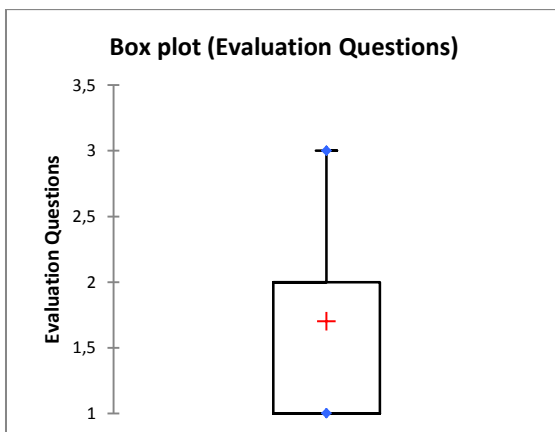


Figure 6: Evaluation of answer for question 2

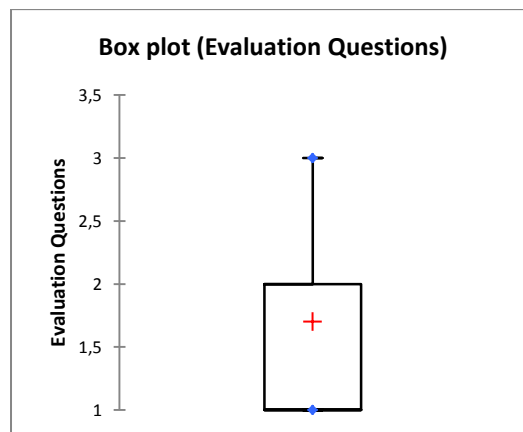


Figure 7: Evaluation of answer for question 3

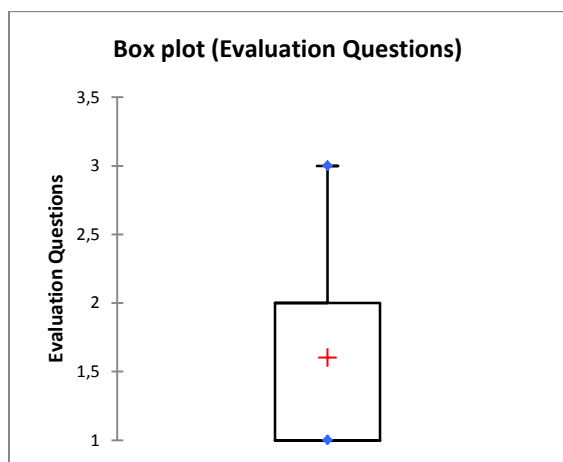
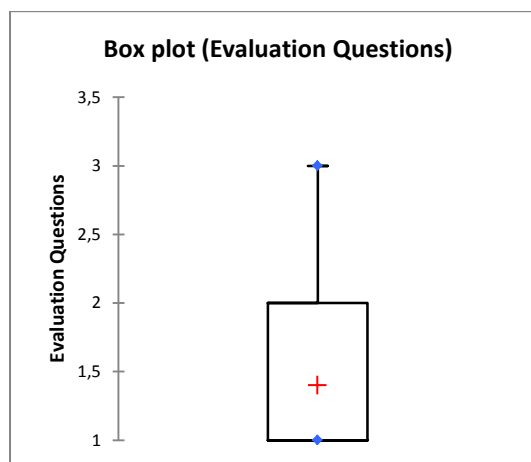


Figure 8: Evaluation answer for question 4



3.3. Interpretation

The responses to the cited questions show that excepted the question number one (1), the large part of students are not satisfied of the actual situation about the teaching of the engineering software. Indeed, the obtained mean score vary between 2.0 and 1.4. The bad score is obtained by the question 4 which illustrates the lack mastering of the software because there are not enough tutorial and workshops.

The availability in number of computers and cyber space is satisfying. Concerning the lack level of knowledge of the teachers, it is demanded to enhance their expertise. The difficulty to accessibility to the technical tools (software) can to be explained by the absence of free software.

Globally, the mean score for all answers is 1.68; this value is inferior to the value "well enough".

4. FINDINGS AND DISCUSSIONS

The difficulty of access to the computer room, the lack of means to buy software, but also the decline in student interest in computers can explain the disillusionment of some teachers to the new information technologies (NIT). The serious crisis facing the computer industry and the employment prospects in this area are no longer what they were (Recent Trends in Education 13). The social pressure that had greatly contributed to the installation of computers in education has significantly diminished which means there are not motivation for that government undertakes big actions in this area. According to the Minister of Education of the time, approximately 60% of Algerian secondary schools did not possess Laboratory of Computer Science in 2011 (INRE 14). According to the ITU (International Telecommunication Union) (15), Over 250 million people came online over the last year, and almost 40 per cent of the population of the world will be using the Internet by end 2013.

The teachers criticize, without having a clear conscience, the lack of available softwares and the non-mastering of these tools. Guité observes (16) that the computer rooms limit the educational uses of computers because of the constraints they impose. These observations were confirmed by an internal inquiry realized into our university.

Current costs of Internet communications services remain a brake for mass education, especially for poor countries. For example, in Algeria, the cost of internet connection is fifteen (15 €) Euros by month for one (1Gbit) gigabit and the acquisition of router is fifty euros (50 €). Compared to a purchasing power (mean salary=200 €) the costs of internet connection are real constraints and a barrier for the generalization of the eLearning.

If one analysis the remarks reported by some authors as Bialo and Sivin-Kachala (1995), on the emergence of the new technologies in United states during the 1990 to 2000, one note some similitudes with to the algerian contex, but with an delay of 10 years.

5. CONCLUSION

In a very short time, the new information technologies have changed very quickly and are used in all domains of society and economy in Europe and USA. The roles they can and will play in the education have changed also. But in the field of engineering, a big retard is noted in the Algerian universities like the University of Science and technology Houari Boumediene (USTHB) in Algiers. This delay can be explained by an insufficiency in acquisition of technique softwares caused

by the problem of license and the lack mastering of teacher on these engineering software. To promote the development of applications in relation with the design aided by computer, it is recommended to mutualize the resources of the Faculties of mathematic and informatics with the others Engineering faculties into a big laboratory in University.

The great remark, that can to be making an observer, is the absence of an evaluation of the emergence of these new technologies by public institutions. Indeed, in the long term, the development of new technologies certainly will have impacts on pedagogy, engineering design, territorial repartition of schools, working patterns and the urban composition of our future cities. Already some sociologists and urban planners begin to imagine the city of the future.

Significant results were obtained in some universities, particularly the University of Science and Technology Houari Boumediene (USTHB), in terms of allocation of computers and Internet connection. But, it remains to make great efforts in the field of software acquisition, video training and in the computer-aided design.

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INVESTIGATION OF CROWDSOURCING CONCEPT BY OPEN INNOVATION PERSPECTIVE: APPLICATION EXAMPLES

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ABSTRACT

Purpose- The aim of the work is to define the concepts of open innovation and crowdsourcing that the changing competition concept brings and to emphasize its importance for the enterprises. Then, we examine the examples of businesses and practices that benefit from the crowdsourcing approach with open innovation perspective in Turkey.

Methodology- In this study, descriptive method was used for non-experimental research methods. The crowdsourcing practices of the enterprises were determined and the current situation was assessed.

Findings- Many enterprises are using the “crowdsourcing” approach to increase intensity of innovation and compete. acikinovasyon.com, which can be called the biggest innovation network of Turkey, provides the participation of masses in the innovation processes of enterprises for certain awards (money or gift sets). Innovation studies and innovation demands of enterprises that need ideas and projects of the crowd are examined with the help of the table below. While some of these studies are finished, some are active.

Conclusion- It seems that the approach has been used more and more by enterprises in Turkey in recent years. Businesses can get the results they want cheaper by taking advantage of the crowd outside the enterprise to solve new product ideas or a problem. Open innovation and crowdsourcing provide positive outputs to enterprises when appropriately designed.

Keywords: Open innovation, crowdsourcing, enterprise application examples, Turkey

JEL Codes: M10, O30

1. INTRODUCTION

The most significant impact of globalization on the world economy is to move competition to the global level. Countries and enterprises have more interaction with each other than in the past, bringing about changes in globalization, a process in which businesses operate not only in national markets but also in the world market. When we look at the economic, political and military dynamics of the 21st century, considering the impact of globalization, it seems that the new paradigm of competition is based on innovation.

Innovation is the healthiest and ongoing field in which organizations and societies in ever-changing and evolving lifestyles can achieve mutual excellence. According to Pierce & Delbecq (1977: p.27), innovation is the initiation, adoption and implementation of new ideas or activities in the organizational framework. Flynn, Dooley, O’Sullivan & Cormican (2003: p.4), innovation, the implementation of a wide range of ideas and it is a process to be transformed into an opportunity for new ideas. Organizations are embracing innovation to follow technological and managerial changes in the information, to adapt competition in the industry, to meet the expectations of those involved and increasing the desire and ability of senior executives to acquire different competencies (Damanpour, Walker & Avellaneda, 2009: p.650).

The focus of enterprises' innovation operations is traditionally closed and is recognized by large R&D departments of enterprises and an increasing number of international patents. Now, on the contrary, there is pressure for opening of institutional innovation processes, as external actors are becoming an increasingly important part of enterprises for ability to innovate. This development was called open innovation by Chesbrough (2003). This development has progressed gradually and attracts even more interest among enterprises.

"Closed innovation" approach which reflects innovation that is done only large corporations and behind closed doors leaves its place to the concept of "open innovation". These two innovation approach can be explained through chess-poker metaphor. In chess, all stones and playground are determined. New information is not included in game from outside. It is a closed system and with these features similar to closed innovation approach. In poker, the game is maintained by changing and opening cards. By constantly exchanging information with competitors, resources available are persistently changing. This new information is very important for players. The poker game with its peculiar features can be likened to open innovation approach. The pursuit of open innovation that enterprises benefit from technology brings us with concept of "crowdsourcing". The concept of crowdsourcing consists of combination of crowd and outsourcing words. Crowdsourcing means that crowd is working towards subject and solution that is reached as a result of this work. When the concept is examined in terms of enterprises, it is seen that "it is not work to be done for its own employees but crowd for certain reward and get advice and solutions on the job".

Crowdsourcing can be defined as the creation of a function that is traditionally performed by employees and outsourced the crowd in the form of "open call". The crowd is an undefined (and often board) network of people (Howe, 2008). Crowdsourcing and open innovation as well as paradigms such as swarm intelligence, peer production, Wikinomics have become a rapid development in recent years (Bücheler & Sieg, 2011: p.327). The reason for emergence and development of these new paradigms is that enterprises do not want to get back on the competition in a changing competitive environment (Marjanovic, Fry & Chataway, 2012; Majchrzak & Malhotra, 2013).

The aim of the work is to define the concepts of open innovation and crowdsourcing that the changing competition concept brings and to emphasize its importance for the enterprises. Then, we examine the examples of businesses and practices that benefit from the crowdsourcing approach with open innovation perspective in Turkey. It seems that the approach has been used more and more by enterprises in Turkey in recent years. Businesses can get the results they want cheaper by taking advantage of the crowd outside the enterprise to solve new product ideas or a problem. In the second part of the study, concepts of open innovation and crowdsourcing are explained. In the third part, business application are included in "acikinovasyon.com", in Turkey "innocentive.com" a similar established in 2009. In the last part, the general evaluation of the work has been done.

2. OPEN INNOVATION AND CROWDSOURCING

Crowdsourcing and open innovation are two terms produced in the last thirteen years that affect various research areas.

The nature of open innovation is the creation and application of knowledge, because knowledge capacity is the key factor for the implementation of open innovation (Zhang, Huang & Hao, 2010: p.196). Prerequisites must be prepared in order to support the creative capacity of enterprise. Open innovation provides the environment for providing external information, which is important for these prerequisites. External knowledge, which is often emphasized in the concept of open innovation, will surely not contribute to innovation and development alone. For effective use of knowledge, new and development-friendly organizational climate should be developed. Enterprises that implement open innovation will need to be semi-permeable so that closed organizational boundaries can be transferred into and out of the business (Chiarini, Chiesa & Frattini, 2011: p.224).

As explained by Thrift (2006), innovation process, thinking and collaboration become more open to new product development. Open innovation approach plays an important role in innovation process. The concept of open innovation (Chesbrough, 2003) is a growing area of research and company is using it in increasing quantities. So far, most of the current literature explain to phenomenon and its logic and more recently to define competent business strategies for open innovation (Antikainen, Mäkipää and Ahonen, 2009: 101). There are many definitions of open innovation in the literature. Some of which are examined below.

- "Open Innovation is a paradigm that assumes that enterprises can and should use external ideas as well as internal ideas, and internal and external paths to market, as the enterprises look to advance their technology. Open Innovation combines internal and external ideas into architectures and systems whose requirements are defined by a business model" (Chesbrough, 2003).
- Open innovation is a broad concept that exploits outside technology sources and innovation to drive internal growth (Docherty, 2006).

- Open innovation is the input and output of information intended to speed up the innovation within enterprise and to expand market for use of innovation outside (Chersbrough, 2006).

Open innovation approach provides various benefits to enterprises (Docherty, 2006: 14). These can be listed as follows.

- “Ability to leverage R&D developed on someone else’s budget,
- Extended reach and capability for new ideas and technologies,
- Opportunity to refocus some internal resources on finding, screening, and managing implementation (important not to position as a threat to internal resources),
- Improved payback on internal R&D through sale or license of otherwise unused intellectual property,
- A greater sense of urgency for internal groups to act on ideas or technology (use it or lose it),
- Ability to conduct strategic experiments at lower levels of risk and resources, with the opportunity to extend core business and create new sources of growth,
- Over time, an opportunity to create a more innovative culture, from the ‘outside in’ through continued exposure and relationships with external innovators.”

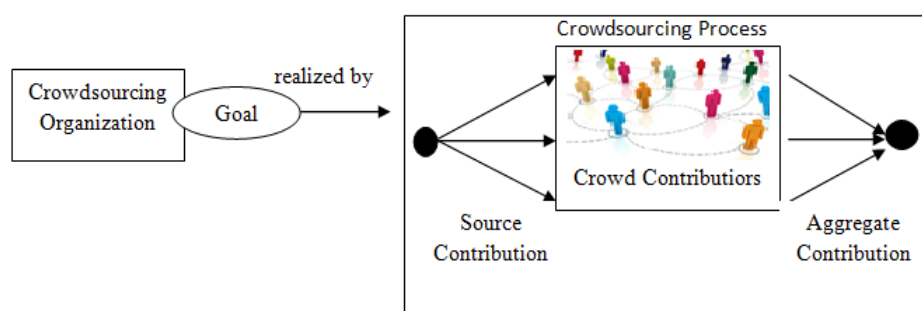
Although the era of open innovation has began for many enterprises, there is no clear information about when and how the concept will be exactly what the mechanism are inside and outside organization (Enkel, Gassman & Chesbrough, 2009: p.312).

Open innovation; Although it has been used extensively in technology enterprises during the emerging periods, It began to be applied and widespread in other sectors over time. Along with the development of the concept; It has become a process that has to go beyond just transferring information and applied systematically. The innovation process can be examined in three basic stages (Kaynak & Maden, 2012);

- Concept Stage: It is at this stage that strategies are set in order to form an organization climate suitable for open innovation, encouraging the members of the organization and maintaining research activities. This stage; It is the nature of preliminary study and preparation with the establishment of the infrastructure of open innovation for providing information flow to the inside and outside of the enterprise.
- Development Stage: At this stage, implementation tools are created, qualifications are defined and projects are developed. On the basis of the infrastructure created in the previous stage by creating mechanisms of organizational climate and is ready for application.
- Application Stage: At this stage, the plans generated in accordance with the system begins to operate, speed gains in the exchange of information between the enterprise and its stakeholders. Implementation and control mechanisms with the execution of innovation activities is provided to step outside the boundaries of the enterprise.

So far, both in media and on internet, crowdsourcing has been recognized as an innovate form of value creation (Hammon & Hippner, 2012: p.163). Crowdsourcing is term roof for the various approaches that enter the potential of a large and open human population. It is not possible to systematically understand the processes used to called from crowd and collect contributions as of now (Geiger et al., 2011: 1).

Figure 1: Prototypical Crowdsourcing Approach



Source: Geiger et al., 2011: 2.

Figure 1 shows a prototypical crowdsourcing approach. Crowdsourcing organization is based on a particular crowdsourcing process to achieve a clear goal. Two examples for crowdsourcing organizations are Treadless which is based on crowdsourcing to create marketable t-shirt designs and Amazon which is based on crowdsourcing to make comprehensive reviews of its products. The target is realized by one or several kinds of contribution sources and collecting process of the crowd (Crowdsourcing Process). In the first example, the crowd is asked to contribute by writing new critiques or by interpreting and voting on existing ones. In the second example, the crowd is wanted to vote for existing t-shirts and asked to create new t-shirt designs (Geiger et al., 2011: 1-2).

There are many definitions of crowdsourcing in the literature. Some of which are examined below.

- Crowdsourcing is the use of an internet-scale community for an outsourced task (Yang, Adamic & Ackerman, 2008).
- Crowdsourcing is used for a variety of different applications (problem solving, idea generation, product design, etc.) (Geiger et al., 2011: 2).
- Crowdsourcing is outsourcing of potentially large and unknown population in the form of open call, in the process of generating ideas (Poetz & Schreier, 2012).
- "Crowdsourcing is the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call" (Howe, 2008).
- Crowdsourcing is defined as "the act of outsourcing tasks originally performed inside an organization, or assigned externally in form of a business relationship, to an undefinably large, heterogeneous mass of potential actors". This is done through an open call over the Internet for free, value-added use. The incentive to participate can be Money and/or non-money in nature (Hammon & Hipper, 2012: p. 164).

Howe (2008) defines crowdsourcing applications in four basic categories: collective intelligence or crowd wisdom; user-generated content or crowd creation; crowd voting and crowdfunding. Crowdsourcing is a complex phenomenon and usually involves a combination of these categories; this can sometimes be difficult to distinguish.

As in every practice, crowdsourcing has both advantages and disadvantages (Hammon & Hipper, 2012: p.165).

Advantages of this concept;

- "Access to an enormous pool of competence and knowledge,
- Enhancement of the relationship between organization and customers,
- Increase of brand loyalty,
- Anticipation of consumers' needs,
- More innovative problem solutions,
- Highly modular and flexible processes and less time-to-market,
- Cost cutting potential."

Disadvantages of this concept;

- "Difficulties of calculating project costs,
- Necessity of precise project definition,
- Necessity of feedback loops for communication with participants,
- Uncertainty of crowd structure (e.g., regarding expertise),
- Risk of losing control (e.g., boycott or obstruction),
- Loss of internal know how,
- Consideration of legal framework conditions,
- Creation of a motivating incentive structure."

3. CROWDSOURCING APPLICATION EXAMPLES WITH OPEN INNOVATION PERSPECTIVE

The open innovation model is a more dynamic and less linear approach that enterprises can leverage both internal and external sources. In this approach, Innovation is based on the presence of information outside enterprise and it requires a enterprise unit to create new ideas and present them to market quickly using this information source (Yigit & Aras, 2012: p.489).

Mass customisation focuses on customisation of existing innovation, as open innovation paradigm suggests, the most rewarding customer involvement can be demonstrated in the idea-making process of new products (Chesbrough, 2003).

Procter and Gamble presented the concept of open innovation to organization and announced while Philips has a well-established open innovation environment, Simens has launched a major enterprise open innovation program in 2009 (Enkel et al., 2009: p.312). Peugeot has exchanged ideas with hundreds of designers from all over the world with its open design concept named "Open Design" in 2005 and has enjoyed these designs for exhibitions and new models in its automotive organizations (Kaynak & Maden, 2012).

Crowdsourcing is a relatively new concept involving many applications. This diversity causes blurring of crowdsourcing boundaries, which can be characterized by virtually and type of internet-based collaboration activity, such as co-creation or user innovations (Estelles-Arolas & Gonzalez-Ladron-de-Guevara, 2012). Enterprises are increasingly entering the "crowdsourcing" practice, making idea generating function outsourced to large contribution groups, often unknown or undefined.

A very famous example of crowdsourcing outcome is a distributed encyclopedia "Wikipedia" (Buecheler, Sieg, Fuchsli & Preifer, 2010: p.679). Another example is Innocentive. Innocentive was launched by a pharmaceutical firm that faced problem when designing a product. Despite the extensive R&D department, In developing a new product, there was no idea to solve a particular problem. A new match-making system was designed to communicate with people outside the existing experts for unresolved R&D problems. Everyone who could solve the problem was offered a monetary award. Scientists from all over the world competed for the prize. The winner received the award and company found a solution at a relatively cheap price (Steve 2006; Albros, Ramos and Hervas, 2008: 197; Frey, Lüthje and Haag, 2011).

One similar to innocentive.com in Turkey is "Açıkinovasyon" techno-initiative enterprise established in 2009. The aim of the enterprise is to create new technologies and applications that masses always play a leading role in, enabling enterprises to get more effective, faster and more efficient results in the innovation journey and to create value for them. acikinovasyon.com, which can be called the biggest innovation network of Turkey, provides the participation of masses in the innovation processes of enterprises for certain awards (money or gift sets). Innovation studies and innovation demands of enterprises that need ideas and projects of the crowd are examined with the help of table 1 below. While some of these studies are finished, some are active.

Table 1: Examples of Crowdsourcing Practice with Open Innovation Perspectives

Enterprise	Call Slogan	Innovation Type	Award
BKM	We are looking for different communication methods for telling the consumers and the economic benefits of card payment systems	Marketing innovation	3.000 TL
Sengüller	We are looking for innovative ideas that will lead to life in the retailing sector	Product/service innovation	iPhone5/iPad/iPod
Askaynak	What innovative methods can increase the market share of your new source machine?	Marketing innovation	5.000 TL
Yesilova Holding	How can we innovate in order to increase the usage rate of the portbag in vehicles?	Product/service innovation	4.500 TL
Mudurnu	We are looking for techniques that will increase the sales of our products such as burgers, nuggets, shinitzel and ready-made dumplings. How can we show these products hotter to the public?	Marketing innovation	1.500 TL
Kordsa Global	Except for nylon and polyester technical textile products rubber and rubber reinforcement applications which can be used?	Product/service innovation	2.000 TL
Borusan Logistic	In your opinion, what are the basic logistical issues and expectations of the customers? How solutions should be developed?	Marketing innovation	3.000 TL

Akcansa	People will get a new home or workplace, ready-mixed concrete brand awareness / consciousness, how we can increase?	Marketing innovation	Apple iPad 2
Bursa Gas	What can be done to encourage automatic payment of invoices?	Marketing innovation	3.500 TL
Bursa Gas	136.000 our subscriber how do we do gas owners?	Marketing innovation	5.500 TL
Borusan Logistic	In what sector, how can we produce a new service in a cooperative way?	Product/service innovation	3.000 TL
Milupa Aptamil	For babies between the ages of 1-3, which is the new product we need to get out?	Product/service innovation	2.000 TL
Yesilova Holding	Which functions make our aluminum products different and attractive?	Product/service innovation	iPad 2
DURAVIT	What innovative method can increase your market share?	Marketing innovation	3.250
Vakif Retirement	What innovative measures can we introduce "interest free retirement " investment fund to the target group?	Marketing innovation	10 gr gold
Michelin	How do we provide first choice of sales points?	Marketing innovation	1500 TL Teknosa gift cheque
TEB	What can we do to make our customers experience a different banking experience?	Product/service innovation	iPad 2
İpek Kagit	The use of products manufactured from recycled paper cleaning paper how can we increase awareness?	Marketing innovation	500 TL
Global Bilgi	Are we looking for innovative product and service ideas that can be sold on the phone?	Product/service innovation	İpad
MUDO	Are we looking for innovative solutions that can analyze customer behavior?	Research & Development (R&D)	2500 TL gift cheque
İpek Kagit	What consumer promotions can be made in cleaning paper products?	Marketing innovation	500 TL
Danone	Children grow up with your ideas! We want you to produce innovative ideas that will make you want to eat more fruit yoghurt between 3-7 years old boys and girls.	Marketing innovation	1000 TL
RAMSEY	You choose your accessory!	Product/service innovation	500 TL Ramsey gift cheque
Phonak	We are all looking for ideas to hear our voice! We are looking for innovative ideas that will guide people who have hearing problems to hearing aids by creating community awareness about the importance, consequences and consequences of hearing.	Marketing innovation	BlackBerry Curve
Sinangil Food	Imagine Win! Sinangil brand, which you think must provide its customers with new products or product groups.	Product/service innovation	1.000 TL
Ray Sigorta	Looking for opinion leaders to gain a different perspective on housing insurance!	Marketing innovation	Health insurance for 2.500 TL
Avea	Avea calls mobile application developers!	Product/service innovation	15.000 TL / İpad/ Blackberry
PO	How do we provide an additional product or service?	Product/service innovation	500 TL fuel oil cheque
AKSA Akrilik	What should be done to prevent the appearance of the water vapor coming from the drying fan blades?	R&D	1.000 TL/ 500 TL/ 500 TL
Agaoglu	We are looking for innovative ideas that will make life easier for our housing and office projects!	Product/service innovation	Weekend vacation for 2 people
Borusan	Creative ideas to increase automobiles sales in cities that are	Marketing	1.000 TL

Automotive Group	non the selling point!	innovation	
YATAS	Explore what is not for Enza furniture!	Marketing innovation	750 / 500/ 250 TL gift cheque
PO	We are looking for innovative campaign and implementation ideas for our loyalty program!	Marketing innovation	500 TL fuel oil cheque
TEKNOSA	Sector leader TEKNOSA is waiting for your environmental ideas for World Environment Day events!	Social innovation	250 TL gift cheque
NOKIA	We look forward to your creative mobile app ideas!	Product/service innovation	Nokia 5230 + Sennheiser HD407
Sinangil Food	We are looking for tasty ideas for Sinangil Taste Club!	Marketing innovation	500 TL
KİGILI	For your dad on father's day, how would you like the campaign?	Marketing innovation	250 TL

Source: www.acikinovasyon.com

4. CONCLUSION

Today, increasing and changing competition conditions are pushing enterprises to develop and differentiate. The increase in competition is accompanied by an increase in mobile work and the need for quick decision-making (Min Chiu, Liang & Turban, 2014). This situation drives enterprises to use new strategies. Increasing information needs of enterprises, it directs them to new resources. These sources include customers, competitors, universities and businesses in different sectors. Along with the search for new information, concepts of open innovation and crowdsourcing have begun to be addressed more.

When open innovation and crowdsourcing examples in the world and in Turkey are examined, it appears that many businesses in different sectors also benefit from external sources besides their internal resources to generate ideas. Open innovation and crowdsourcing provide positive outputs to enterprises when appropriately designed. In the age of new information and technology, individuals want to get more and more involved in ideas creation, product creation and problem solving processes. As such, when it is examined in the examples of acikinovasyon.com, it is seen that the individuals have contributed to these processes in the amount of a few prizes. Today, many of the individuals can not work in the jobs they desire. Those who have to work outside of their interests can devote most of their time outside their working hours to crowdsourcing activities. In this case, enterprises have access to many different perspectives, and the cost is very low. It is also possible to say that the enterprises benefit from these approaches in the examined examples. What will be the future of open innovation? asked by Huizing (2010), the answer is in fact a signal that this approach will remain important today and in the future. According to Huizing (2010), this concept will disappear within 10 years. But it is not that it will lose its usefulness but it will be fully integrated into innovation management practices. Which may suggest that the enterprise has nothing to learn from the rest of the world.

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EXPLORING COMPETITIVE GAPS TO CREATE A “TURKISH” LOCAL SEARCH ENGINE

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ABSTRACT

Purpose- In today’s world, organizations, brands and even countries compete in an information-rich global market in which the main competitive factor is technology. One of the business models that came with the development of technology is an Internet portal including several features such as search engines. Within this context, the present study aims to explore the gaps that can create competitive advantages for a new local search engine in Turkey that will be established in the global marketplace and to determine how to position a local search engine brand in today’s information market.

Methodology- To carry out this study, 20 people who use both Google and Yandex were interviewed in accordance with the Zaltman Metaphor Elicitation Technique (ZMET) steps. 20 collages were prepared for each participant based on the pictures collected by them to represent the brands’ image in their minds; these collages were interpreted by the researchers using the universal metaphors proposed by Professor Zaltman.

Findings- The collages and the interviews were discussed in line with the following metaphors: container, resource, control, balance and connection. The research findings help us to understand the images about Google and Yandex embedded in users’ minds. According to the participants, Google has a good and simple design, so the user does not have to spend time learning about the portal to use it. Another important point is international recognition. People trust Internet portals that are internationally accepted as valid. The ability to translate to different languages may help an Internet portal be considered more international and gain a larger market share worldwide. In addition, it is important to provide a lot of resources, for doing so helps searches be more credible. A good and successful Internet portal should focus on privacy. Users want to feel safe, especially on the Internet, so a good protection system would gain users’ trust.

Conclusion- The original contribution of this research is that people who use these search engines not only see them as search engines but also perceive them as an intelligent friend, a tempting home or even a universe full of information. According to the research findings, Turkey would be able to create a competitive advantage by investing in a local Internet portal rather than focusing only on search engines.

Keywords: Information technology, search engines, brand image measurement, qualitative research

JEL Codes: M31, M39, O31

1. INTRODUCTION

In a more and more globalized world with highly competitive business and trade environments, Turkey is trying to stand out from the crowd and has decided on an ambitious reform program to improve its global position. With the 100th anniversary of Turkish Republic forthcoming in 2023, the Turkish government has set out a vision to be among the top ten economies of the world by that time (Turkish Asian Center for Strategic Studies).

As a key to achieve the 2023 vision, Turkey is trying to make a positive impact on the domestic economy by establishing its own local Internet portal. An Internet portal offers a wide range of business opportunities, which are enabled through the growing sector of information technology. For these reasons, the information technology sector is one of the most important sectors that Turkey should invest in for development.

Starting from mainly agricultural production and passing through an age of industrialization, Turkish society is now transforming into a so-called *information society*. This term describes the shift to an economy that is based on information technology and the changes of lifestyle this shift entails. Information societies, and especially the later term of knowledge society, describe the impact of information technology on the economy and various sectors like culture, politics (democratization) and environment (Webster, 2014). In today's world, people can do everything with their technological devices such as smart phones, laptops, tablets and so on. It is possible to collect data, analyze it with information technology tools and evaluate the results. On a more basic level, it is possible to shop online, search online, listen online, educate online and so on. Due to the omnipresence of information technology in our daily life, one can imagine the impact of being able to influence this sector in the future, and it is therefore important for a developing country like Turkey to become a player in this field. In a reality where information is an important resource, Internet portals are the most practical way to gather this important resource. Recent researches show that almost half of the world's population uses search engines in their daily life. Based on these records, the popularity of a search engine and the benefits that popularity may bring—such as globalization and profits—can be guessed. All in all, Turkey should invest in creating a local “Turkish” search engine. Such a search engine would also help Turkey to shift from an industrial economy to a networked information economy (Benkler, 2006), like most developed countries. In order to be successful in this task, one should consider what can be learned from global leaders and which mistakes should be avoided. To determine how best to establish a successful Internet portal, research is conducted on two important players in the sector: Google and Yandex.

In the first part of this study, the importance of information technology, the Internet portal as an e-commerce model and the background of Google and Yandex were discussed. In the methodology part, the ZMET is introduced as a qualitative research technique, and then the research findings are presented. The implications and limitations of the study take place in the conclusion part.

2. LITERATURE REVIEW

2.1. Information Technologies

Information can be defined as the data that is valuable to users for their current or future actions. Based on this definition, information technology refers to technologies that find and process information for the users' purposes (March & Smith, 1995, pp. 1–34). Regarding the fast development of information technology worldwide, people can rearrange, select and transform information as well as store, retrieve and communicate about it (Forester, 1985, p. 4). Emerging technologies are getting used by almost all countries, firms, institutions and individuals to adapt the social and economic environments and benefit from it. According to Gartner (2017), in 2016 worldwide IT spending was \$ 3.375 billion, and it is guessed that this spending will grow 2.7% in the year of 2017. On the other hand, information technologies are now a big part of people's daily life through computers, laptops and smart phones for personal relations, online transactions and banking, communication, mail services and so on. Hence, out of all advances in information technology, Internet portals are used by the most people and bring the most benefits and profits to countries.

2.2. Internet Portals

In today's world, the Internet is evolving swiftly, and this fast progress leads to new trade circles such as e-trade, online banking, online ads and so on. These developments that are happening in the Internet sector lead people to use the Internet for almost everything, like shopping, listening to music, watching videos and even for some basic daily jobs. Recently, with the widespread usage of mobile devices, new platforms have had to be developed and companies have had to adapt their systems to new dynamics to be successful. Not only firms but also countries can gain multiple benefits by investing more in technology.

One of the business models that came with the development of e-commerce is an Internet portal. Literally, portal means door, entrance. Thereby, an Internet portal can be defined as a door to the Internet. Users set the portals as the first page they see when they open the Internet. A portal offers users services such as e-mail, online discussion groups, search engines and online shopping. Most well-known Internet portals are Google, Yahoo, Yandex, Bing, AOL and MSN.

2.3. Background Information about Google and Yandex

Larry Page and Sergey Brin at Stanford University, United States founded Google in 1996 as a research project. In the year 2000, it became the most popular search engine worldwide. In 2003, Page and Brin bought Blogger, the famous blog service company. In the meantime, Google's e-mail service passed the beta-testing process, and it was released in 2004. In 2005,

visual search and Google Maps are added to the main services. In 2006, they bought the most well-known video search engine, YouTube, which made a tremendous impact on the market. After these spectacular accomplishments, they also added translation, calendar and picture search services along with many more (Yesilyurt, 2014).

Yandex was founded in 1997 in Moscow, Russia. It decided to provide contextual advertising with a program named "Yandex.Direct" at the first time in Russia and this spurt became their breakeven point. After this spurt, they created "Yandex.Maps". In 2005, it decided to step outside of Russia and started to expand the services in Ukraine and, in 2011; they also got into the Turkish Internet portal market (Yandex History, 2017).

Both of these companies offer some services, and hence these two brands have some differences from brand point of view. For example, both firms offer map services (Google Maps, Yandex.Maps), paying systems (Google Wallet, Yandex.Money), e-mail services (Gmail, Yandex.Mail,) translation services (Google Translate, Yandex.Translate), browser services (Google Chrome, Yandex.Browser), shopping services (Google Shopping, Yandex.Market), storage services (Google Drive, Yandex.Disk) and so on.

The reason individuals use Internet portals mostly have to do with the search engine services they provide. Users select an Internet portal through which they can connect to other websites. According to Greenlight Digital, Google is the market leader in most countries, including Spain, Italy, France, United States, and Germany. On the other hand, in emerging countries like Russia and China, the local engines are the market leaders.

As with most other countries, Google is the leader in the Turkish market. According to Gemius, Google had 94.40% of shares in the market by the end of 2016 in Turkey. In other respects, Yandex's market share is growing compared to year 2014, but dropping compared to 2015. Some political disagreements should be considered to explain this fall.

2.4. Definitions of Brand Image

Since the 1950s, brand image has become an important topic for researchers (Dobni. & Zinkhan, 1990). According to Dobni and Zinkhan (1990), there are five different definition categories of brand images:

(1) General Definitions: "total of the impressions" (Herzog, 1963) or "everything that consumers link with the brand" (Newman, 1957) are examples for this type of definition.

(2) Symbolism-Stressed Definitions: A symbol is something that represents another thing (Levy, 1958). This definition supports the idea that consumers buy the brand only if the brand empowers consumers' ideas of themselves and if the individual and social meanings are intentionally attributed to the brand.

(3) Definitions Stressing the Meaning and the Message: Support the idea that brands are differentiated according to the meanings that consumers attribute to them.

(4) Individualization-Stressed Definitions: It was popular to individualize the brands with human characteristics. These definitions have two approaches. One approach is about a brand as a human construct, and the other approach is about the characteristics that consumers associate with the brand.

(5) Psychological and Cognitive Factors-Stressed Definitions: Refer to the mental or psychological processes and focus on the mental effects that are called "emotions," "thoughts," "mental structures," "perceptions," "expectations" and "attitudes."

All of these definitions have a couple of points in common. First, brand image is a term that relates to the consumer's perspective. A brand image originates in the emotional or rational perceptions of consumers. It is more affected by the environment, marketing efforts and the consumers themselves than by the technical or physical attributes of the brand. Perception of the reality is more important.

3. DATA AND METHODOLOGY

3.1. Understanding the Brand Image of Google and Yandex Using the Zaltman Metaphor Elicitation Technique (ZMET)

The research is conducted using ZMET, as suggested by Prof. Zaltman. ZMET was chosen for several reasons. First, qualitative research is considered a most suitable research type because of its exploratory and unstructured nature (Malhotra, 2010). According to Myers (1997), in studying social and cultural topics, qualitative research methods have to be used, since they provide opportunities to observe people, conduct interviews and understand people's reactions. On the other hand, it is hard to understand people's thoughts and feelings using quantitative methods (Catchings-Castello, 2000). Therefore, exploratory research designs seek to understand consumers' insights as well as relevant factors and courses of action. Such designs allow researchers to be more flexible and their research to be unstructured (Malhotra, 2010). Lastly, a

lot of quantitative research seeks to understand consumers by collecting and analyzing data, trying to figure out the main points and evaluating them. According to Zaltman, 95% of thinking takes place in the subconscious (Zaltman G., 2003). Therefore, ZMET, which aims to represent the human mind, was chosen for use.

One of the important steps in ZMET is the aim to obtain the deep metaphors in consumers' minds. Deep metaphors are for understanding objects, making sense of cases and deciding on which path to pursue (Zaltman & Zaltman, 2008). Hence, the aim is to conduct detailed interviews with the participants and get deep metaphors. The most important thing for the interviews is the proficiency of the interviewer, because in one interview or one picture there can be more than one metaphor. Seven metaphors are proposed by ZMET (Zaltman & Zaltman, 2008):

(1)Balance: Balancing, adjusting, maintaining or offsetting the forces is relevant to the metaphor of balance.

(2)Transformation: Transformation, as the name states, refers to a change in situation or status.

(3)Journey: This metaphor can relate to certain stages of life, whether they are long or short, known or unknown, fast or slow.

(4)Container: A container helps to keep objects inside or outside. It includes psychological, physical or social situations. It can be positive or negative.

(5)Connection: The metaphor of connection refers to belonging or to opposite emotions.

(6)Resource: It is about what is necessary to survive, such as family or friends, products or services, information.

(7)Control: This metaphor is related to having control over processes.

The research followed the following steps:

Participants were each asked to bring 8 pictures from the Internet, magazines or other resources that expressed their feelings or thoughts. There was a limit to the number of photographs, but the important thing was how representative of their feelings they were. Participants were then given 7–10 days to clarify their feelings and thoughts about Google and Yandex carefully. Later, participants brought the images that most reflected their feelings and thoughts. The other important point in this step is that participants were not allowed to choose any commercial images of the brands that were subject to the research.

After the photographs were ready, interviews were conducted with each participant privately. In these interviews, the participants explained their reasons for choosing their pictures. The interviewers tried to understand the participants more deeply by asking open-ended questions. After asking what, when, how, where and who questions, more private questions were asked. The interviewers asked participants to talk about their good or bad memories that were linked with the pictures. The interviewers also took note of the participants' gestures and expressions.

In this step, some surface metaphors came out, and based on these some deep metaphors could be guessed. However, it was difficult to understand the deep metaphors at this stage. Catching key words during this step makes it much easier to understand the relationships later on. Zaltman mentions the importance of key words and their relations with deep metaphors in his book *Marketing Metaphoria*. For example, the word family is linked to the connection metaphor.

In the following step, the interviewers asked participants whether they forgot to bring or could not bring any other images. By asking why participants did not or could not bring additional images, the relationship between participant and brand could be revealed.

For the following step, the participants were asked to group their pictures based on their meaning. For example, they could put the pictures related to trust in the same group. Starting with this step, participants evaluated their thoughts until this step. In this step, the main directions of the mind map are revealed.

Based on the meanings of the pictures and the relationships between them, some inferences were made. For example, the interviewer would choose three pictures and ask about the differences or similarities between them.

Then, the participants would choose the most representative pictures for Google and Yandex. After choosing the pictures, the participant would explain the similarities between the pictures and the brand.

Participants were asked to describe the pictures that represented the opposite of their thoughts about the brand. They were also asked to explain their associations with the images in terms of taste, smell, touch, color, sound and emotion. What color, taste, sound, smell or feeling came to mind when they thought about Yandex or Google? What would the opposite sensations be?

Based on the connections that were revealed, the interviewers created a mental map with the help of the participants. Creating a mental map and illustrating it also entertained the participants. Missing or wrong connections had to be added or fixed by asking the participants.

Next, with the help of a technician, the participants described the summary image, a collage work to explain their associations with the images in terms of taste, smell, touch, color, sound and emotion. The pictures had to be placed in the exact spots the participants wanted.

Finally, the interviewers created a map, which showed the ideas that were mentioned most.

3.2. Sampling and Descriptive

For this research, a convenience sampling method was used. This method was used in case there was a need to obtain further data, which could be achieved easily by contacting the interviewers. According to Zaltman and Coulter, generally 20 participants are enough to conduct a study with ZMET (Zaltman & Coulter, 1995). This research had a sample of 20 individuals. It has been observed that, after a certain point of observation, research repeats itself and gives the same results. Therefore, 20 interviews were sufficient to find out the core.

Participants were currently active Internet users aged 18–32. All of the participants had either graduated from a university or were continuing their studies. More specifically, 11 of them had graduated and 9 were studying at a university; 10 of them were female and 10 were male. As people from different backgrounds were chosen, the diversity helped to gain a comprehensive overview of Internet portal usage.

As a starting point, after a detailed literature analysis of how to conduct ZMET analyses, the researchers participated in a real-time ZMET interview in Istanbul that was conducted by professional ZMET researchers from ZMET Turkey. This experience helped the researchers gain an understanding of the process and the nature of the ZMET. Hence, the main points and the steps of ZMET were followed.

4. RESEARCH FINDINGS

At the end of each interview conducted, the participants were asked to think about what was covered during the interview and to create a collage for each brand, considering their thoughts and feelings about Google and Yandex. The collage, a set of images created by a participant, was necessary to reveal linkages between images. Furthermore, the collages created by the participants provided visual images that integrated important constructs (Zaltman & Coulter, 1994). In our research, a total of 40 collages (20 collages for each brand) were analyzed.

In order to understand the participants' thoughts about Google and Yandex, the analyses of research findings were based on seven universal metaphors, as proposed by Zaltman (Zaltman & Zaltman, 2008). Beside the fact that each participant mentioned his or her own thoughts and feelings, all of the participants ended up pointing to common deep metaphors. Undoubtedly, the way a deep metaphor appears may depend on person's life experiences (Zaltman & Zaltman, 2008). Regarding the stories told by participants, the researchers concluded that certain frequently repeated metaphors reflected majority of the participants' thought and feelings.

To illustrate the findings better, one of the participants' digital collages is shown in Figure 1. The participant is an adult man who was working as an accountant in a service company. As expected, he used multiple Google services on his phone and computer. He also mentioned that he used the Google search engine to learn more about both the sector he works in and to read up on new topics. On the other hand, the participant added that he finds "Yandex.Maps" a very successful application, but he feels suspicious of other Yandex services. His statements helped us to understand which deep metaphors he associates with Google and Yandex. For example, as he used Google to find information about what he needed, he got excited and felt pleased. His story linked to deep metaphors such as container, resource and journey. He created a collage consisting of a galaxy in the background and a road going to the center of this galaxy. He placed a university building near the road. When the participant was asked what the images he used in his Google collage meant for him, he stated the following:

"The universe we live in is endless and limitless. It is completely obscure, yet it is not explored. If I consider the tremendous amount of information that Google stores, I liken Google to a universe. Google is our universe of information in some way. This universe contains never-ending information in itself. For example, when you look at the sky at night and see a celestial body that you have not previously noticed, you get excited and wonder what it is. This is what exactly happens to me when I search on Google and learn something that I did not know before. [...] Google is a road that helps people to find information. Anyone can follow this road. [...] Moreover, it seems to me that Google is very sincere in its business. Just like the sun on left side of the picture, it's warming the cockles of the heart, and it is a source of happiness. [...] Google reminds me of a university where I can go for life-long learning and helps me to learn all the time. Sometimes, I even find myself on web pages about topics I know nothing about, so that I learn even more, and that makes me happy."

Figure 1: Participant’s Collage about Google



The deep metaphors elicited about Yandex were completely different from the ones elicited about Google. The interviews led to the discovery of two strong deep metaphors: control and balance. The participant created a collage, placing a picture of two men wearing black suits with guns in the background. He placed the Russian flag between the two men and the shadow of another man behind them. When the participant was asked what the images used in the Yandex Collage (please see Figure 2) mean for him, he reported the following:

“I think Yandex is doing well; they are doing a promising job. However, I can’t say that Yandex features are remarkable except for Yandex maps. [...] ‘Men in Black’ represents the character of Yandex. It seems to me that Yandex makes a mysterious and dangerous impression. It is always alert, and yet inexperienced. I’m afraid they may end up in ridiculous situation making a mistake anytime. Thus, I can’t trust them. [...] The Russian flag reminds me of where Yandex comes from. I know Yandex was established in Russia, and it did not become popular in the rest of the world. It seems like they are not even trying to serve to all people. What’s more, Yandex’s features are limited. [...] Recently, Yandex and Fenerbahçe have contracted a commercial agreement. In my opinion, there is a negative point here; “this partnership is cause for concern. I think their intent is not to support football but to earn money. It casts a shadow upon sincerity and frankness. [...] Yandex does not tell much about itself. Its advertisements do not mean much to me, thus I am not familiar with it. It seems to me that nobody knows what exactly Yandex is doing. I feel like I may get hurt anytime. It is good to be mysterious, but this is too much. Yandex is always hiding in the shadows.”

Figure 2: Participant’s Collage about Yandex



At this point, it is important to draw on sensory images that may reflect yet unrevealed insights about brands. A sensory image may also help researchers to understand participants’ thoughts and feelings (Anghelcev, Chung, Sar, & Duff, 2015).

One participant’s sensory images are listed in Table 1. His statements pointed to a few deep metaphors and thematic metaphors about Google and Yandex. These elicited metaphors are listed in Table 2.

Table 1: Participant’s Sensory Images

Five Senses	Google	Yandex
Touch	Hard as a rock	An old map that shows everything
Smell	A strong smell, but not irritating	Natural gas leakage – from Russia
Taste	A cake garnished with fruits	Something that looks sweet but is actually bitter
Sight	Bright black, elegant	Black/Darkness
Hearing	Voices of white-collar workers	A shooting gun

After ensuring that the collages that were designed reflected the participants’ thoughts and feelings ideally, all the interviews were analyzed considering the participants’ sensory images, constructs and collages. At the end of the research, the most repetitive themes were grouped into different thematic metaphors. These thematic metaphors were then linked to common deep metaphors in accordance with their subjective meaning to each participant. Consequently, the strongest deep metaphors elicited from the interviews were clearly identified. These thematic metaphors and deep metaphors are listed in Table 2.

Table 2: Deep and Thematic Metaphors Elicited for Google and Yandex

Google		Yandex	
Deep Metaphors	Thematic Metaphors	Deep Metaphors	Thematic Metaphors
• <i>Container</i>	<ul style="list-style-type: none"> • Universe of information • Endlessness • Limitlessness • A modern house • A tidy room • A cool/comfortable room 	• <i>Control</i>	<ul style="list-style-type: none"> • Mysterious and dangerous impression • Men in black • Afraid of a mistake • Problem of trust • Lack of information about the company • Hiding in shadows • Afraid of being hurt • Wrong way • Follower
	<ul style="list-style-type: none"> • Never-ending information • Source of happiness • The sun • Road to information • An assistant for learning • A sea of plenty 		<ul style="list-style-type: none"> • Fail to appeal to all people in the world • Lack of universality • Negative impact of commercial partnership with Fenerbahçe • Unfairness • Monochrome • Casting a shadow upon sincerity • Features are perceived as being limited
• <i>Control</i>	<ul style="list-style-type: none"> • Door opening to China • Being up to date • Continuous perfection • Leader 	• <i>Balance</i>	<ul style="list-style-type: none"> • A small dark room • A cold and gloomy city • Reminder of bad memories
• <i>Balance</i>	<ul style="list-style-type: none"> • Feeling of fullness • Acceptance of diversity • Colorful • Universality • Global service • A guitar with a well-tuned chord 	• <i>Connection</i>	<ul style="list-style-type: none"> • Friend in need • Caring of others

Most interviewers perceive Google as a *container*, since they think that Google is a universe full of information without any limitation. Alternatively, when they are using Google services, they feel like they are at home, which is very tidy and comfortable, meaning that they can find whatever they are looking for. For many participants, the second metaphor for Google is *resource*, which reminds them of a sea of living creatures like fishes and marine plants. Further, some participants believe that Google is the sector leader, and they feel like they have control over their daily life and business life if they use Google services. Google’s brand image reflects its universality, so that this brand image satisfies sense of their *balance in*

life. Finally, a few participants stated that Google helps humanity to develop and lead technological advances in the world. In that sense, Google is a means of *transformation*.

On the other hand, participants think that Yandex has a mysterious/dangerous/cold impression and may harm them anytime. This may result from insufficient information about the company or misleading advertisements. However, Yandex gives most participants the feeling of *lack of control* over their life. In contrast to Google, Yandex draws more national imagery, but it is *not universal*. Moreover, some participants think that Yandex's partnership with Fenerbahçe will have a negative impact, and this partnership creates a feeling of *unfairness* in their mind. Some associated Yandex with a small dark room, a cold and gloomy city or bad memories they have experienced. Nevertheless, a few participants think of Yandex as a *good friend*, since they think that Yandex's applications may be helpful in hard times.

5. CONCLUSION

This research aimed to find out consumer's perceptions of Google and Yandex, and hence to get an idea of what makes an Internet portal successful. The main limitation of this study is related to its exploratory nature. Therefore, generalizing the findings should be done with caution. As this research attempts to discover insights from consumers, some recommendations can be formulated for creating a local Turkish Internet portal.

First, the focus should be on an Internet portal, and not only on a search engine, since people who use Internet portals not only see them as search engines, but also perceive them as an intelligent friend, a tempting home or even a universe full of information. In addition, it has been revealed that a good, user-friendly Internet portal should focus on the layout to get the attention of the users. On the other hand, it should also be simple for everybody to understand. According to the participants, Google has a good and simple design so that the user does not have to spend time learning about the portal to use it. Another important point was being international. People trust Internet portals that are internationally accepted as valid. Ability to translate to different languages may help an Internet portal be more international and to gain a larger market share worldwide. In addition to being international, it is important to provide a lot of resources, which help searches to be more credible. A good and successful Internet portal should focus on privacy. Users want to feel safe, especially on the Internet, so a good protection system would gain the trust of users.

In the interviews, participants spoke about the transformative effect of search engines much less compared to other metaphors. However, transformation can refer to the ever-changing state of a person or a group of people or even a nation. In general, technological innovation happens faster in societies where there is greater positive feedback regarding technology as they develop closer relationships with innovative new technologies (Castells, 2011). Additionally, previous research (Varsakelis, 2001) indicates that the intensity of a nation's research and development is determined by the national culture. In other words, a transforming national culture that is open to development is a prerequisite for innovation and the adaptation of new technologies, which in turn provides economic growth and a competitive advantage to that nation. Taking all of this into account, and in order to realize its long-term economic goals, Turkey should prioritize creating a local Turkish search engine, which could actually lead to a *cultural transformation* in the nation.

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INVESTIGATION OF THE RELATIONSHIP BETWEEN ORGANIZATIONAL CULTURE AND ORGANIZATIONAL COMMITMENT: ISTANBUL COMMERCE UNIVERSITY

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ABSTRACT

Purpose- Human factor is one of the most significant elements of an organization in terms of development and sustainability. Healthy work environment, suitable working conditions and feeling of fulfilment are very important sources of influence in organizational commitment. Similarly, those three concepts are also the fundamental components of organizational culture.

Methodology- The purpose of this paper is to identify the impact of organizational culture on organizational commitment. Data for this study were collected by conducting a survey among academic and administrative staff in Istanbul Commerce University. SPSS 22.0 statistical analysis software program was used in order to examine the responses.

Findings- The findings indicate that there is a moderate positive significant relationship between organizational culture and organizational commitment. In terms of demographics, marital status and job experience were found to be statistically insignificant with the employee perception of organizational culture.

Conclusion- On the other hand, factors such as gender, age, educational background, position and length of employment were found to be statistically significant with the perception of organizational culture. From the point of organizational commitment, gender, age, marital status and job experience were found to be statistically insignificant whereas educational background, position and length of employment were found to be statistically significant.

Keywords: Organizational culture, organizational commitment, Istanbul Commerce University, education, culture.

JEL Codes: M14, M12, I23

1. INTRODUCTION

In a world of increasing competition among businesses and effects of globalization on economy the organizations are more tend to make studies on organizational factors in order to survive. Many of these studies attempt to find ways to ensure the long-time engagement of qualified employees.

Organizational commitment increases productivity, provides competitive advantage and has a direct influence on the lifetime of an organization. This fact necessitates the accurate analysis and applicability of factors that reinforce commitment between the organization and the employee. Each organization is unique and has intrinsic values such as language, history, heroes, symbols and norms. Organizational development and lifetime of the organization increase as the characteristics of employees fit to the organizational culture.

The main purpose of this study is to investigate the relationship between organizational culture and organizational commitment among the academic and administrative staff in the Istanbul Commerce University. In order to explore this issue, the paper will first review organizational culture and organizational commitment theories. This will be followed by

the analysis of the data obtained from the survey made in Istanbul Commerce University. The paper will be concluded with some commentaries and recommendations.

2. THE RELATIONSHIP BETWEEN ORGANIZATIONAL CULTURE AND ORGANIZATIONAL COMMITMENT

2.1. Organizational Culture

There has been numerous definition of organizational culture. Dursun defined organizational culture as common norms, attitudes and values that manage employee behaviour (Dursun, 2013). Sezgin & Bulut addressed organizational culture as a mechanism that determines the behaviour, regulates the rules, describes the fundamental assumptions of organizational process, interprets the cases, promotes the values, reinforce the commitment, increase mindfulness, and most importantly facilitates to draw lines in uncertain environment in the organizations (Sezgin & Bulut, 2013).

Organizational culture has a major role in terms of sense of belonging since it creates strong bonds and team spirit between members of the organization. As the organizations started to use organizational culture as a principal tool in organizational performance, recently more managers are focusing on this issue (Kaya, 2008).

There is a large amount of studies related to the components of the organizational culture. Those studies can be categorized to be values, assumptions, norms, beliefs, traditions, myths, heroes, language, symbols and ceremonies. Values include the entire organizational factors that have a vital role in the course of the business and overall goals and mission of the organization. Assumptions are the pre-determined facts such as true-false, rational-irrational, possible-impossible notions which forms the perceptions, ideas, emotions and attitudes of the members of the organization (Sabuncuoğlu & Tüz, 2005). Norms compose all rules that must be obeyed. Organizational norms are the determinant factors which either approve or disapprove the attitudes in the organization. Beliefs emerge as a synthesis of personal characteristics and cultural values and indicate the individual way of interpretation of social facts (Vural & Coşkun, 2007). Traditions are the daily repeating activities in the business. Myths are the stories either experienced or whispered among employees. Heroes are the inspiring people in the organization. Language is the unique jargon in the company. Symbols may illustrate organizational logo, motto, uniform, or even can be a t-shirt, hat, glass, pen or watch. Symbols create a sense of belonging and leads to the adoption of common values (Alamur, 2005). Ceremonies have a practical role in enabling the share of social values and feeding the roots of the organizational culture by bringing members of the organization together (Köse, Tetik, & Ercan, 2001).

Previous studies show that various models have been used in the researches related to the organizational culture. In this research, as for the Istanbul Commerce University sample, Harrison's measurement of organizational culture was applied. Harrison's model of organizational culture is based on 4 dimensions as power, role, task and existence. Pheysy (Pheysy, 1993) extended Harrison's model of organizational culture in a further research. Dimensions of Pheysy's model were power, role, achievement and support. In this research the responses were compared with the Pheysy's findings. Pheysy's model is defined below:

Power Culture: In this type of culture there is generally a single source of power based on inequality of access to resources (Şişman, 2002). There are two types of personal characteristics in this type of culture, namely dominance and submission. The expected leadership characteristics in this culture are power, justice and goodness. Leaders are supposed to not only have the authority but also to know everything. The followers are expected to be voluntarily submissive. The disadvantage of this culture is that the incentive of obeying the rules are caused by fear (Pheysy, 1993).

Role Culture: In this type of culture the organizational structure is hierarchical. A few people stay on the hedge as the top management. In the bottom layer various departments are located. The form of this culture is identical to Harrison's role culture model. It is a bureaucratic culture and the work is controlled by procedures and rules. It's excessively centralized and formal and the job description is more important than the person who fills the position (Erkmen & Ordu, 2001).

Achievement Culture: Instead of obeying the rules, organizations care more about the tasks to be completed. The employees are motivated in a way to produce their own solutions to the existing problems. The expectation from employees is that they advocate their time and energy to the organization's well being. In this type of culture it is assumed that people like to work in positions that they feel satisfied (Pheysy, 1993). This culture is similar to the Harrison's existential culture. The idea is that organizations are for the individuals therefore, the outstanding purpose of organizations is to promote the well being and happiness of the individuals (Bakan, Büyükbeye, & Bedestenci, 2004).

Support Culture: The outstanding values in this type of culture are sharing, friendship and belonging. Individuals are supposed to believe that they hold a share in the company as long as they feel the sense of belonging to the organization (Pheysy, 1993). This type of culture is similarly structured with the Harrison's task culture. This approach is based on organizational goals mainly centralized in task or work (Bakan, Büyükbeye, & Bedestenci, 2004). Support culture is formed by different task groups and each group has expertise in its own area.

2.1. Organizational Commitment

Porter (1974) defines organizational commitment as a phenomenon emerging from “employee’s attachment to the organization, characterized by an intention to remain in it and a willingness to exert considerable effort on behalf of the organization”. Based on this definition three components of organizational commitment can be revealed.

- “Employee’s identification with the values and goals of the organization”
- “The extent which employees feel committed to their organization by virtue of the costs that they feel are associated with leaving”
- “Employee’s feeling of obligation to remain within the organization” (Allen & Meyer, 1990).

Organizational commitment which is a psychological attachment to the organization, includes involvement to the work, loyalty and a strong belief with the values of the organization. The degree to which an organization maintains its existence has a strong relationship to the employee turnover. In other words organizations need longer staying employees in order to continue their operations. Long term employees positively contribute to the organization as they stay with the organization (Çetin, 2004).

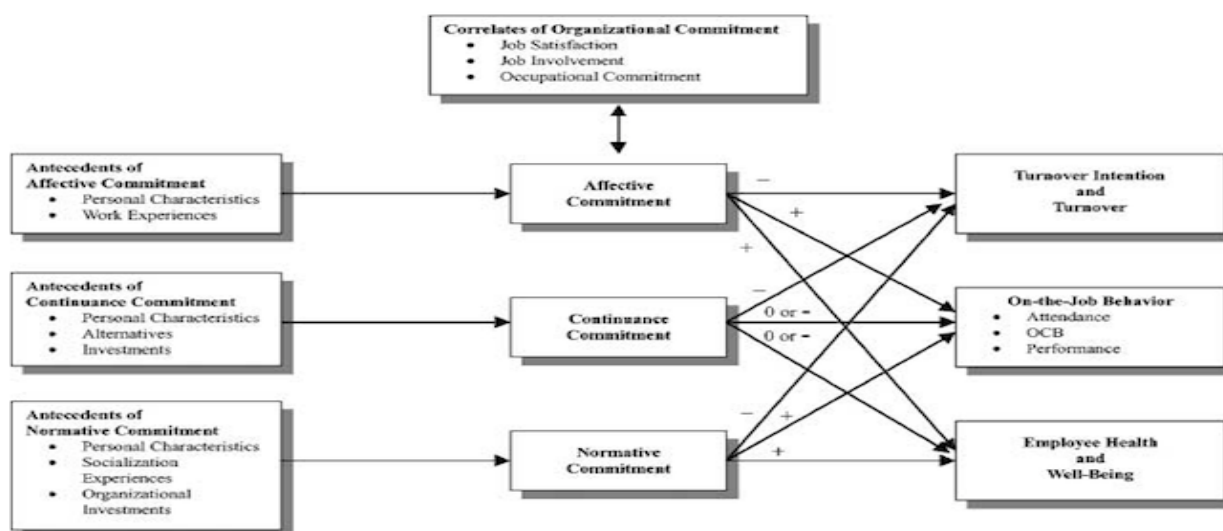
Many of the researches reveal that employees who are committed to their organization tend to be more proactive showing their support to the organization, less likely to leave it, and feel that they fit in so that they demonstrate positive attitude towards the organization. As expected, this type of high performing, educated and committed employees increase the productivity in the workplace (Stroh, Northcraft, & Neale, 1990).

Employees sustain their organizational membership due to attitudinal and behavioural motives. Thus, most of the researchers who study organizational behaviour concentrate on the attitudinal measures whereas social and organizational psychologists and researchers give more attention to behavioural measures (Boylu, Pelit, & Güçer, 2007). Behavioral commitment is mostly related to the long term membership in an organization which stem from as an outcome of previous experiences (Çöl, 2004). Becker’s approach of behavioural commitment supports the idea that organizational commitment has a strong relationship with the potential costs that might occur as a result of leaving the organization and states that this is the key factor of behavioural commitment (Özcan, 2008).

On the other hand, attitudinal approach describes organizational commitment as “one’s identification of and involvement in a particular organization” (Paul V Porter, Steers, Mowday, & Boulian, 1974). According to Allen and Meyer, the commitment is related to psychological attachment one had to the organization and, it has more to do with attitudes instead of behavioural intentions. Its most common indicator is the employee’s loyalty to the organization (Allen & Meyer, 1990).

Allen and Meyer characterized organizational commitment by three factors such as affective, continuance, and normative commitment. Below table illustrates the Allen & Meyer’s three-dimension organizational commitment model:

Figure 1: Three –Dimensional Organizational Commitment Model



Source: Meyer, Stanley, Herscovitz and Topolnytsky, 2002.

Affective commitment, is the voluntary membership of an employee to the organization for the employee's own sake. Affective commitment improves as the result of positive organizational experiences such as autonomy, fairness and reinforcement. Allen and Meyer (1990) discuss that in this type of commitment employees perceive themselves as an important part of the organization. Affective commitment is high when employees are willing to stay in the organization and when they internalize the goals and values of the organization (Ince & Gül, 2005).

Continuance commitment is conceptualized as the fear of monetary, professional or social loss as a result of leaving the organization. Employees feel that they need to stay in the organization due to potential costs of leaving it. In this regard, the perceived benefits that will be gained while remaining in the organization such as endeavour, money, time etc. exceeds the perceived costs or losses. As a result employee decides to stay rather than to leave the organization (Obeng & Ugboro, 2003).

Normative commitment is defined as the feeling of obligation to stay in the organization due to personal norms and values. Employees stay in the organization since they think that it is the right thing to do. They feel obliged to be loyal to their organization due to moral and ethical reasons (Meyer, Allen, & Smith, 1993). Normative commitment is different than the affective commitment because the decision to stay or leave is mostly related to the feeling of obligation instead of the emotional involvement. In the same way it is also different than the continuance commitment since the decision to stay or leave does not depend on the fear of any kind of loss (Wasti, 2000). Normative commitment as opposed to the continuance approach depends on the virtue and moral norms rather than perceived benefits or losses (Ince & Gül, 2005). While affective and continuance commitment are basically influenced by tangible and intangible sources that will be gained after the employment, normative approach is mostly influenced by the previously gained values and norms (Ince & Gül, 2005).

3. METHODOLOGY

The main purpose of this study is to investigate the relationship between organizational culture and organizational commitment among the academic and administrative staff in the Istanbul Commerce University. Respondents were academic and administrative staff in the Istanbul Commerce University. The Istanbul Commerce University has been established by the the Foundation of Educational and Social Services of the Istanbul Chamber of Commerce in 2001 and incorporates 6 faculty (Human and Societal Sciences, Management, Law, Communication, Engineering, Architecture and Design); English Preparatory Department and 4 institutes (Foreign Trade, Social Sciences, Institute of Science and Institute of Finance) in addition to Application and Research Centre. 170 administrative and 250 academic staff, in total 420 personnel work in the Istanbul Commerce University.

Parametric tests were carried out in order to compare the respondent's perception of organizational culture and organizational commitment according to the independent variables such as gender, age, marital status, educational background, position, length of work and experience. Before analysis, to see whether the data meet the typical assumptions such as normality, homogeneity of variances, linearity and independence have been checked. Based on the obtained data, it was observed that the data were normally distributed. Therefore, parametric tests were used in this research.

Table 1 summarizes the analysis techniques. The data obtained were analysed by SPSS 22.0 software program. The significance level is $p < 0,05$ thus the corresponding confidence level is 95%.

Table 1: Grouping Variables and Analysis Techniques

Grouping Variable	Analysis Technique
Gender	Independent samples t test
Age	One-way analysis of variance (ANOVA)
Marital Status	Independent samples t test
Position	Independent samples t test
Educational Background	One-way analysis of variance (ANOVA)
Length of Work	One-way analysis of variance (ANOVA)
Job Experience	One-way analysis of variance (ANOVA)

Pearson's correlation technique has been used for investigating the relationship between organizational commitment and organizational culture. It indicated weak strength of association for results between 0 and ± 0.29 ; medium strength of association between ± 0.30 and ± 0.59 ; and high strength of association between ± 0.60 and ± 1 values. Participants were required to give answers to the questions in 5 point Likert scale such as 5- strongly favourable, 4-favourable, 3- undecided, 2- unfavourable and 1-strongly unfavourable. All respondents were Istanbul Commerce University staff and thus the results can not be generalized to other institutions. The study had same limitations as in the field of social sciences. The research

hypothesis is “ In the Istanbul Commerce University, there is a positive and significant relationship between the organizational culture and the organizational commitment”.

3.3. Analyses and Results

250 survey have been distributed and after eliminating the blank and semi-filled ones, 205 of them have been used in this research. Table 2. shows the demographic distribution of the respondents:

Table 2: Demographic Distribution in Survey

Group	Sub-group	Frequency (n)	Percentage (%)
Gender	Female	95	46,3
	Male	110	53,7
Age	30-20 age	62	30,2
	31-40 age	84	41,0
	41-50 age	34	16,6
	51 age and above	25	12,2
	Married	133	64,9
Marital Status	Single	72	35,1
Educational Background	High School and less	19	9,3
	Associate degree	13	6,3
	Bachelor’s degree	50	24,4
	Post-graduate	123	60,0
Position	Academic	83	40,5
	Administrative	122	59,5
Length of Work	1-5 year	127	62,0
	6-10 year	36	17,6
	11-15 year	34	16,6
	16 year and above	8	3,9
	1-5 year	62	30,2
Job Experience	6-10 year	56	27,3
	11-15 year	30	14,6
	16 year and above	57	27,8
Total		205	100,0

First step of the study is to determine the levels of organizational culture and organizational commitment. For this purpose, min, max, average, ave / item and standard deviation values were calculated for each variable. Table 3 shows the results of this calculation. Levels of culture ie. power, achievement and support cultures were at medium with an exception of role culture which was at low level. The overall level of the organizational culture was medium (ave=46,51). As for the commitment, the continuance and normative commitments were at medium level but the affective commitment was at high level. This lead to a medium (ave=54,93) level for organizational commitment in total which is although a little bit higher but still the same level as for the organizational culture.

Table 3: Organizational Culture and Organizational Commitment Level of Participants

Points	N	Minimum	Maximum	Average	Ave/m	SD	Level
Power Culture	205	4	20	12,22	3,06	3,12	Medium
Achievement Culture	205	4	20	12,07	3,02	3,64	Medium
Support Culture	205	4	20	12,32	3,08	3,50	Medium
Role Culture	205	4	18	9,89	2,47	3,67	Low
Organizational Culture Total	205	24	74	46,51	2,91	8,95	Medium
Affective Commitment	205	7	30	20,94	3,49	4,83	High
Continuance Commitment	205	6	30	15,83	2,64	5,02	Medium
Normative Commitment	205	7	30	18,16	3,03	4,76	Medium
Organizational Commitment Total	205	22	78	54,93	3,05	9,43	Medium

Ave/m=Average points per item. Power culture had a negative significant relationship with achievement, support and role cultures. As the perception of power culture increases, the perceptions of the remaining cultures respectively decrease. Achievement culture had a positive linear relationship with support and role culture. As a result, an increase in the perception of achievement culture leads to an increase in the perceptions of support and role culture.

A negative significant relationship was found between affective and continuance commitments whereas a positive significant relationship was found between affective and normative commitments. According to this, as the perception of affective commitment increases, the perception of normative commitment also increases but, the perception of continuance commitment decreases.

We found that, the organizational culture had a moderate positive significant relationship with the organizational commitment. Moreover, power culture had a weak negative significant relationship with the affective commitment and a weak positive significant relationship with the continuance commitment. Finally, each of the achievement, support and role cultures had a positive significant relationship with affective and normative commitments.

Table 4: Correlation Coefficients Belonging to the Relationships between Organizational Culture and Organizational Commitment

Points	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Power Culture	1								
2. Achievement Culture	-,246**	1							
3. Support Culture	-,237**	,633**	1						
4. Role Culture	-,300**	,642**	,612**	1					
5. Organizational Culture Total	,032	,832**	,817**	,806**	1				
6. Affective Commitment	-,243**	,304**	,280**	,337**	,287**	1			
7. Continuance Commitment	,178*	,070	,025	,017	,107	-,146*	1		
8. Normative Commitment	-,084	,405**	,445**	,487**	,509**	,535**	,005	1	
9. Organizational Commitment Total	-,073	,397**	,381**	,428**	,461**	,705**	,460**	,781**	1

N=205, **p<0,01, *p<0,05

The below results show the relationship of the organizational culture and organizational commitment with the demographic factors:

Gender: A significant difference was not found between achievement culture, support culture, role culture and organizational culture in total, in terms of gender. On the other hand, the mean of power culture was significantly higher for male participants. This indicates the perception of power culture of males was higher than that of females.

A significant difference was not found between organizational commitment in total and any of its sub-dimensions in terms of gender. This indicates the perceptions of affective, continuance, normative commitments and organizational commitment in total were at the same level for male and female participants.

Age: A significant difference was not found between achievement culture, support culture, role culture and organizational culture in total in terms of age. On the other hand, the mean of power culture was found significantly different in terms of age. That is to say, the group "31-40 age" has a higher mean of power culture than the groups "30-20 age" and "51 age and above" respectively.

A significant difference was not found between organizational commitment in total and any of its sub-dimensions in terms of age. This indicates the perceptions of affective, continuance, normative commitments and organizational commitment in total were at the same level for different age groups.

Marital status: A significant difference was not found between organizational culture in total and any of its sub-dimensions in terms of marital status. The perceptions of power culture, achievement culture, support culture, role culture and organizational culture in total were similar regardless of the marital status.

In the same way, a significant difference was not found between organizational commitment in total and any of its sub-dimensions in terms of marital status. Accordingly, the perceptions of affective commitment, continuance commitment, normative commitment and organizational commitment in total were at the same level for married and single participants.

Educational Background: A significant relationship was not found between achievement culture, support culture, role culture and organizational culture in total in terms of educational background. On the other hand, the mean of power culture was significantly different for each group. The results show that the mean of power culture of the group "associate degree and below" was higher than that of the groups "bachelor's" and "post-graduates".

A significant relationship was not found between affective commitment, normative commitment and organizational commitment in total in terms of educational background. On the other hand, the mean of the continuance commitment was significantly different in terms of educational background and was higher for the group "associate degree or less" than the group "post-graduates". In other words, the perceptions of continuance commitment for the group "associate degree or less" were higher than that of "post-graduates".

Position: The mean of the role culture was not statistically different in terms of position. On the other hand there was a significant relationship between power culture, achievement culture, support culture and organizational culture in total in terms of position. Administrative staff had a higher perception of power culture than the academic staff whereas academic staff had higher perceptions of achievement culture, support culture and organizational culture in total than the administrative staff.

A significant relationship was not found between continuance commitment, normative commitment and organizational commitment in total in terms of position. On the other hand the mean of affective commitment was significantly different in terms of position and was higher for the academic staff than the administrative staff.

Length of Work: A significant relationship was not found between achievement culture, role culture and organizational culture in total in terms of length of work. On the other hand, a significant relationship was found between power culture and support culture in terms of length of work. The group which has worked "11 years and more" had a higher perception of power culture than the group "1-5 years". Furthermore, the group which has worked "1-5 years" had a higher perception of support culture than the group "6-10 years".

There was not a significant difference between affective commitment, normative commitment and organizational commitment in total in terms of length of work. However, the results show that the group which has worked "6-10 years" and "11 years and more" had a higher perception of continuance commitment than the group which has worked "1-5 years".

Job Experience: A significant relationship was not found between organizational culture in total and in any of its sub-dimensions in terms of job experience. That is to say, groups with different job experiences had same perceptions of power culture, support culture, achievement culture, role culture and organizational culture in total.

Finally a significant relationship was not found between organizational commitment in total and in any of its sub-dimensions in terms of job experience. That is to say, groups with different job experiences had the same perceptions of affective commitment, continuance commitment, normative commitment and organizational commitment in total.

4. CONCLUSION

The achievement of an organization is directly linked to the organizational culture which develops integrity and mutuality in the organization. Various organizational identities such as production and services, technology and other advantages can be imitated by many firms but except for the organizational culture which is unique and inimitable.

Organizations which develop their own culture and manage to sustain it would have a more competitive advantage than their competitors in terms of organizational commitment. Such organizations by attracting more qualified employees and having an increased market share would eventually have a longer organizational lifetime.

This study found that, in the Istanbul Commerce University, there is a moderate positive and significant relationship between organizational culture and organizational commitment. This result was consistent with the findings in the previous research studies.

In the perception of organizational culture of the Istanbul Commerce University staff, the role culture was found to be weak whereas the power, support and achievement cultures were at moderate. This reveals that there are mutuality among the departments in the university and employees are integrative and supportive to each other in management.

In the perception of organizational commitment of the university staff, affective commitment was found to be at high whereas the continuance and normative commitments were at medium level. High affective commitment means that the staff are loyal and psychologically attached to the university. As Çetin (2004) also stated, high commitment means employee's voluntary stay in the organization. Affective commitment is the best form of organizational commitment. In fact those employees are desired by every employer because of their loyalty. They have incentives to take additional responsibility and tend to support their organization whenever necessary.

In the Istanbul Commerce University, affective commitment of academic staff is higher than the administrative staff. This is mainly because of the difference in their perception of organizational culture. The perception of power culture is high for the administrative staff, whereas the perceptions of achievement and support cultures are high for the academic staff. Males with an associate degree or less, working 11 years or more, 20-30 years and 51 or above years old tend to have a higher perception of power culture. Further studies needed in order to increase the affective commitment of this demographic profile. Academic personnel connected to the rector office and administrative personnel to the secretary office. Administrative personnel perceive authority as a dominant formation as a result of adopting to the power culture. Future researches, surveys and case studies are recommended in this field in order to develop methods to change this perception.

Motivation, productivity and organizational success increase only if the organization had a strong organizational culture that internalized by the members of the organization. This would be achieved by the communication, social interaction and teamwork. Top management and the other people at managerial positions should give importance to these issues. Employees should feel that their job is valuable not only for themselves but also for the organization and the society as a whole. They should be promoted, seen as values, and suitable working conditions should be provided in order to improve employee fit to the organization. Future studies for the purpose of developing organizational culture would contribute to the improvement and persistence of the organizational commitment as long as they adapt to the needs and wants of the fast changing world.

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A RESEARCH ON THE TECHNOLOGICAL INNOVATION TENDENCIES OF THE STUDENTS OF FIRAT UNIVERSITY

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ABSTRACT

Purpose- This study is Firat University undergraduate students oriented and it has been studied to determine the innovation inclinations of these students. Innovations serves as a driving force for both society and economy. Today universities are quite effective adopting and spreading innovations. Creating environment and conditions for enhancing students' innovation inclinations in our country, will make us feeling this effect more. In this way, a society that can temporize to social and technological innovations quickly and provides accretion value to the country by achieving these innovations, can be built.

Methodology- This study was carried out to measure the tendencies on innovation and points of view of university students on technological innovation. The survey consists of short answered, scaled, ordinal by priority and multiple-choice 47 questions.

Findings- In the analyzes, the respondents' demographics and trends towards technological innovation were evaluated respectively. In the paper, primarily, innovation and technological innovation notions will be explained and after these descriptions some assessments will be made about which specialities of students and their environment affect innovation inclinations.

Conclusion- Finally, some suggestions were made to support the technological innovation trends of university students.

Keywords: Innovation, technological innovation, innovative tendencies, creative thoughts, technological creativity

JEL Codes: M10, O30, O32

1. INTRODUCTION

Novelty is the state of adaptation and becoming widespread in society by developing an organization and application, product and idea containing a comment and point of view different from the previous one about any issue or finding a solution to any problem different and not known already or to make any situation different from its previous state. This is because, novelty is a social fact. Any thing actualized as innovation but not accepted by society and cannot become widespread and not pose a social result will not be a novelty and will remain as an individual situation no matter what it is. The reason for that is continuity must take place for the existence of novelty so that it becomes old and traditional in time as a result of continuity. Therefore, it comes to the state of a social value and continues its existence until the necessities causing it to reveal changes and the novelty become insufficient to meet the needs. Hence, people respond to new problems they face with the solutions they have learnt previously and actually become a part of the culture at first. In fact, this is the fundamental mechanism of social structure's continuing its existence. However, this structure has structured as a product of the conditions that constitute it and it has become insufficient to meet the needs in new situations and falls

behind the social systems finding solutions and becomes addicted to those or it improves and develops itself by producing new solutions. In this regard, novelty is a society-based phenomenon and creating or producing a novelty depends on cultures of the societies, values and attitudes concerning novelty and organizations and mechanisms they have formed in social structure. According to 'Das Online-Forum' (2001), innovation is not a technical but a complex *social process* where economical interests, relationship between public and production forces, cultural norms and values and other "soft" factors play a major role (Janiūnaitė,18). In this sense, novelty directly itself has become a fundamental value in majority of the societies in our day. Therefore, several types of organization and institutional structures gather around the value of novelty. In terms of freedom of thought and expression, criticism and tolerance to criticism, modes of work such as flexible working, being open to change, societies use the system of education as the most important tool both to form a structure that can find a solution for the problem encountered and to continue their traditional structures. Innovativeness is a characteristic that visible in behaviors as an activating factor in individual conscious to provide revealing of novelty formed as a social value. As a result of this, it is tried to develop creative and free thought ability which is being a must for novelty as well as teaching basic elements that create socio-cultural identity for the society from primary school to university. The most important phase of this education process in terms of novelty is the process of higher education. The reason for that is while the previous processes are improving skills and teaching fundamental information, higher education aims at application of the abilities acquired with learning more refined knowledge and providing production of novelty by improving those information. With this purpose, panels, conferences, seminars and innovative certificate programs are organized in universities. However, all these are general applications and those do not take characteristics of students concerning innovation and creativity into consideration. In this respect, it is important to know the extent of the potentials of university students about innovativeness and developing strategies and policies compliant with this. The reason for that is the features' that we deal with on the sample being evaluated as an indicator of individuals' being ready of innovation. In this regard, the relationship between both environmental and individual variables and Firat University students' technological innovativeness tendencies is tried to be determined.

In the study, firstly the basic problem of the research was discussed. Then, in some studies at the literature have focused on how to deal with this subject. In the other steps, the methodology and hypotheses of the research, the interpretations of the findings and the conclusion part are presented.

2. LITERATURE REVIEW

In literature, innovativeness is generally handled as an element of entrepreneurship as creativeness. In the study carried out by Koh (1996) on post graduate students in Hong Kong; innovativeness is assessed among the entrepreneur personal characteristic of students and in the conclusion of the research, it was specified that innovativeness is higher in the students with entrepreneur tendency together with tendency of taking risk and tolerance towards uncertainty than the students not having those features (Börü,3;Koh,19-22). Three key elements are stated as the basis of entrepreneurship in Börü conducting a research on students of Marmara University, Department of Business Administration, and these are specified as innovation, taking risk and being proactive (Börü, 19).

This approach is a correct but deficient one. However, these three are interlocked and in a mutual interaction prioritizing one another. It is probable to be an entrepreneur without being innovative to some extent; however, it is not possible to be innovative without being entrepreneur. The reason for that is innovativeness at the same time foresees thinking beyond-outside the box determined in cultural sense that is to say that being creative, while requiring taking action to breaking these taboos by necessity; and foresees entrepreneurship.

While innovativeness comes into prominence in the individual attitudes to generate creative solutions for the problems, indeed it means the ability of producing ideas and thinking independent from the decisiveness of this structure in which they are born and exist within the frame of culture they acquire with socialization processes. In this respect, innovativeness shall be able to design a problem. It is to see a situation as a problem to be solved and to solve it and making it a mental habit. We can state this as problem solving process within Popper's perspective; P1 – TS – EL – P2. Here, P1 is the problem in the beginning, TS is the trial solution offered, is EL process of eliminating errors (Debugging) applied to trial solution, P2 is the situation arrived in the end and when new problems arise. This is a self-feeding process in itself; not cyclic; because P2 is always different from P1: even completely failing to solve a problem teach us much about where the difficulties of that problem are and which conditions that the solution for the problem have to meet (Çopuroğlu, 15 ; Magee 1982: 59). Therefore, all kinds of problem-solving results in innovation by nature. This process constitutes the dynamics of technological evolution stated by George Basalla by creating range of products beyond the needs of humankind with continuity, innovation and selection processes underlying technological development. (Basalla, 46-47)

According to Drucker, innovativeness is the most substantial part of entrepreneurship. Entrepreneur realizes the changes and turns these into opportunity for different works. For a successful innovation, entrepreneur shall thoroughly assess the source, reasons and results of the change and the opportunities it has (Gümüšoğlu and Karaöz,64; Aksoy,318). In this respect, innovativeness lies both behind the competitiveness and orientation to new conditions, being the two basic

features of organizational achievement in our day; that is to say change by innovation. The concepts of innovativeness and innovation are accepted as complementary characteristics of entrepreneur. In fact, in the meaning of presenting new things, innovativeness is one of the most difficult duties of an entrepreneur because it requires not only the ability of creating but also considering all forces existing and efficient in the environment. The concept of innovation with this definition covers everything from creating a new product or service and offering a new distribution channel or way to generate a new organization (Atasoy,6-7). In this content, innovativeness is also one of the fundamental features of entrepreneurship. The analysis of innovative culture conception, the discernment of its segments in the individual level, innovation, innovative process and culture analysis lead to the definition of individual innovative culture: individual's innovative culture might be considered the expression of individual values, attitudes, expectations, behaviour and norms, rules, even way of thinking that manifest during the innovative process through the characteristics of creativity and entrepreneurship. (Janiünaitè, 20)

3. DATA AND METHODOLOGY

This study was carried out by applying a questionnaire prepared by adding questions about some environmental and individual variables along with Technological Innovation Scale of "University Student Innovation Evaluation Questionnaire" developed by Dr.Hakan Eren (2010). A scale was developed by Eren to analyze the effects of environmental factors on university students' innovative, creative and entrepreneur characteristics together and on social ad technological innovativeness tendencies on a model experimentally. Eren conducted this study to improve scales to measure the individual social and technological innovativeness tendency and testing validity. With this purpose, the study was conducted on 767 students in different faculties of departments of 10 universities foreseen to represent different socio-economic and socio-cultural segments of society from different geographies considering the fact that the future social structure will be formed by and rapidly increasing need for individuals who received university education in our day when technological knowledge and global competition increase as university students have pioneering role in innovative thinking and innovation implementations compared to other sections of the society. As a result of correlation, structural equation modeling and regression analysis performed with 767 individual data acquired, the conclusions on the influences of each individual characteristic on social and technological innovativeness were found out. The fact that each variable have positive and meaningful relations with one another and social and technological innovativeness variables is the most fundamental finding obtained from correlation analysis in the research (Eren, 2010; Halaç, 2014).

This survey was carried out to measure the tendencies on innovation and points of view of university students on technological innovation. The survey consists of short answered, scaled, ordinal by priority and multiple-choice 47 questions. "Technological Innovation Assessment" titled survey form comprises of 3 sections in total; there are questions about demographical features in the first section, the questions to measure the capabilities of finding solution, creativity and technological background of the participants are presented in the second section and finally in third section, the questions on ambient for putting capabilities of finding solution, creativity and technological background into practice are given. The questions in the survey prepared in Likert type requests participants to choose one of the options "totally agree", "agree", "neutral", "disagree", "totally disagree" to state to what extent they agree with the opinion given in the survey. Answers of the participants are received online through internet.

Targeted survey group are the lisans students of Firat University Departments of Education, Science, Engineering, Technology, Medicine, Health Sciences, Economics and Administrative sciences, Human and Social Sciences, Water Products and Veterinary. The reason for performing this study particularly on Firat University students is the success of Firat University students in various techno-entrepreneurism in the recent years. This case has great influence on performance of the study especially in Firat University

Hypothesis of the Research

The following hypotheses are determined within the direction of the objectives of the research:

- H₁:** Gender of participants has a meaningful influence on tendency of technological innovation.
- H₂:** The faculty of the participant has a meaningful influence on tendency of technological innovation.
- H₃:** The department of the participant has a meaningful influence on tendency of technological innovation.
- H₄:** Level of education of mother's of participant has a meaningful influence on tendency of technological innovation.
- H₅:** Level of education of father's of participant has a meaningful influence on tendency of technological innovation.
- H₆:** Family Income Level of participant has a meaningful influence on tendency of technological innovation.
- H₇:** Participation in any project competition of participant, has a meaningful influence on tendency of technological innovation.

H₈: Participant’s membership to a technological creativity club, has a meaningful influence on tendency of technological innovation.

H₉: Participant’s any scientific work published about a topic that includes technology, has a meaningful influence on tendency of technological innovation.

H₁₀: Having enough knowledge about the organizations that provide technology support and develop technology has a meaningful influence on tendency of technological innovation.

H₁₁: Producing ideas and creating new solutions with friends by participants, has a meaningful influence on tendency of technological innovation.

H₁₂: To have a plan to set up a company, has a meaningful influence on tendency of technological innovation.

H₁₃: Undergraduate class of participants, has a meaningful influence on tendency of technological innovation.

Model

The questionnaire form that 161 people in total responded was applied in May of 2016. In the analysis of the data acquired as a result of the application, IBM SPSS Statistic 22 program was used. Demographical features and tendencies to technological innovations of the respondents are tried to be evaluated in the analysis respectively. First of all, the means, standard error and standard deviations of the variables are calculated and whether there is any meaningful difference that can reveal the one-to-one relationship among variables for items with homogenous distribution is investigated and test results of the research hypothesis are included. The findings of these analysis carried out are respectively given in the following sections.

When Technological Innovation tendency is accepted as dependent variable, “ANOVA Test (Analysis of Variance)” is used in this study to measure accuracy against other aforementioned independent variables. Allowing comparison of group average vectors for a data set based on categorically, in this test is accepted as data of the variable, being subject of the research are normally distributed and variance is homogenous.

The hypotheses being subject to the analysis are as follows;

$$H_0 : \text{There is no difference among group average. } (\mu_1 = \mu_2 = \dots = \mu_k)$$

$$H_1 : \text{At least one group average is different from others. (at least one } \mu_j \text{ is different)}$$

ANOVA test statistic is as follows:

$$F_{test} = \frac{GAKT / (k - 1)}{GIKT / (N - k)}$$

GAKT: Inter groups sum of squares

GIKT: In-group sum of squares

N: number of observations, **k:** number of groups

In variance analysis, dependent variable series is obtained by acquiring average Likert value of each answer given to each question related to Technological Innovation tendency. After dependent variable is obtained in this way, the findings acquired from one-way variance analysis (One way ANOVA) carried out as per independent categorical variables are presented in the related tables. The analyzes are based on the assumption that the variances are homogeneous.

4. FINDINGS AND DISCUSSIONS

Demographic features of university students participating in the survey are given in the following table.

Table 1: Demographical Features of the Sampling

	Frequency	Percent		Frequency	Percent
Age			Faculty		
22-23	107	66.5	Technology, Engineering	98	60.9
23 and Upper	54	33.5	Aquaculture,	25	15.5

			Science, Veterinary, Medicine, Health		
Income (Annually)			Economy, Social Science, Education	38	23.6
7000\$ and lower	63	39.1	Gender		
7001\$ and 14.000\$	35	21.7	Female	47	29.2
14.000\$ and upper	57	35.4	Male	114	70.8

When demographic features of the students who participated in the questionnaire are analyzed, age, income, faculty and gender distributions of the participants can be observed in table 1. According to the data in Table 1, it is seen that there are 107 people between 22-23 age range and 54 people over 24 years old, and when distribution by gender is dealt, it is observed that there are 47 female and 114 male attendants. Furthermore, classification by the faculties the fields of which are close to one another is performed. According to this, there are 98 students in one group comprising of technology and engineering faculties, 25 students in one group comprising of Water Products, Science, Veterinary and Health Faculties and finally 38 students in one group comprising of Economics and Administrative Sciences, Human and Social Sciences and education. 161 university students participating the survey in total receive education in the senior classes of the departments of the related faculties.

As for the distribution by incomes of the families of university students; there are 63 people having 7000\$ and lower income, 35 people between 7001 and 14000\$ annually income and 57 people with 14000\$ and upper annually income.

Table 2: Technological Innovation Tendencies

Technological Innovation Tendencies	Frekans	Percent
Low	7	4,3
Middle	59	36,6
High	72	44,7
Too High	23	14,3
Total	161	100,0

When Table 2 is analyzed, it is observed that there is not any student having too low Technological Innovation tendency. Furthermore, average Technological Innovation of 161 students who participated in the survey is found as 3.69. When proximity of this value to 4 is taken into account, it can be deduced that university students have high Technological Innovation tendencies.

Table 3: Relationship Between Gender of Participants and Tendency of Technological Innovation

Gender	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,864	1	1,864	4,269	,040
Within Groups	69,424	159	,437		
Total	71,288	160			

P<0.05

The result of the anova analysis according to gender and innovativeness tendency shows a significant difference in tendency of innovativeness among the groups. When we look at the Likert's average of the groups, we see that the average of female students is 4,1011 and the average of male students is 4,3377. In this case, despite the tendency to technological innovativeness of both groups is high; as a result of the ANOVA analysis, the difference between the groups in tendency to technological innovativeness depending on gender leads to the higher level tendency to technological innovativeness of the male students. In this case, H1 has been confirmed at the significance level of P = 0,04 <0,05.

Table 4: Relationship between Faculty of Participants and Tendency of Technological Innovation

Faculty	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4,928	8	,616	1,411	,196
Within Groups	66,359	152	,437		
Total	71,288	160			

Table 5: Relationship between Department of Participants and Tendency of Technological Innovation

Department	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10,719	19	,564	1,313	,184
Within Groups	60,569	141	,430		
Total	71,288	160			

There is no significant relationship between tendency to technological innovativeness and Faculties and Departments of Students, with the $P < 0.05$ significance level. It is expected that the tendency to technological innovativeness of university students in specific faculties and departments; especially in the medical, engineering and technology faculties and the students in the departments in these areas would be higher than the students of the other Faculty and department, because of the necessity to follow innovations and technology. However, the H_2 and H_3 hypotheses for this expectant have not been confirmed by the Anova analysis.

Table 6: Relationship between Mothers Education Level of Participants and Tendency of Technological Innovation

Mother's Education Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13,371	5	2,674	7,157	,000
Within Groups	57,917	155	,374		
Total	71,288	160			

$P < 0.05$

Table 7: Relationship between Fathers Education Level of Participants and Tendency of Technological Innovation

Father's Education Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2,676	6	,446	1,001	,427
Within Groups	68,612	154	,446		
Total	71,288	160			

$P < 0.05$

Family is the environment in which the most basic personality traits are shaped and the individual attitudes are developed. The parents' educational levels influence the children through their knowledge and awareness. In this respect, it is thought that the educational level of the parents, as an important environmental factor, would positively influence students' tendency to technological innovativeness. However, as a result of the ANOVA analysis, it has been found that there is no significant relationship between the father education and students' tendency to technological innovativeness, whereas the mothers' education have a very significant relation. Thus, while H_4 is being verified, H_5 is false. On the other hand, as to the relationship between maternal education levels and tendency to technological innovation, it has been observed that there is a significant difference between the education levels of the mothers and the tendencies to technological innovativeness, where as there is no significant relationship between the groups, this difference increases as the education level decreases. Namely, it has been determined that the children of mothers with the lowest education level, primary and lower education, with a mean of 4,4354 likert, have the highest average tendency to technological innovativeness. In this case, we can also indicate that mothers are particularly interested in the education of their children and that low-educated mothers motivate them to not live in their current situation in our society. It would be more meaningful to evaluate this together with the income levels of the families.

Table 8: Relationship between Family Income Level of Participants and Tendency of Technological Innovation

Family Income Level	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20,598	30	,687	1,842	,011
Within Groups	46,220	124	,373		
Total	66,818	154			

$P < 0.05$

As it can be seen, there is a highly significant relationship between the income levels of the families and the students' tendency to technological innovativeness. Thus, the H_6 hypothesis $P = 0,011 <$ has been verified; There is a significant difference between the annual average income groups of the families. However, just like the difference has been observed

in the education levels of the mothers, it has been emerged that the lower the level of income, the higher students' tendency to technological innovativeness. The group with a yearly average of below \$ 7,000 has the highest likert average of 4,3373. We can say that looking for new solutions to their problems as a way out of negative conditions increases the students', who are the children of low-income families, tendency to technological innovativeness of.

Table 9: Relationship between Participation in Any Project Competition of Participants and Tendency of Technological Innovation

Participation in any project competition	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2,496	1	2,496	5,768	,017
Within Groups	68,792	159	,433		
Total	71,288	160			

P<0.05

It was found out that a significant relationship between the being participant to any project and students' tendency to technological innovativeness, with P <0,05 significance level. Participation to a project is important in terms of implementing what they learn and acquiring new knowledge and experience, and is a concrete indication of a person with innovative tendencies. The hypothesis H₇ has been confirmed at a significance level of P = 0,017 <0,05.

Table 10: Relationship between Membership of a Technological Creativity Club of Participants and Tendency of Technological Innovation

Membership of a technological creativity club	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4,040	1	4,040	9,552	,002
Within Groups	67,248	159	,423		
Total	71,288	160			

P<0.05

Being a member of any organization is a sign of interest and inclination. Organizations engaged in activities to produce creative technological ideas on technological innovation offer a variety of opportunities to realize individual talents. Taking action to see and capture these opportunities is a sign of technological innovativeness. H₈ Hypothesis in this value frame has been confirmed with P = 0,002 <0,05 significance level.

Table 11: Relationship between Any Scientific Work Published by Participants About a Topic that Includes Technology and Tendency of Technological Innovation

Any scientific Work Published about a Topic that Includes Technology	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,721	1	1,721	3,933	,049
Within Groups	69,567	159	,438		
Total	71,288	160			

P<0.05

The result of the analysis shows that H₉ Hypothesis has been confirmed with P = 0,049 <0,05 significance level. Working in any subject aims a production related to the topic of work. While a production itself is naturally new, it is also closely related to the tendency to innovate to make a study of technological innovativeness and to share the result.

Table 12: Relationship between Having Enough Knowledge by Participants about the Organizations that Provide Supporting and Developing Technology and Tendency of Technological Innovation

Having Enough Knowledge by Participants about the Organizations that Provide Supporting and Developing Technology	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,830	1	1,830	4,190	,042
Within Groups	69,457	159	,437		
Total	71,288	160			

P<0.05

It is not an idea but an awareness of what you have to realize you thoughts and being aware of your capability is an important influence that transforms technological innovativeness into innovative entrepreneurship. We have seen that the students of Firat University have this awareness. That Firat University was the first with 170 applications in Techno Entrepreneurship in 2015 and was 4th after Istanbul, Izmir and Ankara according to the number of projects that received the Teknogiris support during the same application period and was the second in TUSIAD's "This Youth Can Do!" organization among the universities applying for the contest with 152 applications shows the awarness of the studens of the Firat University. According to the table value, H10 Hypothesis has been at P = 0,042 <0,05 significance level.

Table 13: Relationship between Producing Ideas and Creating New Solutions by Participants with Friends and Tendency of Technological Innovation

Produce Ideas and Create New Solutions with Friends	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7,975	1	7,975	20,027	,000
Within Groups	63,313	159	,398		
Total	71,288	160			

P<0.05

Discussions and conversations provide a suitable base for the emergence of creative and new ideas. Especially, getting together of young people to create a lot of ideas about future designs and discussing and sharing them with their friends creates a synergy for the emergence of new ideas. Participating to such interaction with friends encourages university students to produce analytical new thinking for similar problems. H₁₁ Hypothesis questioning the relations of friends to the tendency of technological innovativeness has been confirmed with P = 0,000 <0,05.

Table 14: Relationship between to Having a Plan by Participants to Set Up a Company with Friends and Tendency of Technological Innovation

To Have a Plan to Set Up a Company	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1,013	1	1,013	2,292	,132
Within Groups	70,275	159	,442		
Total	71,288	160			

Planning to start a business is to become ready to act in order to realize ideas in a sense. At the same time, it has been assumed that she/he relies her/his ideas and talents, and thus it means that self-reliance is high. However, the H₁₂ Hypothesis we formulated for this approach has been unconfirmed with Anova analysis, meaning that there is no significant relationship between business start-up planning and tendency to technological innovativeness.

Table 15: Relationship between Undergraduate Class of Participants and Tendency of Technological Innovation

Undergraduate Class	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,290	3	,097	,214	,887
Within Groups	70,997	157	,452		
Total	71,288	160			

It has already been stated that communities use education for their members as a means to socialize the solution of problems. It has been envisaged that tendency to technological innovativeness increases due to the increase in the duration of education, with the idea that university education, the most important stage of this process in this frame, teaches innovativeness by both information and application methods. However, the research data have not confirmed the H₁₃ Hypothesis expressing this relationship.

5. CONCLUSION

Innovativeness means taking an attitude. These attitudes are primarily determined by the characteristics of the socio-cultural environment and then shaped by the subjective consciousness of the individuals. In this study, tendency to technological innovativeness as the appearance of individual consciousness has been related to the some variables. It has been found out that there is a significant relationship between tendency to technological innovativeness and variables such as gender, mother education, family income, friend interaction and awareness; whereas there is not a significant relationship between tendency to technological innovativeness and variables such as faculty, department, class, institutional characteristics and establishment of a business. The socio-economic levels of individuals will influence their perceptions, goals and motivations regarding their attitudes, thoughts and beliefs, along with many other factors. The most important way for children of low socioeconomic level families to recover their situation is to be able to utilize education and opportunities. For this reason, it is a rational attitude for individuals who struggle with difficulties since the day they were born and who develop solutions to the problems that they constantly face to go for innovative solutions to improve the conditions they are in.

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ABSTRACT

Purpose- This paper aims to examine the impacts of IT Capability and its four sub-dimensions on the firm competitiveness at the logistics sector. IT capabilities have four sub-dimensions as IT infrastructure, IT business experience, IT relationship resources and IT human resources. IT infrastructure capability refers to the combine hardware, software, network resources and services. IT business experience, is an ability to unify IT strategy and business strategy. IT relationship resource, is a capability to compound IT functions with business units and IT resources. IT human resources stand for an organizational resource and capability.

Methodology- The data was collected from the national industry of logistics service providers associated in the international forwarding associations UND by questionnaire method. 450 questionnaires were distributed, 428 of them was returned (a response rate of 95%).

Findings- All data was analysed by SPSS programme. First of all demographic characteristics of the respondents were presented by the frequency analysis. Then correlation analyse was used and it was found significant and positive relationships among IT Capability, its four sub-dimensions and competitiveness. At last regression analyses were used.

Conclusion- The results of analyses showed that a firm's IT capability and its sub dimensions have positive effects on competitiveness, as proposed for this study.

Keywords: IT capability, IT infrastructure, IT business experience, IT relationship resources, IT human resources, Competitiveness

JEL Codes: O30, L80, M10

1. INTRODUCTION

In this modern day and age, information technology plays a big role. With the introduction of computers, the business world was changed forever. Technology has become a major portion of everyday life. Using information technology, businesses have the ability to view changes and respond them far faster than they usually do in the global markets.

With improvements in information technology (IT) , globalization has increased. The world is brought closer; linguistic and geographic boundaries are torn down and Information can be shared easier, cheaper and faster. IT became very important factor in increasing the efficiency and competitiveness. Especially at logistics activities, IT capability speeds up the seamless flow of information. IT capability is defined as an ability that combinations of IT-based resources and with other resources implement in value-adding ways to achieve operation goals.

This study focused on IT capabilities as four sub-dimensions: IT infrastructure, IT business experience, IT relationship resources and IT human resources. IT infrastructure provides the foundation for companies to deliver business applications as servers, networks, laptops, customer knowledge, help desk etc. IT business experience is a company's skill to unify IT strategy with business strategy. IT relationship resources are defined as the company's ability to integrate IT functions into business units and utilize IT resources. IT human resources are the most important item of the IT asset base, and represent a strategic organizational resource and a crucial organizational capability.

Therefore, Information technology (IT) is one of the most popular technological innovations in the supply chain. Successfully implementing and utilizing the information technologies are critical to improve competitiveness. Due to all these reasons, IT capabilities and their role in creating competitiveness are investigated in this study.

2. LITERATURE REVIEW

At the study there are two main variables (IT capability, Competitiveness and four sub- dimensions (IT infrastructure, IT business experience, IT relationship resources, IT human resources).

2.1. IT Capability

Firms are allowed to keep up with consumer's supply and demand, to develop aggressively and to achieve competitiveness rapidly by information technology. By using IT, businesses could respond changes in the global markets more quickly than they do in general. Accordingly the strategic importance, how to build efficient IT capability, has been identified as a critical management issue to obtain to solve it as soon as possible (<https://blog.udemy.com/importance-of-information-technology/>). Information technology (IT) is widely thought as a leverage for a firm to survive and grow. The role of IT capability is to leverage the value of other resources and capability indeed (Bharadwaj, 2000; cited by Chen vd., 2014:326). If there is not any IT resources, the firms cannot survive. For this reason, a large number of firms that invested intensively in IT assets is to guarantee success (Aduloju, 2014:3).

The definition of IT capability is combinations of IT-based resources and with other resources implement in value-adding ways (Chen vd., 2015:645; Fink, 2011:17). Many researches have been conducted about IT capability from different viewpoints. At first concept, IT capability is defined by Ross etc. (1996), as the ability to control its IT expense and cost, and deliver in time to realize the firm's targets. Then Bharadwaj (2000) defines organizational IT capability as a firm's ability to mobilize and deploy IT based resources. Sambamurthy and Zmud (2000) define IT Capability as unification of IT-based assets and routines that support business conduct in value-adding methods. Zeng and Huang (2003) defined IT capability as a competence that a firm mobilizes its related IT resources to achieve operation goals. Santhanam and Hartono (2003) define IT capability as an aggregate concept/feature of the firm (Fink and Neumann, 2007:441; Guo et.al, 2008:89; Lim et al., 2012:23; Fink, 2011:17).

IT capability has four sub-dimensions as IT infrastructure, IT business experience, IT relationship resources and IT human resources. IT infrastructure includes communication technologies for firms to share information across varying functions, and react to changes in the market. IT business experience is a competence to integrate IT strategy and business strategy. IT relationship resources are abilities to associate IT functions into business units and IT resources. Also, IT human resources represent an organizational resource and capability (Chen and Tsou; 2012).

This study focused on IT capability and its four sub-dimensions called, IT infrastructure, IT business experience, IT relationship resources and IT human resources. In this study, the scales, about an integrated measurement system for IT capability and its sub-dimensions, are adapted by Chen and Tsou (2012).

2.2.Competitiveness

Because of economic, social and technological alterations, the ongoing globalization, disappeared borders are between countries, improved communication and transportation technologies, firms are competing much more difficult than they used to be. Thus to achieve a sustainable competitive position, firms need to manage their resources efficiently, try to have a larger share of growing markets and convert threats to opportunities (Bakan and Doğan, 2012:441).

According to technologic developments, information technology (IT) has become the most important resource and information technology (IT) capability has become the most important capability of firms to achieve the competitiveness. Competitiveness is defined as a "integration of assets and processes, where assets are inherited (e.g. natural resources) or created (e.g. infrastructure) and processes convert assets to achieve economic incomes from sales to customers". In simple terms, competitiveness is the capability to compete and a multidimensional concept to identify economic strength of a country or industry or firm (Ambastha and Momaya, 2003:47)

The competitiveness concept contains various disciplines, such as the price competitiveness perspective, the strategy and management perspective, and the historical and socio cultural perspectives or the firm stage, microeconomic stage for industries and the macroeconomic stage for national economies. This variety of approaches and stages of this concept show that competitiveness has actually wide applications. In fact, competitiveness is also included in the factors lead to being competitive, as well as it can be attained. (Man and Chan, 2002:124).

To be as main criteria for valuation the achievement of countries, industries and firms, competitiveness is very popular subject for businesses. Since Porter published his book "Competitive Advantage of Nations" in 1990 and create a base for developing national policies on competitiveness, there are many studies have been applied to many industries about

competitiveness. Some of them are Waheeduzzaman and Ryans (1996), Hove and Masocha (2014), Ortega et al. (2014), Sutherland (2014), Yunna and Yisheng (2014), Zeng et al.,(2008), Mathooko and Ogutu (2015), Ozer and Saldamli (2015), Bakan and Doğan (2012), Muniret al. (2011), Oraman et al. (2011), Renko et al. (2011), Ross et al. (2011), Cernusca et al. (2012), Abereijo et al., (2009), Oduol and Franzel (2014), Flor and Oltra, (2005), Jones and Crack (2001), Lopez and Garcia (2005), Powell and Dent-Micallef (1997); etc. (Uluğbeyli, 2017:35-36; Peña-Vinces, Cepeda-Carrión, Chin, 2012:1046; Man and Chan, 2002:126).

3. RESEARCH METHODOLOGY

3.1.Aim of the Study

The aim of this study is to examine impacts IT Capability and its four sub-dimensions on competitiveness. For the study, the data were collected by means of a questionnaire. Then, all obtained questionnaire data were analysed with the Statistical Package for the Social Sciences (SPSS) for Windows. Frequency, correlation and regression analyses were used to assay the participant's opinions for each questionnaire items.

3.2.Sample and Data Collection

At the study, data was collected from managers in the national industry of logistics service providers firms, which are members of the international forwarding associations (UND) by the questionnaire method. 450 questionnaires were distributed to third part logistics (3PL) firms in the 9 cities of Turkey; 428 usable questionnaires were returned and analysed.

Since 1974, the international forwarding association (UND) has been working for the purpose of produce solution nationally and internationally problems at logistics sector. The associations have nearly 1200 members around the Turkey. To be a member of the association, firm must have relevant qualification documents from government. Distribution of member firms shown at Table 1. As regional distribution, the highest number of member firms (396) are in Marmara region and the lowest number of members (21) in Doğu Anadolu Region. Because of the low number of members, Iğdır has been neglected. As urban distribution, the highest number of member firms are in İstanbul (371), and with 21 member firms, Iğdır is the lowest city. According to this distribution, 428 questionnaires are distributed to 9 cities at 6 regions in Turkey proportionally, as can be seen from the Table 1.

Table1: Registered Firms and Distributed Questionnaires

Region	1.City	Numbers of firms	2.City	Numbers of firms	Total number of Firm	Number of distributed questionnaires
Marmara	İstanbul	371	Kocaeli	25	396	180
Akdeniz	Mersin	195	-	-	195	106
Karadeniz	Trabzon	37	Bolu	28	65	39
İç Anadolu	Ankara	47	Kayseri	39	86	41
Güneydoğu Anadolu	Gaziantep	70	-	-	70	51
Ege	İzmir	33	-	-	33	11
Doğu Anadolu	Iğdır	21	-	-	21	0
Total		1185				

3.3.Measures of the Study Variables

A questionnaire was designed based on the various related studies on academic literature. IT capability, IT infrastructure, IT business experience, IT relationship resources, and IT human resources were measured by using Chen and Tsou (2012) scales. The multiple item scale was used for each components. Competitiveness items were taken and adapted to this study from Ginnis et al. (2011). Likert-type scale is used on the questionnaire, that ranged from (1) "strongly disagree" to (5) "strongly agree".

The reliability analysis was conducted at the beginning. It is shown at the Table 2. Reliability coefficients are more than 0.64. As a result, the scales for all variables are reliable.

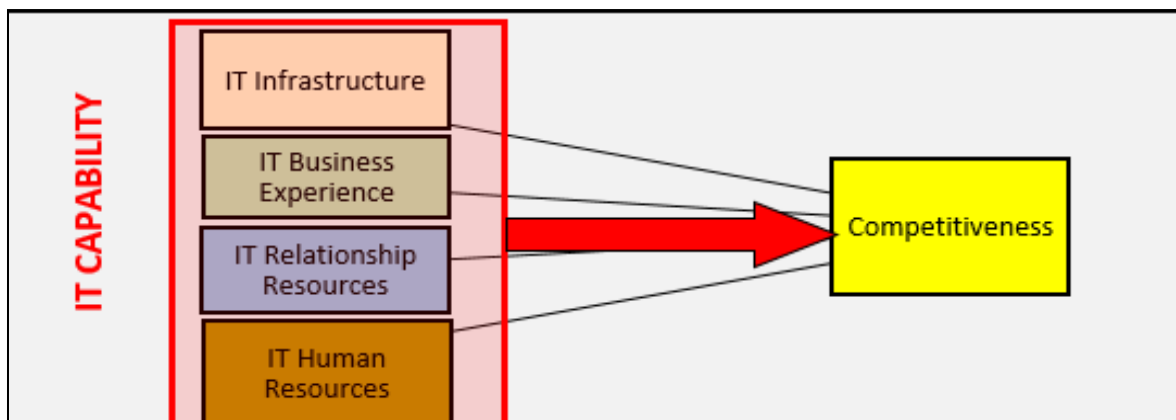
Table 2: Sample Alpha of the Study Variables

Variables	Number of Items	Sample Alpha
IT Capability	13	0,964
IT Infrastructure	2	0,875
IT Business Experience	4	0,891
IT Relationship Resources	4	0,924
IT Human Resources	3	0,850
Competitiveness	4	0,649

4. RESEARCH MODEL AND HYPOTHESES

After literature review, the research model suggested as shown at Figure 1, and hypotheses have been developed for analysis 1.

Figure 1: Research Model



In accordance with the model, the following research hypotheses were illustrated;

- H1: IT Capability effects competitiveness positively.
- H2: IT infrastructure effects competitiveness positively.
- H3: IT business experience effects competitiveness positively.
- H4: IT relationship resources effect competitiveness positively.
- H5: IT human resources effect competitiveness positively.

5. THE RESULTS OF THE EMPIRICAL STUDY

5.1. Sample Characteristics

The characteristics of the respondents and the firms participated in this study are shown at Table 3. According to the descriptive statistics, 85,2 percent were male and 14,8 percent were female. It was found that 74,6 percent of the respondents were married, while 25,4 percent single. The age of 58,4% of the respondents are between 31 and 40 years. Regarding educational attainment, the majority (62,1%) of the participants have high school degree. The position of the respondents in the firms are mostly (77,6%) middle level manager. The work tenure of the respondent is as the following: under 1 year (2,6%); 1 and 3 years (18,6%), 4-6 years (32,5%), 7-9 years (27,1%) and more than 10 years (19.3%).

¹There were different variables at the modal. For this congress to shorten the article, the modal was analyzed as two main parts, and presented in two papers: one of them is "IT capability and Logistics capability" and the other part is "IT capability and competitiveness". Both part includes the same demographical data.

78,8% of the firms, data collected, are employing between 1 and 500 employees. The participant firms are the mostly local capital (96,2%) and the mostly limited (97,8%). The participant firms are managed by family members (87,6%), out of family members (4,1%) and professional managers (8,4%).

Table 3: Characteristics of Respondents and Firms

		Frequency	Valid percent			Frequency	Valid percent
Gender	Female	62	14,8	Marital status	Married	306	74,6
	Male	357	85,2		Single	104	25,4
Age	20-30	106	24,9	Education attainment	Elementary	16	3,9
	31-40	249	58,4		High school	259	62,1
	41-50	57	13,4		Associate Degree	51	12,2
	51 ≤	14	3,3		Bachelor degree	79	18,9
Post-graduate degree					11	2,6	
Doctoral degree	1	0,2					
Position	Senior manager	85	20,0	The Work Tenure Of Respondents	<1 year	11	2,6
	Middle level manager	330	77,6		1-3 year	79	18,6
	Lower level manager				4-6 year	138	32,5
					7-9 year	115	27,1
					10 year ≤	82	19,3
Management Type	Family Members	366	87,6	Establishment	<1 year	1	0,2
	Out of Family	17	4,1		1-5 year	28	6,6
	Professional Managers	35	8,4		6-10 year	112	26,5
					11-20 year	188	44,5
					21 year < up	93	22,2
Commercial Title	Incorporated	7	1,7	Number of Employees	<10	9	2,1
	Limited	398	97,8		10-50	330	78,8
	Unlimited	2	0,5		51-250	71	16,9
					251-500	5	1,2
					501 ≤	4	1,0
The capital structure	Local capital	352	96,2				
	Local&Foreign capital	7	1,9				
	Foreign capital	7	1,9				

5.2. Analytic Procedure (Statistical Analysis)

At first, all questionnaire data were entered into the Statistical Package for the Social Sciences (SPSS) for Windows. Then, sequentially to find out the respondent’s opinions for each questionnaire items, frequency analysis was done. After all, correlation analysis was used to indicate the relationship between IT capability, IT infrastructure, IT business experience, IT relationship resources, and IT human resources (which are four sub dimensions of IT capability) and competitiveness. At last, regression analysis was performed to achieve the fundamental purpose of the study.

5.3. Correlations Results

The correlations between IT infrastructure, IT business experience, IT relationship resources, IT human resources, competitiveness are also presented in Table 4.

Table 4: Results of Correlation

	IT CAP	ITI	ITBE	ITRR	ITHR	Competitiveness
IT CAP	1	,898	,963	,962	,893	,413
ITI	,898	1	,844**	,807**	,753**	,336**
ITBE	,963	,844**	1	,904**	,798**	,416**
ITRR	,962	,807**	,904**	1	,826**	,414**
ITHR	,893	,753**	,798**	,826**	1	,340**
Competitiveness	,413	,336**	,416**	,414**	,340**	1

** . Correlation is significant at the 0.01 level (2-tailed).

As shown at the Table 4; the significant relationships are found between IT capability, IT infrastructure, IT business experience, IT relationship resources, IT human resources and competitiveness. There are the strongest relationships

between IT capability and IT business experience (0,963; $p < 0.01$) and the weakest relationships between IT infrastructure and competitiveness (0,336; $p < 0.01$)

5.4. Regression Results of the Study

After an intensive literature review, the research model was developed and related hypotheses were offered. Regression analysis was used to test the research hypotheses.

IT Capability and Competitiveness

In the linear regression model, the direct link between IT capability and competitiveness is significant ($t = 9,326$, $p < 0.01$). It explained 16,9 % of the competitiveness by the adjusted R^2 value. According to the analyze results, the first hypothesis “H1: IT Capability effects competitiveness positively” is supported.

Table 5: Regression Results of IT Capability and Competitiveness

Independent variable	β	t	p	R^2	Adjusted R^2	F
IT Capability (ITC)	0,413	9,326	0,00	0,171	0,169	86,980

Dependent variable: Competitiveness * $p < 0,001$

IT Infrastructure and Competitiveness

Regarding the effect of IT infrastructure on competitiveness (H2), Table 6 shows an adjusted R^2 of 0,111, indicating that IT infrastructure explains about 11,1% of competitiveness. The overall F-statistic of 53,896 is significant at the 0.01 level. Thus “H2: IT infrastructure effects competitiveness positively” is supported

Table 6: Regression Results of IT Infrastructure and Competitiveness

Independent variable	β	t	p	R^2	Adjusted R^2	F
IT Infrastructure(ITI)	0,336	7341	0,00	0,113	0,111	53,896

Dependent variable: Competitiveness * $p < 0,001$

IT Business Experience and Competitiveness

In the correlations analysis, a significant relation is detected between IT business experience and competitiveness. As a result of the regression analysis, the model is significant with F value of 88,710 ($p < 0.01$) and explained 17,1 % of the competitiveness by the adjusted R^2 value. Hence, the third hypothesis of the research “H3: IT business experience effects competitiveness positively” is supported.

Table 7: Regression Results of IT Business Experience and Competitiveness

Independent variable	β	t	p	R^2	Adjusted R^2	F
IT Business Experience (ITBE)	0,416	9.419	0,00	0,173	0,171	88,710

Dependent variable: Competitiveness * $p < 0,001$

IT Relationship Resources and Competitiveness

In order to test the forth hypothesis of the research, the regression analyze is applied. The results show that ITRR and Competitiveness received contribute significantly, with an overall F value of 87,298; ($p < 0.01$) and the adjusted R-square value is 0.171. This means that IT infrastructure explains approximately 17,1% of the competitiveness. Thus, the fourth hypothesis of the research (H4) is supported.

Table 8: Regression Results of IT Relationship Resources and Competitiveness

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Relationship Resources (ITRR)	0,414	9.343	0,00	0,171	0,169	87,298

Dependent variable: Competitiveness *p<0,001

IT Human Resources and Competitiveness

In the correlations analysis, a statistically significant relationship is detected between IT human resource and competitiveness. IT human resources explain about 11,3% of competitiveness (R² value of 0,116, and adjusted R² of 0,113). The overall F-statistic of 55,107 is significant at the 0.01 level. Therefore, the last hypothesis "IT human resources positively affect competitiveness" is also supported.

Table 9: Regression Results of IT Human Resources and Competitiveness

Independent variable	β	t	p	R ²	Adjusted R ²	F
IT Human Resources (ITHR)	0,340	7,423	0,00	0,116	0,113	55,107

Dependent variable: Competitiveness *p<0,001

6.CONCLUSION

At the study, there are five independent variables and one dependent variable. Independent variables are IT Capability and its four dimensions that are called: IT infrastructure, IT business experience, IT relationship resources and IT human resources. Dependent variable is competitiveness. In order to understand the relationship between IT capability, sub dimensions of IT capability and competitiveness detailed, we analysed the effects of both IT capability and sub dimensions of IT capability on competitiveness, separately.

The empirical data were analysed by the Statistical Package for the Social Sciences (SPSS) for Windows. The results of analyses showed that a firm's IT capability and its sub dimensions have positive effects on competitiveness. Among the four dimensions of IT capability, IT Business Experience (ITBE) is the most effective factor (17,1%) and IT infrastructure is the less effective factor (%11,1) regarding their effects on competitiveness.

In last 20-30 years, technological improvements influence all activities of businesses and today they are ongoing to influence more and more, as known. Hence, to cope with the changing business environment, firms are obligated to invest in IT processes to develop IT capabilities. To develop their own IT capability, firm must manage and coordinate IT infrastructure, IT business experience, IT relationship resources, and IT human resources effectively. Firms can be more effectiveness and competitiveness by investment and development of IT capability.

This study also has some limitations. 3PL managers answered our questionnaires, because they were the best positioned and related to the all management process as technology management. Thus, the results may not be sensitive enough. Future research can collect the data from the IT managers that work at logistics sector; and by using this data, the results will be more sensitive. 428 3PL firms' managers among 9 cities in Turkey were investigated. Future studies should investigate 3PL firms in other cities in Turkey and at the other countries to generalize the findings.

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DEFINITION AND IMPLEMENTATION OF PROCEDURES FOR IT ASSETS MANAGING

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ABSTRACT

Purpose - Manually tracking and management of thousands of IT assets in a company is costly, takes significant time, and has a tendency for mistakes.

Methodology - In order to reduce costs while planning the budget, companies require a solution to manage the hardware, software, and information throughout the life cycle of the IT assets, to maintain control, increase accountability and to support strategic decision-making.

Findings - The main purpose of this study is to analyze and develop a IT asset management solution and to help the companies to store information about the assets, locations, owners and costs.

Conclusion - The success of the ITAM system is measured by savings and by the prevention of the risk. ITAM system helps in budget planning, cost optimization especially IT cost optimization, decision-making, process improving, etc.

Keywords: ITAM, ITIL, LCAM, RFID, HelpDesk.

JEL Codes: M15, O32, Q55

1. INTRODUCTION AND LITERATURE REVIEW

Information is the most important strategic resource by which every organization should operate. The quality of IT services is the key to the collection, analysis, production and dissemination of information within an organization. IT asset management (ITAM) is a set of business practices that brings together financial, contractual and inventory functions to support strategic decision-making for the IT environments. Managing IT assets is an important part in the strategy of an organization. Usually it involves collecting detailed information for inventory, which is used to decide on the purchase and redistribution of hardware and software. Managing IT assets helps institutions to manage their systems more efficiently by reducing in time and financial costs, by avoiding unnecessary purchases of assets and promoting the use of existing resources. Institutions that implement an effective ITAM system minimize risks and costs of the projects for the upgrade of the IT infrastructure that are based on outdated information, incomplete and less correct. In this regard most institutions and authors refer ITIL's practices as a basis when defining the administrative processes (Ahmad & Shamsudin, 2013), (Tanovic & Orucevic, 2012), (Al Mourad & Johari, Resolution of Challenges That Are Facing Organizations before ITIL Implementation, 2014), (Al Mourad & Hussain, The Impact of Cloud Computing on ITIL Service Strategy Processes, 2014), (Verlaine, Jureta, & Faulkner, 2015), (Gil-Gómez & Oltra-Badenes, 2014), (Tanovic, Androulidakis, & Orucevic, 2012).

The need for tracking and monitoring IT assets appears as a result of the various problems related to IT assets management. The organizations, in general are characterized with the absence of the processes and the adequate systems to track and manage assets. The organization has no information about the assets, where are allocated and who is using them. Unused hardware assets often kept in the warehouse without any mechanism of control and without any employees responsible for them. Different administrators have access to inventory and can make changes without recording any information about the change. There is also the lack of discipline of operational management, which is responsible, to deal with the tracking of the assets which are neither present nor documented.

In November 2001 Gartner published the first iterative version of the IT asset management (ITAM) based on capability maturity model (CMM). In the next three and half years, many of companies started with use of ITAM and have moved up the maturity level. Researchers indicates that it takes approximately 18 months of dedicated effort to align all people, processes and tools to facilitate moving from one level to another level (according to Gartner). It has taken many years of process maturity and redesign, but ITAM programs, now are widely accepted by senior IT management as a core management discipline. As a result, fewer implementations are chaotic, and the number of companies achieving active management has increased. Also as organization (company) information system is evolved from level to level, each step will yield incremental savings and value, resulting in lowered costs and decreased risk. Today, many companies are recognizing that contract negotiation is an early stage of the asset life cycle, and ITAM enables efficient negotiation by providing data to assist with assessing vendor performance. However, most companies do not wish to displace their purchasing systems, so the ITAM database is used rather as a supplement (Adams, Update to the IT Asset Management Maturity Model, 2005). In fact, 50 to 80 percent of enterprises have yet to implement ITAM repository technology. A part of those who have implementation, a very few of them have integrated ITAM to their IT Service Management technology. Despite the significant financial and productivity benefits, according to Gartner's estimations, only 33% of IT organizations integrate their IT service desk tools with their ITAM repositories - even if both tools are from the same vendor (White Paper, The Benefits of Combined IT Service Management and IT Asset Management, 2010). Hewlett Packard believes that asset management is an evolutionary process (White Paper, Understand how IT asset management works for you, 2012). An organization cannot achieve the highest level of maturity until a number of processes are created, tested, and implemented. Adopting a planned and phased approach to ITAM best improvement practice can make the transition more predictable and help optimize the outcome. According to Gartner, IDC and KPMG we have the following statistics:

- 70% of organizations have a 30% discrepancy between planned inventory and actual inventory.
- Up to 30% of an IT budget could be saved by effective asset management.
- Organizations that practice ITAM had 15% or lower TCO. Greatest savings were in procurement, disposal, and operations.
- Enterprises that reconcile assets can identify redundant or rarely used products. An enterprise saved a huge amount of money by dropping a product for which it was paying maintenance fees but no longer use.
- By retiring unused assets, companies may reduce tax bills for assets by as much as 20–30%.

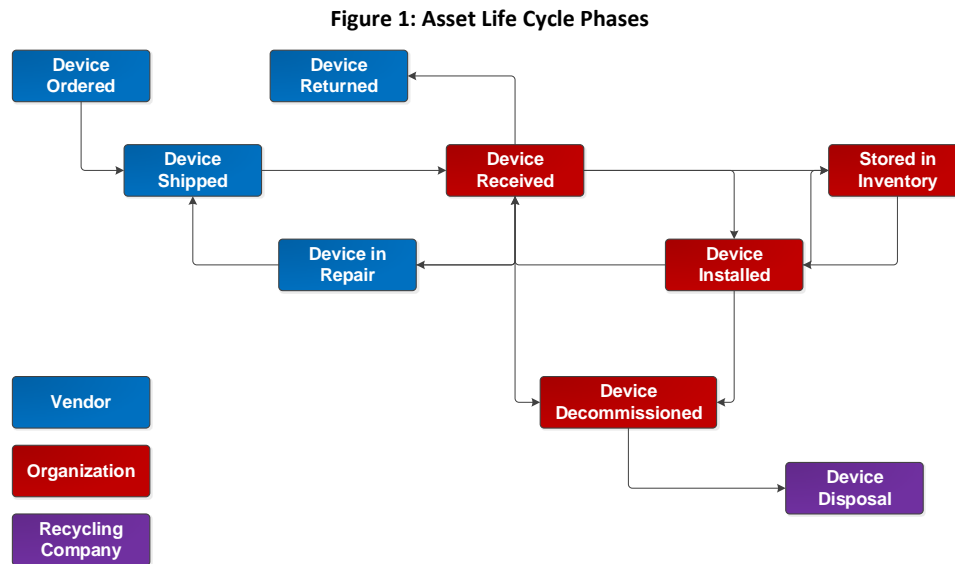
These statistics suggest that organizations by implementing ITAM can save money and ensure compliance, and without implementation, more often, they waste money and also are in noncompliance risk (Adams, Five Ways to Save Money and Reduce Risk With Your IT Asset Management Tools, 2014).

The paper is structured as follows. On the second section, Life Cycle, is presented the methodology used by organizations for IT assets management, where is analyzed the integration of the business processes, practices and controls with the aim to represent best value. The third section, Implementation, in which is presented the way of the project implementation. In this section are described nonfunctional and functional requirements, database design as well as the used software technologies. And the last section, Conclusions, where are given some conclusions, achievements and future directions.

2. LIFE CYCLE

Lifecycle Asset Management (LCAM) is the methodology used by organizations for IT assets management. IT asset life cycle management is the integrated set of business processes, practices and controls that ensure that decisions are financially prudent and represent best value. The stages of the IT asset life cycle include identification of business needs, purchase of IT assets required, deployment, use and maintenance of IT assets and, finally, their disposal. Effective life cycle management should minimize business disruptions and support strategic decision making for the IT environment (Agency Canadian International Development, 2010). Companies should adopt a comprehensive approach that addresses the IT tools and support resources, business processes, data and vital technologies in order to ensure effective management tools and strategic decision making. To achieve operational excellence, it is of extreme necessity to incorporate asset management into daily business routines, by enabling this holistic approach and managing effectively asset data. To

support LCAM, four fundamental elements must be taken into consideration: management strategy, optimum organizational design, long term asset planning and risk management. Before deploying an ITAM solution, to discuss and define the various stages its hardware assets, it is a helpful practice to an organization. The organization should start with answering to some elementary and simple questions such as: How are they purchased?, How are they used?, How to decommission and dispose them?, etc., and when it has the answers and has identified the various stages and processes associated with their life cycle then it can start with solution implementation (Hawlett Packard White Paper, 2011). The following diagram shows an example of the different phases of the asset life cycle:



In most cases a device or asset starts as being on order or procured and then moves through the various lifecycle stages shown above until the asset is eventually disposed of or decommissioned. The difference in the color indicates which organization has physical possession of the asset within each stage. The arrows between lifecycles are the business processes that should consider to ensure that the asset database is properly updated as the result of assets change status. The above example is only one of the many examples of how an asset lifecycle diagram may look.

Typically, a hardware refresh cycle occurs every 18 months. Depending on data center size the quantity of assets that may be swapped or purchased can be enormous and keeping an accurate inventory of the newly procured hardware assets and disposed assets can be a challenge. IT asset management system gives management and ability to administrators, in an easy way, to search and obtain financial and purchasing information about a particular equipment and model or groups of equipment manufacturers. Retrieving this information can be useful when planning hardware purchases. ITAM not only tracks and manages assets that are in use and plugged in but also copes with those that are off-network. These assets are usable assets in a stock location or in inventory. Before purchasing a new hardware, the responsible coordinators can search ITAM database for assets in inventory and determine about available assets which fulfill the new equipment requests. The ability to track assets that are in inventory ensures the purchase only necessary equipment.

Managing deployed assets is in the core of ITAM capability. The entire change management process can be managed from the system. Enabling access from any web-enabled device, users can easily record moves, adds and changes. Effectively logging and recording asset history during the change management process, ensures that asset repository is kept up to date and populated with accurate device information. Retired or decommissioned assets can also be managed in ITAM. These are assets that are no longer of used but have not yet been properly disposed of or destroyed. An accurate history of these devices must be kept for compliance and audit purposes. In some cases, these assets may be retained for a certain time, to keep secure the sensitive data, until the new asset is established for secure use. In most cases retired assets must be properly disposed of before they are taken off from the books. Compliance requires that a disposed of asset is the one that has been officially wiped of data, transferred to a disposal company and the disposal company has provided an official certificate of disposal ensuring that the asset has been properly disposed of. ITAM provides a secure and accurate repository to store all disposed documentation and accurate history of the equipment throughout its entire life cycle, they can be used for reports and other purposes. Failing to IT assets manage across all their lifecycle – from acquisition to their

disposed of – proves that it is costly for businesses, puts them at risk legally, and blinds the businesses to new opportunities. The reasons why include:

- Purchasing new hardware and software is not necessary when there are existing assets available for redeployment.
- Untracked assets are lost, because the responsible employees, have left them without being required any account for them.
- The company pays lease and support contracts for assets that are no longer in service.
- The company pays excessive taxes because retired assets are still on the books.

Weak disposal procedures and documentation triggers regulatory fines and penalties.

3. IMPLEMENTATION

Building a secure distributed web application is challenging. Within distributed application, it has a lot of moving parts and making those parts to work together, in a secure fashion requires a working knowledge that spans to products and technologies. There are a lot of things that should be considered; integrating various technologies, being current with technology, and keep a step ahead of the competition. Designing a distributed application involves making decisions about its logical and physical architecture, the technologies and infrastructure used to implement its functionality. To put these effectively decisions, in a proper way, it is obviously to have a sound understanding to the business processes what the application will performs (its functional requirements), and the levels of scalability, availability, security, and maintainability required (its non functional, or operational, requirements).

3.1. Nonfunctional Specification

The company information system is implemented with the aim to create a contemporary information system by increasing the quality of service, transparency and privacy of the employees. The implemented computer system supports a multilayer architecture. There is a balance of functions in each of these layers. Flexibility and modularity are important. The built system is able to accommodate the changes, improvements, the new technologies and to minimize the impact of maintenance cost in the future. The system is able to accommodate an additional new functionality in order to meet new business practices, or to change existing practices. The system is simple to use and maintain. It is built to be used by a large number of users through the use of technologies that minimize the need for end user training. The system integrates simple procedures for routine system maintenance, monitoring and update. The development of a strategy for authentication and authorization on the distributed web applications is a challenging task. The development of a proper authentication and authorization during the early stages of application development helps in the elimination of many potential security risks. Thus, the system provides a good security techniques and easy to administer. The information that support decision-making, are accessible only for the authorized users, and responsible users and statistical specialists can find answers for their complex questions.

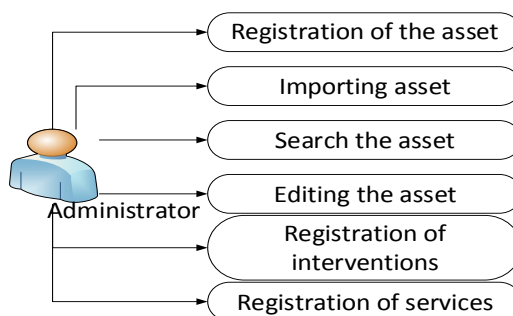
3.2. Functional Specification

In order to achieve the high satisfaction, to integrate the better opportunities, to give the better features, during the ITAM development phase, we have analyzed some similar products existing on the market and we have implemented some of the finding important features in our solution. Also, to take a scientific and technological support we analysed some scientific papers (Zhu, Song, & Song, 2009), (Hintsch & Turowski, 2013), (Shrestha, Cater-Steel, Tan, & Toleman, 2012). The important thing was that the system needs to be adapted to the specific conditions and circumstances of the organization for which the system is developed. ITAM has a few different actors, one of the actor is administrator. The dedicated functionalities of the administrator as an actor in this system are: Registration of the asset, Impor the asset, Search the asset, Edit the asset, Registration of interventions and Registration of services. Functionalities listed above are presented visually with the help of the diagram in figure 2.

3.3. Database Design

Designing a database is one of the most important parts in the development of applications. The database is the core logical structure that should identify and solve the structure problems and data storage, and also define the majority of the system logic. In our case the relational database model is used. Because the application is developed under Microsoft technologies, MSSQL Server as a system for database management is used. The required entities are defined as a result of analysis of the system activities and functionalities.

Figure 2: Functionals Diagram



3.4. Used Technologies

To build strong, robust system and flexible system extend, its very important to research and define the technology platform. To create a list of technologies that can be easily together integrate in accordance of achieving the main goal and building an end-user software application. Technologies identified as potentially the best choice for our environment are: .NET Framework 4.6, ASP.NET 5.0 (the application is developed with ASP.NET 5.0 WebForms), C # 6.0 (the programming language in which the code is written) and IIS 7.5 Web Server. Technologies that are used in development of the interface are: HTML, CSS, XML, ASP.NET Master Pages, AP.NET Styles, JavaScript, JQuery and JQuery UI Framework.

4. CONCLUSION

Management of technological equipment in an organization has never been more important than nowadays. Presentation of frequent changes makes it mandatory that every IT manager to track the IT assets of the organization in which it operates. Managing of the IT assets should not be seen only as something that "would have been nice to have", but for every institution obviously is something that "must have" for numerous reasons. So it is in the interests of any organization whether to take any steps towards the implementation of a ITAM solution.

The determination and identification of costs is a vital and integral part of the asset management process. In the past, comparison between asset alternatives was based mainly upon initial capital costs. However, asset service life consumes more resources and this must be taken into account as a cost on the ongoing operating and maintenance costs. Both initial capital costs and ongoing operating and maintenance costs must be used when performing decision-making. In summary, Life Cycle Costing (LCC) of an asset can be defined as "the total cost throughout its life including planning, design, acquisition, installation, operation, maintenance, refurbishment, disposal and support costs and any other costs directly attributable to owning or using the asset". The cost of the life cycle is a widely used methodology. In the IT asset management, it is important to determine the costs of the asset throughout their life cycle. Many different worldwide organizations that deal with research of information technology supports the fact that the implementation of a system of this nature is not just to organize the assets but it is financial very important for an organization because it reduces the costs of the organization incomes up to 30% starting from the first year of implementation.

Preparation of reports and obtaining results undoubtedly helps directly in decision-making, thus we obtain a clear view about how the assets have reacted in the past, which supports the hypothesis concerning the improvement of the strategic decision – making as a result of the implementation of the ITAM system.

The success of the ITAM system is not measured only by savings but also by the prevention of the risks which can only be achieved if stakeholders across the business commit itself to:

Plan the budget, to optimize life cycle costs of assets and to destine the expenses to acquisitions or innovation strategy;

Protect the high decision makers from ill-informed decisions on investments by engaging them to prove life cycle costs;

Protect the IT budget against software license audits while maintaining compliance;

Satisfy the business needs by investing not only in equipment but also in people and improving processes.

IT buyers need to know more about existing assets, the life cycles and competitive alternatives to new assets when they are negotiating to buy. Gartner recommends (Bona, 2013) that CEOs and their IT leadership teams need to follow five major organizing principles to create and sustain a cycle for continuous improvement: Strategize and Plan, Develop Governance, Drive Change Management, Execute and Measure and Improve.

Under the guidance of the above instructions, we can draw the conclusion that every successful project starts with the

people, processes and technology. When the system affects every part of the business, we need a leader which will harmonize people, processes and technology together in a working environment. To be successful, it is important to have a common database as a real single source, where are registered all activities happens during the asset life cycle. This will help in generating necessary reports that will provide a clear picture of the condition of the assets. Improvements should continue, so that the level of maturity to lift up on at the highest possible level. During the journey we need to move in compliance with the organization policies. For smart managers, the evolution of the ITAM system should be seen as an exciting opportunity for improvement. A healthy and pragmatic approach is needed to find the optimal practices. Finally, success comes when the strategy turns into action.

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THE POSITION AND IMPORTANCE OF THE BEHAVIORAL FINANCE TO SOLVE THE FINANCIAL PROBLEMS OF SMEs

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ABSTRACT

Purpose- The behavioral finance searches about how the decision-making mechanisms of financial directors in their mind structure are affected by the social, sensual and mental prejudgments. Since the small and medium-sized enterprises are mostly the family businesses in our country, professional approaches in the financial management of companies are not found.

Methodology- Due to being one or more than one person takes care of the decision mechanisms and the decisions are being taken as a result of the knowledge, abilities, education and experiences of the people; it is observed that the financial management functions of the companies are not used productively.

Findings- The biggest problems of small and medium-sized enterprises are in fields of finance. By this purpose, after being described the concepts in the study, the relations between these terms and literature are tried to be supported by the primary studies to achieve this purpose. The hypothesizes of the study are started to be improved by being generated the theoretic frame.

Conclusion- The research was actualized by a questionnaire form about what the financial problems of the sme are and if these problems could be solved by the behavioral finance or not. The dimensions where the behavioral finance is sufficient for solving the financial problems were determined by the result of the analyses and seen that a significant relation between the financial challenges and the behavioral finance as directly proportional.

Keywords: Behavioral Finance, Financial Management, Financial Problems of SME, SME

JEL Codes: G02; G23

1. INTRODUCTION

(The globalization makes its presence felt notably in economic, political, social and cultural fields at present (Şener, 2009). The competition between the companies increases day by day by the effects of developments in the world. The uncertainty and chaos based on the globalization affect SMEs (small and medium-sized enterprises) more in comparison with big businesses and taking the share of the market gets harder for these SMEs. The SMEs who work in an uncertain environment need to know themselves well and have an analyzing ability for connections also. The SMEs are mostly composed of the family corporations as the establishment structure; this is why they are away from a professional management approach. They can get into new markets by the traditional approaches but fail to subsist their presence in conditions of competition. The SMEs need to develop a strategy by two factors as internal and external against to the market conditions.

The internal label is its sources of finance. These resources are used to be conducted the external activities. The companies have interrelatedness circles consisting of preparation, finance, and marketing. One breakage in this circle effects all other stages. The most famous ring is finance and directly affects all functions. The external effects usually are rooted in the

environment of the corporation. Adverse conditions out of their control such as economic instability, government incentive policies, political instability and being the banking system mostly managed by large enterprises strike the SMEs (Yörük and Ban 2003). There are several studies about the financial problems and the importance of behavioral finance to solve these problems in the literature. The behavioral finance is defined as wandering from the informational market efficiency and non-rational attitudes of market actors (Ülkü, 2001).

The personality characteristics such as active, passive, fast-slow decisioning make sense as behavioral as well as refer to the behavioral dimension of the decision maker (Tufan, 2006). Studies analyzed are the structures and financial problems of SMEs, the effects of the behavioral characteristics of the decision makers on financial decisions. The non-professional management mentality of the SMEs consisting of family corporations directed the investigators to research how effective the behaviors are on the decisions given. When viewed as the conceptual framework, a lot of researches could be seen about the financial and administrative problems of SMEs. On the other hand, there are a limited number of studies on how the behaviors of decision makers are active to solve the problems. The definition of SMEs, their financial problems, behavioral finance, the Position and importance of reactions for these financial problems are analyzed in this research. The models of behavioral finance are developed to explain the market anomalies or investor attitudes when the rational models remain incapable (Glaser, Nöth, Weber, 2003). In this study we will study the literature and conceptual framework, definition of SME, the financial structure of SMEs, the financial problems of SMEs, the concept of behavioral finance and fields of behavioral science of behavioral finance. These fields are psychology, sociology, social anthropology and neurology. And then we will study hypotheses theoretic framework of the research and analysis of research data. Finally we will study the conclusion and the limitations of the research.

2. THE LITERATURE AND CONCEPTUAL FRAMEWORK

2.1. Definition of SME

The business distribution of a vast majority of developing countries consists of SMEs, and they are crucial for the economy. For the most of the small and medium-sized enterprises has the characteristics of a family corporation (family business) forms the basis of the national economy of many countries around the world (Craig, et al., 2008). There are spreading to be sustained the presence, and commercial activities of SMEs have a big share in the national economy in both Turkey and the world. The purpose of these efforts is seeking a solution for the problems of SMEs such as production, supply, investment, marketing, education, technology, logistics, personnel and corporate governance. The position and the contribution of SMEs to the total of companies are almost entire of total business volume. It is seen that the share of the SMEs in a whole enterprise network is 99,5%, employment is 63,8%, total investment is 56,5%, consisted added value is 37,7%.

The SMEs have a significant place concerning being developed and protected the national economy in competition environment based on the globalization. Imported features of SMSs are reducing unemployment, offsetting for economic and social development and complying with the rapid market changing. There are usually expressed the economic meanings of the definitions SMEs due to being used the numeric measures and the economic sizes of countries. SMEs have basic functions like marketing, finance, personnel, and management. Their social contributions are also goodish due to their features of strengthening the middle class and being local.

2.2. The Financial Structure of SMEs

The leading factor is the finance for SMEs to sustain their presence in spite of economic fluctuations and grow as well. The financial structure of small and medium-sized enterprises forms from internal and external dynamics. The internal dynamics originate in the equity capital and personal sources of an employer. At this stage, being the equity capital insufficient constitutes an impediment for the entrepreneurs and cause the failure of the corporations in the upcoming years (Aras, Müslümov, 2001). The companies make benefit of the external dynamics in cases where the internal financing sources fail to satisfy. The government promotions, various finance houses can be cited. One other significant difference of SMEs from big businesses is the lack of finance departments. Financial structures of the SMEs are completely created by the decisions of the employers.

2.3. The Financial Problems of SMEs

The source of financing is the primary problem of SMEs in Turkey. The applied researches also support this result. This is also related with the government size and trade openness which effect financial situation of small and medium sized enterprises (Şener *et al.* 2015). Deficiencies of equity capital start at establishment phase continue during its presence. The financing problems at this stage effect the continuity of the company as well as the activities may come to an end if a solution cannot be found. Small and medium-sized enterprises are established by the equity capital as structural while the financial problems manifest themselves in the establishment phase. But being the equity capital short at this stage obstructs for the entrepreneurs and causes to fail in the forthcoming years (Aras, Müslümov, 2001). The studies conducted also show that the SMEs have the problem of equity capital close down in first five years.

The SMEs face difficulties in continuing their growth and activities. Decision makers may be obliged to make benefit of external sources due to the lack of equity capital. It is not always possible to use the external sources within the economic conditions even several sources of finance are available. It is clearly seen that the share of small and medium-sized enterprises received from the real sector credits of banks is 10% (it is more than 20% according to some references) (Alptürk, 2008). The bank loans used for solving the financial problems bring high costs for the enterprises because of obligations such as high interest and collateral. The difficulty of the formalities to get credit, high interest and settlement date ratios, the severity of repayment conditions and the compelling circumstances in components of collateral becloud to take advantage of capital markets of SMEs. The other reason for the financial problems of SMEs is not to being composed of the management by professionals. They are mostly established as family companies, and the people who are the expert on finance decide on financial issues as it always has been in every stage of the business. This situation poses a problem to be understood the developments in the economy and improved new strategies. Due to the owners of the SMEs generally have technical competence, they have not enough knowledge on issues need conceptual skills like financing-accounting, personnel, and education, technology, production raw material and marketing (Müftüoğlu, 2007).

Economic instabilities, poorness of incentive policies of government and harness of reaching these sources, challenges in getting into new markets and the political uncertainties can be accepted as the main reasons for being incapable of solving the financial problems. Financial problems occurred in SMEs affect all the functions of the business. The other problems besides above are; issues to take credits, inability to use incentives, an effect of economic policy and inflation on the companies, a limited possibility of utilization of capital markets (İraz, 2005).

2.4. The Concept of Behavioral Finance

SMEs generally think that decision makers always behave rationalist and impartial. The recent searches indicate that these decision makers of SMEs who are unprofessional cannot make coherent choices and their feelings are active on these choices as well. Traditionalism and the effect of the society play a crucial role to make financial decisions. The behavioral finance is emerged by being considered several anomalies in markets stem from the human psychology or added the psychological factors to decision-making process (Tufan, 2006)

SMEs usually have the intention of the managers decide on the financial issues get real by making economic assessments and behave for the welfare of the company. But the finance economists ignored the economic losses that people have given to themselves (Bernstein, 2005).

It is seen in the researches worked that the decisions are always not real and the learned behaviors are also active. You can easily realize when you try to solve who is successful or not by what reason that the dominant factor lies behind all monies earned or lost is the course of action of investors, not luck, intelligence, high technical or fundamental analysis knowledge or extensive experience (Perşembe, 2001).

2.5. Fields of Behavioral Science of Behavioral Finance

The behavioral finance is a structure interacts with other disciplines of science. The Behavioral Finance is a new approach model supports the interdisciplinary interaction and has a larger field of study contrary to traditional methods use psychology, sociology, social anthropology and neurology besides the disciplines of an economy, finance and mathematics. Behavioral finance creates a different perspective to solve the financial problems by analyzing the individual attitudes. Within this scope, the behavioral finance tries to understand the views of financial markets by using the theories based on human behaviors derived from the sciences of psychology, sociology, and anthropology (Cornicello, 2004).

2.5.1. Psychology

The human factor is the basis of the behavioral finance. Especially the mental state of managers in SMEs are effective on their decisions. The first and modern paradigms of the psychology can be observed, controlled, tested due to being them mostly behaviorism; the internal life called inner life is a topic of psychoanalysis (Güleç, 2004).

2.5.2. Sociology

The primary goal of this discipline extends back a long time is examine the social structure, and the factors keep the person in the group and determine the changes in social life (Erdoğan, 1997). Modern sociology also investigates how the rules valid in social structure can be transferred into the economic, political and daily life. The reasons and variety of the decisions of company owners of SMEs can be specified by reviewing the sociological cases. In brief, it will be true to mention that each economic, political and social decision based on the information about sociologic surveys (Erdoğan, 1997). Moreover, the following topics are analyzed by sociology as well; how to use the results obtained by reviewing the economic and social cases in business and political life; what kind of developments happen in social structure and individual behaviors after being used these results (Erdoğan, 1997).

2.5.3. Social Anthropology

Social anthropology analyzes the social practices and cultures. It has become a science examines every kind of environment and cases have the human fact at present. Therefore, the economic events and the science of anthropology are in the investigation area of the behavioral finance. The concept of ‘economic anthropology’ means analyzing the economy and social life together. It studies the development in terms of economically by prioritizing the economic events when reviewing everything concerning the human. Much as the modern anthropology studies about simple societies at present, the anthropologists have started to work on industry, manufacturing firm and the relation of it with the community (Drake, Peter, Smith, 1990).

2.5.4. Neurology

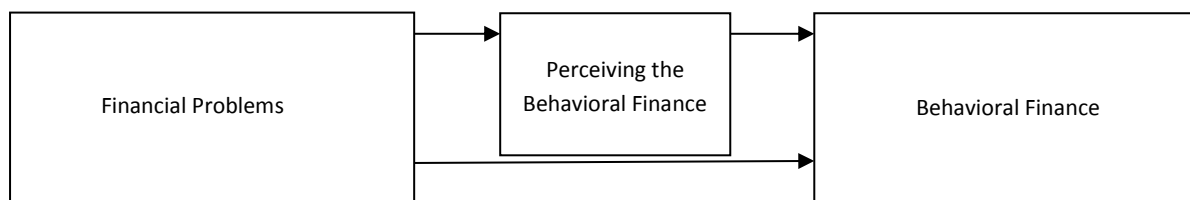
The science of neurology deals with to review the sense and behavior disorders by working together with psychology. Especially the decisions of the person after a neurologic disorder affect his/her reactions.

2.6. Hypotheses Theoretic Framework of the Research

The hypotheses developed in the study are proposed as follows;

- H₁: There is a significant and positive relation between financial problems of SME and behavioral finance.
- H₂: There is the significant and positive relationship between the solution of financial problems of SME and the behavioral finance.
- H₃: There is an important mediator variable role of perceiving behavioral finance between financial problems and behavioral finance.

Figure 1: Theoretic Framework of the Research



Variables in Study

- Dependent Variable: Behavioral Finance
- Independent Variable: Financial Problems
- Mediator Variable: Perceiving the Behavioral Finance

3. METHODOLOGY OF RESEARCH

The universe of this study consists of the SMEs in organized industrial zones in Istanbul. Data of this study was collected by the survey method. Gathered information in the survey by the questions prepared by Five Points Likert Scale besides open and close ended questions.

Purpose of the research: The financial problems of SMEs in organized industrial zones in Istanbul are placed on the top. Planned to measure the effects of behavioral finance for the solution process of financial problems of SMEs. The field survey was conducted by using survey method to that end. The survey is actualized on totally 1383 SMEs by 95% of confidence and 5% sampling error.

Scope of the research: There are not the sufficient number of studies about the effects of behavioral finance on solving the financial problems of SMEs, this is because this research is actualized. A survey study is done to determine to what extent of the behavioral finance is effective in solving the financial problems of SMEs. This study involves 1383 SMEs in organized industrial zones in Istanbul. There is not discriminated between sector distribution of SMEs and their legal status.

The sample of the research 1383 of totally 2986 SMEs made a comeback for the survey forms sent (the ratio of comeback for the surveys is 46%).

Data collection method of the research is that the survey method is used in this study. The data obtained is analyzed by using SPSS 22.0 program. The statistical methods such as Cronbach's Alpha (reliability), Chi-Square Test and frequency distribution are used as well. Totally 41 questions were asked the answers were evaluated in five points Likert scale to measure the effects of behavioral finance on solution process of the financial problems of SMEs.

4. ANALYSIS OF RESEARCH DATA

The hypotheses of the article are accepted by chi-square test by being considered if there is a relation between reliability analysis, frequency, and two categorical variables. The results are below.

Table 1: Reliability Test of Behavioral Finance Questions

Cronbach's Alpha	N of Items
,805	17

The result of the reliability test of the survey involves 17 questions and prepared by the Likert scale is 0,805. This result is accepted as 'good' based on the measurement criteria of Cronbach's Alpha test (0.7 ≤ a < 0.9).

Table 2: Frequency - Who Takes the Financial Decisions of the Company?

	Frequency	Percent	Valid Percent	Cumulative Percent
Company Owner	1250	90,4	90,4	90,4
Accounting	42	3,0	3,0	93,4
Valid Administrative District	43	3,1	3,1	96,5
Financing Department	48	3,5	3,5	100,0
Total	1383	100,0	100,0	

Table 2 - It is observed when the frequency values are analyzed that the financial decisions are mostly taken by the company owner the SME and this decision making ration is so high (90,4%). The thought of can not be passed to modern company management from classical management is dominant while they show a tendency to the approach of 'behavioral finance' by effecting from the external factors for their decisions

Graphic 1: Who Takes the Financial Decisions of the Company?

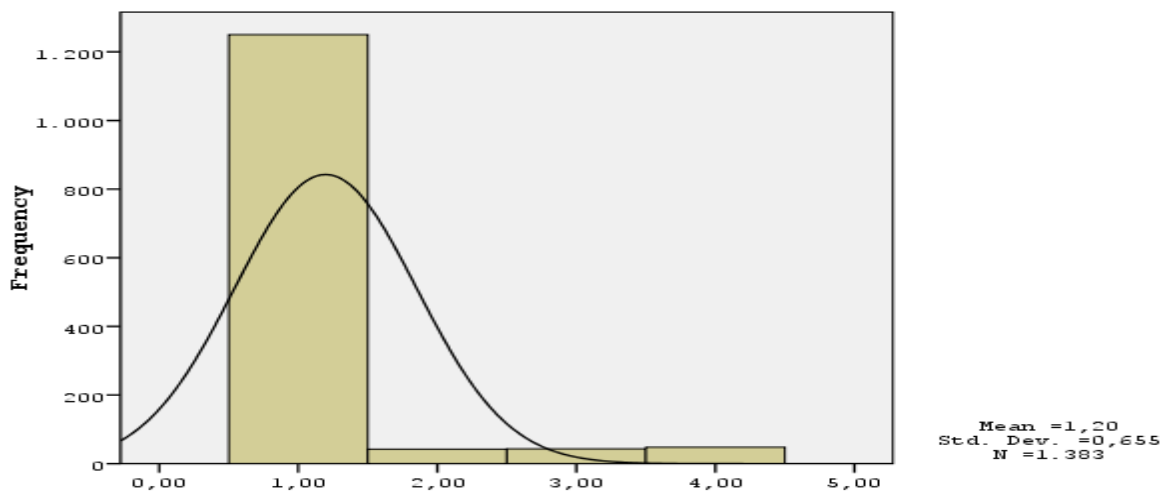


Table 3: Chi-Square Tests-Who Takes the Financial Decisions of the Company?

* There is the effect of behavioral finance on the financial problems

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24,596(a)	9	,003
Likelihood Ratio	30,775	9	,000
Linear-by-Linear Association	16,624	1	,000
N of Valid Cases	1383		

a 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,30

Table 3-According to chi-square analysis, the significance value is found as smaller than $0,003 < 0,005$ when looking if there is a relation between variables or not in distribution in the hypothesis called 'there is the effect of behavioral finance on financial problems' and the question of 'who takes the financial decisions of the company'. In this case, the hypothesis called 'H1: There is the significant and positive relation between financial problems of SME and behavioral finance' is accepted.

Table 4: Frequency - The Effect of Behavioral Finance on Financial Problems

	Frequency	Percent	Valid Percent	Cumulative Percent
Absolutely Agree	705	51,0	51,0	51,0
Agree	586	42,4	42,4	93,3
I'm o the fence	82	5,9	5,9	99,3
Disagree	10	,7	,7	100,0
Total	1383	100,0	100,0	

Table 4-According to the hypothesis accepted (H1: There is a significant and positive relation between financial problems of SME and behavioral finance), 705 (51,0%) of the totally 1383 participators answered as 'agree,' 586 of them responded as 'agree' (42,4%). This result means the survey participants support the H1 hypothesis by 93,4% ratio.

Graphic 2: Behavioral Financing has an impact on Financial Problems

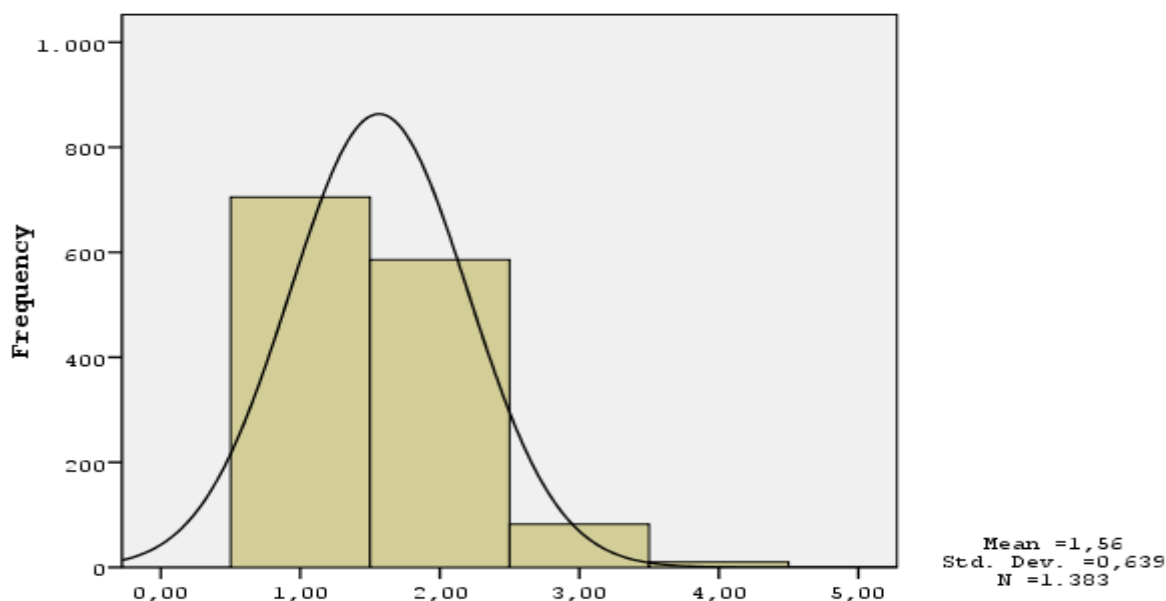


Table 5: Chi-Square Tests-Who Takes The Financial Decisions of the Company

* The Behavioral Finance is Effective in Solving the Financial Problems.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	43,231(a)	9	,000
Likelihood Ratio	24,776	9	,003
Linear-by-Linear Association	9,351	1	,002
N of Valid Cases	1383		

a 4 cells (25,0%) have expected count less than 5. The minimum expected count is ,39.

Table 5-The significance value is found as $0,003 < 0,005$ when looking if there is a relation between variables in the distribution of the questions of 'who takes the financial decisions of the company' and 'the behavioral finance is effective in solving the financial problems.' In this case, the hypothesis called 'H2: There is the significant and positive relation between the solution of financial problems of SME and the behavioral finance' is accepted.

Table 6: Frequency - The Behavioral Finance Is Effective In Solving the Financial Problems

	Frequency	Percent	Valid Percent	Cumulative Percent
Absolutely Agree	163	11,8	11,8	11,8
Agree	1040	75,2	75,2	87,0
Valid I'm o the fence	167	12,1	12,1	99,1
Disagree	13	,9	,9	100,0
Total	1383	100,0	100,0	

Table 6-It is observed when being analyzed the answers of the question of 'the behavioral is effective in a solution of the financial problems' that, 1040 of the participators explained as 'agree' (11.89%) and 163 of them answered as 'absolutely agree' (75,2%). This result means that a rate of 87.0% of survey participators support H₂ hypothesis

Graphic:3 Bar Chart-The Behavioral Finance is Effective in Solving the Financial Problems

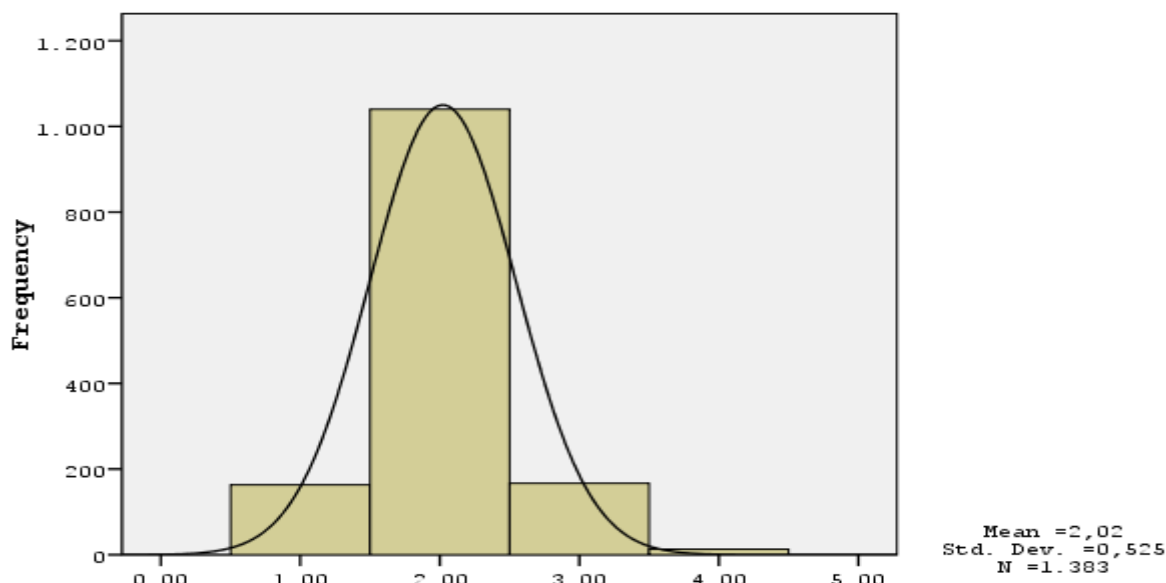


Table 7: Chi-Square Tests-Who takes the financial decisions of the company?

* There is a positive relation between solution of the financial problems and perceiving the behavioral finance.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28,363(a)	9	,001
Likelihood Ratio	30,616	9	,000
Linear-by-Linear Association	24,545	1	,000
N of Valid Cases	1383		

a 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,73.

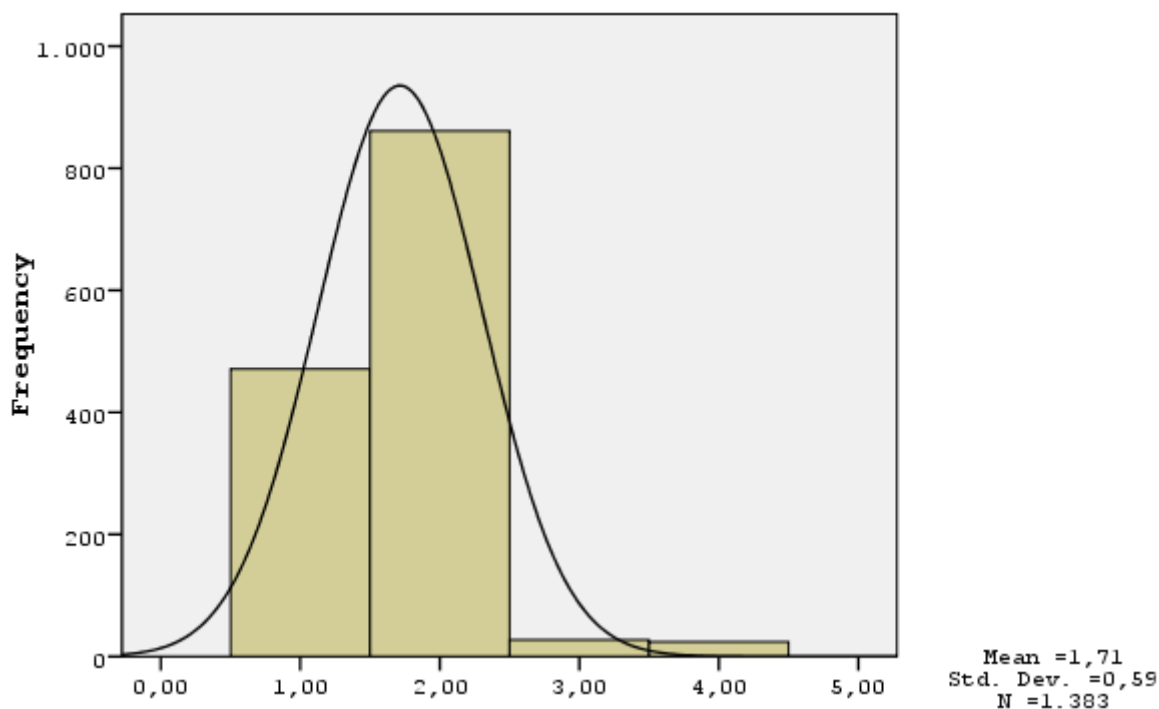
Table 7-The significance value is found as less than 0,001<0,005 when looking if there is a relation between variables in the distribution of the questions of ‘who takes the financial decisions of the company’ and ‘There is a positive relationship between the solution of the financial problems and perceiving the behavioral finance.’ In this case, the hypothesis called ‘H3: There is a meaningful mediator variable role of recognizing behavioral finance between financial problems and behavioral finance’ is accepted.

Table 8: Frequency - There is a meaningful mediator variable role of perceiving behavioral finance between financial problems and behavioral finance

	Frequency	Percent	Valid Percent	Cumulative Percent
Absolutely Agree	471	34,1	34,1	34,1
Agree	861	62,3	62,3	96,3
Valid I’m o the fence	27	2,0	2,0	27
Disagree	24	1,7	1,7	24
Total	1383	100,0	100,0	1383

Table 8-It is observed when being analyzed the answers of question of ‘There is a meaningful mediator variable role of perceiving behavioral finance between financial problems and behavioral finance’ that, 861 of the participators answered as ‘agree’ (34,1%) and 471 of them responded as ‘absolutely agree’ (62,3%). This result means that a rate of 96,4% of survey participators support H₃ hypothesis

Graphic 4: Bar Chart-* The Perception of Behavioral Finance is a mediating variable between Financial Problems and Behavioral Finance



5. CONCLUSION

A survey includes the questions on financial decision makers, financial problems and behavioral finance was conducted in 2986 companies in organized industrial zone in İstanbul to learn the position and importance of the behavioral finance for solving the financial problems of SMEs. It is received feedback from 1383 SMEs. With reference to the analyzed in our survey that the company owners make the financial decisions and generally there are not finance departments in the companies as well. The SMEs mostly work with the banks as the financial institutions and prefer to use credit for the financial problems. The SMEs who used credit to solve the financial problems mentioned that they have difficulties about high loan rates and to find collateral. Insufficient incentives, the severity of the legislation and lack of knowledge to take advantage of grant programs can be expressed as the challenges to find resources. In the next parts of the research, questions on the financial structures of SMEs and behavioral finance are asked.

6. LIMITATIONS OF THE RESEARCH

Our research is limited to determining the position and importance of behavioral finance for solving the financial problems of SMEs in organized industrial zone in İstanbul. Due to this survey was conducted for a part of SMEs in organized industrial zone in İstanbul, the similar surveys need to be carried out for SMEs in organized industrial zones in other countries as well.

The qualification of the statistical methods used to process the data is limited to the answers of the participants. Findings obtained are stated by perception, attitude and personal characteristics of the participants in the sample group. It is thought when viewed from this aspect that more significant findings can be obtained in the case of being done the study for larger sample groups with various processes.

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RELATIONSHIP BETWEEN SCHOOL ADMINISTRATORS' COMPETENCE BELIEFS ON INNOVATION MANAGEMENT AND THEIR LEADERSHIP BEHAVIORS

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ABSTRACT

Purpose- In this study, it was aimed to reveal the relationship between school principals' competence beliefs on innovation management and their leadership behaviors.

Methodology- Teachers working at the high schools located in Üsküdar district of Istanbul province constituted the sample of the study that was carried out with the relational screening method, one of quantitative research methods. In the study, data were collected with the school principals' leadership style inventory and innovation management at schools scale and analyzed using the SPSS program. In the analysis of the data, descriptive statistics such as arithmetic mean and standard deviation were calculated, and the t-test, one-way analysis of variance (ANOVA), Scheffe's test, Pearson Product-Moment Correlation Coefficient and simple linear regression analysis were used.

Findings- According to the research results, it was observed that teachers' competence beliefs on innovation management were not significantly different between male and female teachers by the gender variable and age variable. On the other hand, the organizational culture and structure sub-dimension scores were in favor of teachers aged 40 and older. It was observed that they were not significantly different between teachers with different seniority levels by the seniority variable and between teachers with different educational levels by the educational status variable.

Conclusion- It was determined that innovation management competencies consisting of four different sub-dimensions had a significant predictive effect on transactional leadership behaviors consisting of two sub-dimensions and transactional management sub-dimensions consisting of five sub-dimensions.

Keywords: School administrator, innovation management, leadership behaviors

JEL Codes: G10, G32

1. INTRODUCTION

When innovation is considered as producing new, useful and creative ideas and putting them into practice, it is possible to define innovation in education as "a process and outcome that direct innovation and creativity in the system by taking into account all elements of the educational process, develop creativity, apply contemporary innovations and developments in the educational processes within the administration and supervision of the educational institution, transform practical knowledge into practice and control its outputs". Within the scope of innovation, educational organizations such as schools, universities and teaching centers may offer applications such as new products and services such as a new curriculum, new processes in the delivery of services, the use of information and communication technologies in e-learning, the use of information and communication technologies in communication with students and families. These new applications are trying to develop-improve the educational service in one way or another. Accordingly, innovations in education should be regarded as the 'developments (improvements)'.

The desire of organizations to achieve their objectives effectively has brought out the need for leadership. Behavioral scientists have tried to determine which characteristics, skills, behaviors and power supplies a leader, who has achieved the group objectives and can affect the follower, has. At the beginning of the twentieth century, leadership studies focused on the characteristics approach. There were very few topics that were more controversial than leadership traits and qualities. These theories were based on the claim that the qualities of leaders were different from those who were not leaders. An attempt to compare the characteristics of successful and unsuccessful leaders was made in trait theories. The distinctive traits of leaders were revealed in these comparisons made. Effective leaders were thought to be different from ineffective leaders in terms of their interest, ability and personality traits.

School leaders are leaders of change and innovation in schools. The approach of school principals to innovation management and the leadership behaviors that they demonstrate accordingly affect the teachers positively or negatively. Positively affected teacher plays a key role in student happiness and success. Based on this general framework, to reveal the relationship between the competence beliefs of school administrators on innovation management and their leadership behaviors can help to increase the educational quality of schools. It is thought by the researcher that the competence beliefs of school administrators on innovation management may increase as their leadership behaviors increase. Thus, it is possible to make deductions on the development of innovation management and transformational leadership behaviors. With this approach, in this study, it was aimed to reveal the relationship between school principals' competence beliefs on innovation management and their leadership behaviors.

2. LITERATURE REVIEW

2.1. Leadership and Transformational Leadership

School leadership is the act of being able to affect and direct the others to accomplish the common objectives in relation to the school (Leithwood and Reihl, 2005). School leadership requires taking responsibility for setting goals, ensuring adaptation and unity, a value-based management, creating opportunities, modeling and inspecting (Sergiovanni, 1996). In the literature, school leadership can be addressed within the context of different types of leadership. Instructional Leadership, managerial leadership, transformational leadership, moral and authentic leadership, distributed leadership, teacher leadership, system leadership and contingent leadership types are intensively discussed types of leadership (Bush & Glover, 2014). It can be said that the efforts to educate students as more qualified individuals are at the base of the fact that school leadership is addressed within the context of different leadership types.

The responsibilities and duties of school administrators have undergone changes throughout the historical process. While school administrators were more focused on technical and humanitarian aspects in organizations in the 1950s, they were less focused on studies on educational quality and student outcomes. However, the subsequent developments in the school environment made it necessary to focus more on the educational aspect along with the administrative management of the school (Sergiovanni, 2001). Increased expectations from the school, as well as the changes in areas different from the school, have been effective on the emergence of managerial behaviors aimed at providing the educational needs of students. In this process, firstly school administrators had the role of principal teacher. Then, they passed to the role of institutional administrators. However, dropout rates at schools, cultural problems, the belief that every student was capable of learning and expectations for accountability began to increase. The transition to school leadership, which is a sense of leadership aimed at increasing the quality in the nature of education, was ensured with these processes (Wilmore, 2002). On the other hand, the concept of school leadership underwent a change towards "*educational administration*", "*educational management*" and "*educational leadership*" (Gunter, 2004). It is observed that the concepts of educational leadership and school leadership are used in place of each other in the literature (e.g., Leithwood and Reihl, 2005; Waters, Marzona and McNulty, 2003). It can be said that the fact that school administration began to be discussed within the scope of school leadership, and the increase in expectations about student learning resulted from the rapid reflection of changes in different areas on the school community. Furthermore, it can also be stated that school leadership has continued to be discussed through different perspectives.

There are some leadership behaviors that school leaders should show. Sergiovanni (1984) states that school administrators should have technical, humanitarian, educational, symbolic and cultural leadership skills. According to Bolman and Deal (1991), school administrators' skills can also be discussed within the frame of organizational models called human resources, bureaucratic, symbolic and political model. Effective school leaders carry out the sense of leadership and administration collectively, act as experts who ensure the development of teachers and students, have values and vision for school development and put forward studies supporting the development of teachers (Harris, Day and Hadfield, 2003). On the other hand, according to the results obtained from different studies, school leaders have some effective common leadership behaviors. These are creating a vision for the school, curriculum programming and evaluation, making good use of school resources, establishing a culture of support at school, providing an environment in which communication is open, recognizing the school community, being change agents, sharing the authority, dealing with administrative issues effectively, ensuring the professional development of teachers and creating high expectations (Krüger, 2009; Leithwood

and Montgomery, 1982; Marzano, Waters and McNulty, 2005; Murphy, Elliot, Goldring and Porter, 2010; Robinson, Hohepa and Lloyd, 2007; Robinson, Lloyd,& Rowe, 2008). Based on the results of these studies, student learning and school development-oriented studies are expected to be discussed within the scope of school leadership. In this regard, it can be stated that it is important for school leaders to have the qualifications to comprehend the system as a whole, such as vision, program studies, cooperation among stakeholders for the realization of the technical nature of the school.

The leadership behaviors of school administrators are discussed in the present study (Ata, 2015). In this context, the leadership behaviors that can be exhibited are as follows: (i) to create a learning vision and to carry out studies for practice, (ii) to develop a school culture and curriculum for the development of student learning and school staff, (iii) to review the administration and operational procedures to provide a positive learning environment, to create an environment in which the authorities are shared, and to provide resource, (iv) to cooperate with the school's different stakeholders and to establish and maintain productive relationships with them, and to use them for school, (v) to behave to ensure the academic and social success of each student by acting in an ethical manner, and to give particular importance to democratic values, (vi) to present a number of new leadership strategies by regarding the social, political, economic, legal and cultural variables in the social structure as a whole. Based on these standards and other research findings above, it can be stated that effective school leadership behaviors refer to the behaviors of school administrators to increase the quality of education.

Burns (1978) proposed the transformational and transactional leadership theories, based relationships between the leader and the follower on a moral principles system and developed rules regarding the nature of morally good leadership. Values such as responsibility, honesty, truthfulness and keeping word on which transactional leadership is based refer to the instrumentality of an action. Transformational leadership is related to objective values such as freedom, justice, and equality (Ciulla, 1995). Bass (1999) further developed the transformational and transactional leadership approaches. He determined the dimensions of transformational leadership as idealized influence (charisma), inspirational motivation, intellectual stimulation and individualized consideration (Bass & Avolio, 1993; Bass & Steidlmeier, 1999). These dimensions are briefly described as following:

Idealized influence: Includes identifying with the leader and the vision expressed by him, gaining a sense of common mission and purpose and being a role model for ethical behaviors.

Inspirational motivation: Includes declaring high expectations, using effort-oriented symbols and explaining significant objectives in simple ways.

Intellectual stimulation: Allows subordinates to question conventional behavior and thought patterns and create new perspectives on the problems that have also been presented previously.

Individualized consideration: The leader focuses on meeting the needs of each staff, acts as an individual, takes care of them, tries to develop their potential and guides them (Avolio, Bass & Jung, 1999; Karip, 1998).

The first and most important qualification of a transformational leader is to have a vision. Vision is the mental picture of a desire and the potential situation of the organization in the future. Vision includes a specific mission and detailed objectives. The second qualification of a transformational leader is to understand human needs. Leaders have to know the complexity of human motivation so that they can get the support of followers. The third obligatory qualification of a transformational leader is to have strong personal values. The starting point of transformational leadership is the values and beliefs of the leader. The main purpose of the transformational influences of the leader is to change the values, beliefs, and attitudes of followers (Conger, 1999; Kuhnert & Lewis, 1987). Transformational leaders take advantage of unchangeable universal values as a guide while formulating the ideal vision for the organization (Mendonca & Kanungo, 2007) because vision arises as a result of values (Erdoğan, 2004; Özden, 2002). The moral principles and integrity of the leader bring legitimacy and credibility to vision (Mendonca, 2001). This allows identification with the leader and the vision expressed by him.

The changes experienced nowadays require schools to review and reorganize especially the education-training process, organization and management and school environment relations (Gümüseli, 2001). In the face of these changes, the most appropriate leadership style for schools' restructuring initiatives is transformational leadership (Leithwood, 1992, 1994) because this leadership style aims innovation in organizations, devotes authority to teachers and supports them (Marks & Printy, 2003). Leithwood, who adapted the transformational leadership models developed in out-of-school contexts to the school environment, determined transformational school leadership as six dimensions and ranked as following (Jantzi & Leithwood, 1996; Leithwood, 1994; Leithwood & Jantzi, 2005): (i) Determining and defining a vision: Defines, explains and develops new possibilities for the school and aims to inspire others with the vision of the future. (ii) Strengthening the acceptance of group objectives: It aims to develop cooperation between the members and to help working together to achieve the common goals. (iii) Providing individual support: It is the behavior aiming to be concerned with the needs and feelings of members and to show respect to them. (iv) Intellectual stimulation: Encourages members to re-examine some of

the assumptions about the work they do and think about how they can fulfill it. (v) Creating an appropriate model: Shows exemplary behaviors for members to follow the values they have.(vi) High-performance expectations: Behaviors that show excellence, quality and high-performance expectations from the members.

2.2. Innovation and Innovative School Management

Innovation is to suggest and present new ideas successfully or to ensure the formation of something in a new way. It is to transform ideas into useful and applicable commercial products or services (Adair, 2008). According to Osborne and Brown (2005), innovation is putting new components into the public service in the form of new information, a new organization and/or new management or procedural skills. Conti, Coon, Lazenby and Herron (1996) define innovation as a successful implementation of creative ideas within an organization.

Innovation is a new or significantly improved product (goods or services) or process in applications within the business, in workplace organization or external relations, and the realization of a new marketing method or a new organizational method. The minimum requirement for innovation is that the product, process, marketing method or organizational method are new (or significantly improved) for the company. This includes the products, processes, and methods that companies have developed for the first time and that they have adapted from other companies or organizations (Oslo Manual, 2005).

Organizations need innovation management practices to be able to sustain their existence in the knowledge era in which it has now become a necessity to adapt to change and innovations quickly. In addition to sustaining their existence, it is extremely important for organizations to adapt knowledge to innovative processes so that they can gain a competitive advantage in the ever-changing conditions of global competition. The fact that organizations can adapt to the innovations in their surrounding and transform their environments with innovative activities simply depends on the fact that they organize their organizational structures based on innovation and can realize new product and service designs (Öğüt, Aygen and Demirsel, 2007). Innovation is a knowledge-based process and also the production and sharing this knowledge, and its transformation into new technology, products/services, and processes. However, it is also not possible to classify innovation areas only with technology, product, and service because it is observed that innovations are realized in a very wide range from social projects to education, from new sources of raw materials to markets and organizational structures (Uzkurt, 2008).

Innovation and continuous development are based on creativity and learning skills of the organization. It has become unavoidable for organizations to establish a successful innovation management process in organizations and to make it permanent. However, establishing a successful innovation process depends on a number of factors, not just one factor in organizations, because success varies depending on many factors. It can be considered that an innovative organizational culture, a leader who has understood the importance of innovation, and employees who have made innovation the most important work principle are the main factors among them. Leading organizations in their area of activity continuously create innovation and aim at new objectives with these innovations created. It is the duty of organizational leaders to put into practice this innovation created in every department of the organization and to create the conditions of its acceptance (Gülşen and Gökyer, 2010).

Organizational leaders need to be sufficient in many dimensions to be able to manage innovation. These dimensions can be categorized as Input Management, Innovation Strategy, Organizational Culture and Structure, and Project Management (Bülbül, 2012). Input Management includes resources required for innovation, and financial, human and physical resources (Adams et al., 2006). Organizational Culture and Structure have a key role in the innovation management as organizational culture affects all other factors and is also affected by the changes in other factors. Innovative organizational culture includes a shared vision, has an effect facilitating the innovations and allows the development of new ideas that can be exactly assessed (Adams et al., 2006). In addition to culture in the organization, structures and processes should also be appropriate to support innovative thinking and actions (Pollock, 2008). Project Management includes the process of selection, implementation, and evaluation of innovation projects (Adams et al., 2006).

School administrators who carry out innovation practices at school should encourage teachers to participate in decisions. School administrators should plan and implement the process of participation of teachers in decisions in a good way. When it is not well planned, teachers' time will be wasted. Teachers exposed to such a situation may develop attitudes which may negatively affect the innovation process along with their consideration that they are participating in an ineffective decision. Such a situation will negatively affect the organizational culture; especially new members will be disappointed. In this case, a negative socialization process will be experienced since a situation that should not happen has been exhibited. New members will be those who maintain the former culture by willingly or unwillingly learning the things that should not be done but done. For all these reasons, teachers' participation in decisions regarding innovation taken at school should be ensured, and their sensitivity areas should be extended (Özdemir and Cemaloğlu, 2000).

Educational administrators should follow the changes in their own field and, on the other hand, should meet society's expectations from educational organizations as a result of the rapid changes. Nowadays, studies are also being carried out in the field of educational administration and school management as in many fields in Turkey and in other countries. These studies shed light on the theoretical and practical dimension of educational administration. Educational administrators should have a vision and mission. Administrators with the power to predict the future (vision) and mission (to create critical tasks) start from the facts of their organization. Such educational administrators also acknowledge that the vision can be realized in a strong school culture environment and by exhibiting leadership traits (Can, 2002).

School administrators should be aware of the need to undertake new roles in the face of globalization, information technology, scientific attitude and behavior, organizational learning and total quality management. The school principal is obliged to determine the mission and vision of the school, to develop the collaborative environment and the sense of governance at school, to think about "how to act" in order to achieve them as a whole and to create the school climate accordingly. All of these mean that the educational administrator of our age is responsible for organizing and sustaining his/her school as a "learning organization" to continuously improve the current situation (Okutan, 2003).

Based on this general framework, to reveal the relationship between the competence beliefs of school administrators on innovation management and their leadership behaviors can help to increase the educational quality of schools. It is thought by the researcher that the competence beliefs of school administrators on innovation management may increase as their leadership behaviors increase. Thus, it is possible to make deductions on the development of innovation management and transformational leadership behaviors. In this context, answers to the following questions were sought in this study:

1. From the viewpoint of teachers, what are school principals' competence beliefs on innovation management?
2. Is there a significant difference between school principals' competence beliefs on innovation management according to gender, type of school where they work, branch, educational status, age, and seniority?
3. From the viewpoint of teachers, what is the relationship between the competence beliefs of school administrators on innovation management and their leadership behaviors?
4. Is there a relationship between innovation management dimensions and leadership behaviors?
5. Is innovation management a predictor of leadership behaviors?

3. DATA AND METHODOLOGY

3.1. Method

This study that aims to determine the relationship between the competence beliefs of school administrators on innovation management and their leadership behaviors is a descriptive study in the relational screening model.

3.2. Population and Sample

Teachers working in Üsküdar district of Istanbul province in the 2015-2016 academic year constituted the population of the study. 320 teachers working at high schools, who participated in the application on a volunteer basis, whom the researcher reached and from whom he could receive permission, constituted the study group of the research.

3.3. Data Collection Tools

Two different measurement tools were used in this study. While the "*school principals' leadership styles inventory*", which was developed by Leithwood and Jantzi (1991) and adapted into Turkish by Saĝnak (2010), was used to determine the transformational leadership style of school principals, the "*innovation management at schools scale*" developed by Bülbul (2012) was used to determine their competence beliefs on innovation management.

School principals' leadership styles inventory: The inventory consists of a total of 40 items, 29 of which define transformational leadership and 11 of which define transactional leadership. Regarding the sub-dimensions of transformational leadership, vision development/inspiring consists of 6 items, creating model consists of 4 items, developing group objectives consists of 5 items, providing support consists of 6 items, intellectual stimulation consists of 5 items, and having high expectations consists of 3 items. Regarding the sub-dimensions of transactional leadership, management by exceptions consists of 5 items, and conditional award consists of 6 items. The tool is a 5-point Likert-type scale in the form of strongly disagree (1), disagree (2), neutral (3), agree (4), totally agree (5).

Innovation management at schools scale: The teacher's form of the "innovation management at schools scale" developed by Bülbul (2012) was used as the second data collection tool in the study. The scale consists of four dimensions and 32 items. Regarding the dimensions of the scale, project management consists of 15 items, organizational culture and structure consist of 6 items, innovation strategy consists of 6 items and input management consists of 5 items. All the items

in the scale are scored in the form of "1-Strongly Disagree", "2-Partially Agree", "3-Moderately Agree", "4- Strongly Agree", "5-Totally Agree". There is no reversely scored item in the scale. The total score can be obtained from the scale. The high score that can be taken from the whole scale and from its sub-dimensions indicates that teachers' perceptions of school administrators' innovation management competencies are at a high level.

3.4. Analysis of the Data

In the study, descriptive statistics such as the arithmetic mean and standard deviation of the answers given by teachers to the "Innovation Management at Schools Scale" were firstly calculated to reveal the competence beliefs of school administrators on innovation management. Then, whether the competence beliefs of school administrators on innovation management varied by some personal and professional characteristics was examined in the study. While the t-test was used in the comparisons made according to the teaching level and gender, the one-way analysis of variance (ANOVA) was used in the comparisons made according to seniority. Scheffe's test, one of multiple comparison tests, was used to determine the source of the difference for F values that were found to be significant. The 0.05 significance level was taken as a basis in testing the differences between group mean scores. In the study, the following intervals were used in the evaluation of the weighted average scores: "1.00–1.79: Strongly disagree", "1.80–2.59: Partially agree", "2.60–3.39: Moderately agree", "3.40–4.19: Strongly Agree", "4.20–5.00: Totally Agree".

In conclusion, in the analysis of the data, the Pearson product-moment correlation coefficient was used to determine the relationship between the competence beliefs of school administrators on innovation management and their leadership behaviors. The simple linear regression analysis technique was used to determine whether transformational leadership behaviors predicted the innovation management.

4. FINDINGS AND DISCUSSIONS

4.1. Descriptive Statistics

The demographic informations of the survey participants such as gender, educational status, professional seniority and age are shown in the following tables.

Table 1: Descriptive Data of the Participants (N=320)

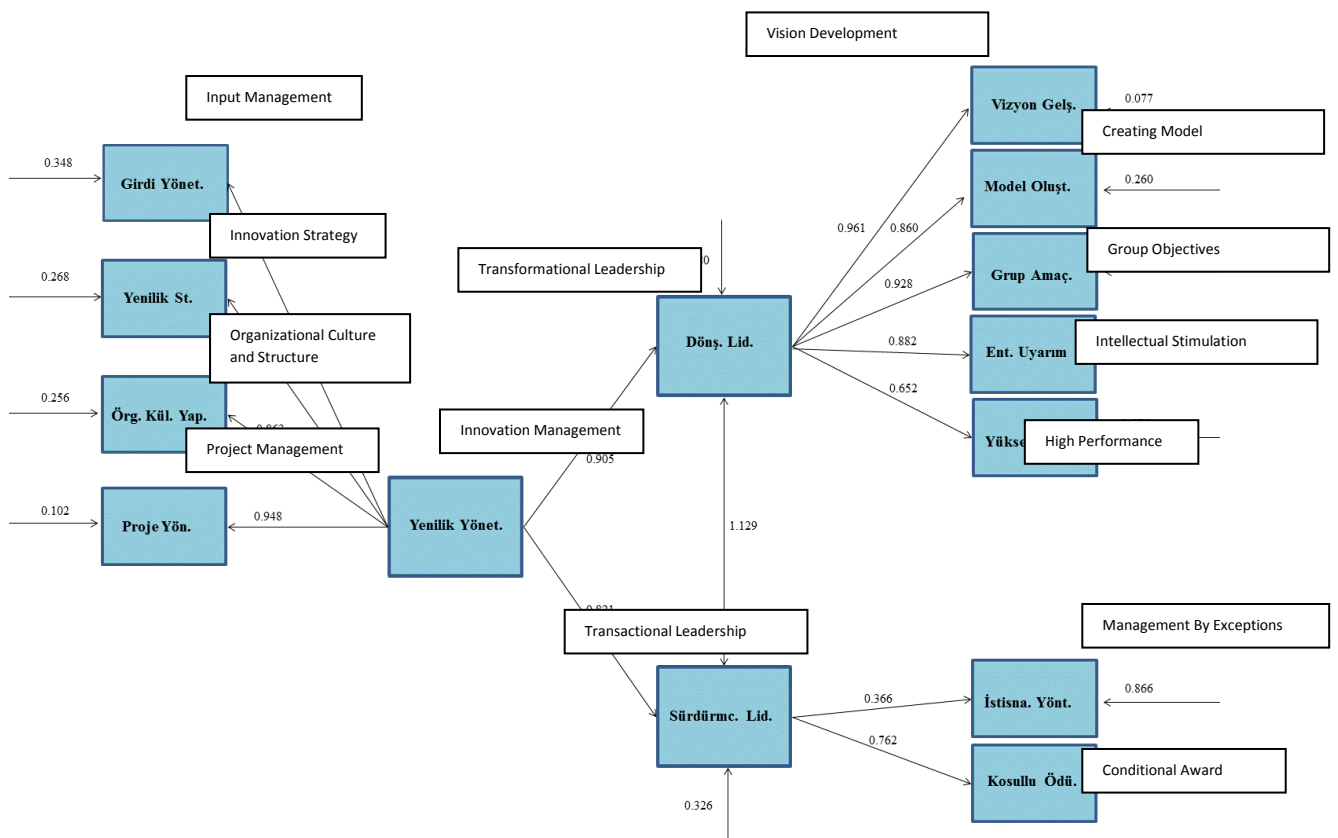
Variable	N	%
Gender		
<i>Female</i>	207	64.7
<i>Male</i>	113	35.3
Educational Status		
<i>Undergraduate</i>	232	72.5
<i>Postgraduate</i>	83	25.9
<i>Other</i>	5	1.6
Professional Seniority		
<i>0-3 Years</i>	32	10
<i>4-7 Years</i>	39	12.2
<i>8-11 Years</i>	57	17.8
<i>12-15 Years</i>	45	14.1
<i>16-19 Years</i>	47	14.7
<i>20 years and over</i>	100	31.3
Age		
<i>40 Years and below</i>	176	55
<i>41 Years and above</i>	144	45

The descriptive statistics of the teachers who participated in the study are presented in Table 1. Accordingly, 207 of them (64.7%) were female, and 113 of them (35.3%) were male teachers. When the educational status was examined, it was observed that 232 of the participants (72.5%) had undergraduate education, and 83 of them (25.9%) had post-graduate education. According to the professional seniority, it is observed that the numbers of teachers in different educational seniorities are close to each other. Finally, it is observed that 176 of the participants (55%) were under 40 years of age and 144 of them (45%) were aged 40 and below.

4.2. Path Analysis

The path analysis was performed to determine the predictive effect of the competence beliefs of school administrators on innovation management on the leadership behaviors of principals. Innovation management was defined as the function of four different sub-dimensions. These sub-dimensions were defined as Input Management, Innovation Strategy, Organizational Culture and Structure and Project Management. Leadership sub-dimensions were defined by the transactional leadership and transformational leadership sub-dimensions. The findings of the path analysis performed are presented in Figure 1.

Figure 1: Path Analysis Showing the Relationships Between Innovation Management Competences and Leadership Behaviors



In the model created, it was envisaged that school principals' innovation management competencies would have predictive effects on transactional leadership and transformational leadership and that there would be an interaction between transactional leadership and transformational leadership. The fit of this model was tested using the Mlus 6.12 statistical package program. According to the findings obtained, this model created was found to be well adapted to the data ($\chi^2 = 128.55$, $df = 41$, $p=0.000$; $RMSEA = 0.066-0.098$; $CFI=974$; $TLI=0.965$; $SRMR=0.033$).

It was also found out that all of the path coefficients in Figure 1 were significant. It was observed that innovation management competencies consisting of four different sub-dimensions had significant predictive effects on transactional leadership behaviors consisting of two sub-dimensions and on transactional management sub-dimensions consisting of five sub-dimensions.

4.3. Other Findings

In this part of the research, the tables of descriptive statistics are shown according to the answers given by the teachers on the Innovation Management Belief Scale and on the sub dimensions of it.

In addition, the statistical tables of the analysis of teachers' innovation management competence beliefs by some variables such as gender, age, seniority and educational status are shown.

Table 2: Descriptive Statistics of the Innovation Management Belief Scale

	$\bar{X}_{min.}$	$\bar{X}_{max.}$	\bar{X}	X_{sd}
Input Management	5	25	17.37	4.88
Innovation Strategy	6	64	21.88	6.38
Organizational Culture and Structure	6	64	22.21	6.49
Project management	15	98	54.42	14.52

The descriptive statistics of the Innovation Management Belief scale are presented in Table 2. Accordingly, the scores obtained by teachers in the Input Management sub-dimension vary between 5 and 25 ($\bar{X}= 17.37, X_{sd}= 4.88$). The scores obtained by teachers in the Innovation Strategy sub-dimension vary between 6 and 64 ($\bar{X}= 21.88, X_{sd}= 6.38$). The scores obtained by teachers in the Organizational Culture and Structure sub-dimension vary between 6 and 64 ($\bar{X}= 22.21, X_{sd}= 6.49$). The scores obtained by teachers in the Project Management sub-dimension vary between 15 and 98 ($\bar{X}= 54.42, X_{sd}= 14.52$).

Table 3: Examination of the Competence Beliefs of Teachers on Innovation Management According to the Gender Variable

	<i>t</i>	df	<i>p</i>		N	\bar{X}	X_{sd}
Input Management	0.791	318	0.429	Female	207	17.53	4.71
				Male	113	17.08	5.17
Innovation Strategy	0.805	318	0.421	Female	207	22.10	6.64
				Male	113	21.49	5.87
Organizational Culture and Structure	0.144	318	0.885	Female	207	22.25	6.07
				Male	113	22.14	7.23
Project Management	0.598	318	0.550	Female	207	54.78	14.49
				Male	113	53.76	14.60

The independent samples t-test was performed to examine whether the Competence Beliefs of Teachers on Innovation Management varied by the gender variable. The findings obtained are presented in Table 3. According to the findings obtained, all of the sub-dimension scores did not differ significantly between female and male teachers.

Table 4: Examination of the Competence Beliefs of Teachers on Innovation Management According to the Age Variable

	<i>t</i>	df	<i>p</i>		N	\bar{X}	X_{sd}
Input Management	0.749	318	0.454	40 Years and below	17.55	4.50	0.749
				41 Years and above	17.14	5.30	
Innovation Strategy	0.288	318	0.774	40 Years and below	21.97	6.04	0.288
				41 Years and above	21.77	6.78	

Organizational Culture and Structure	0.045	318	0.964	40 Years and below	22.22	6.91	0.045*
				41 Years and above	22.19	5.96	
Project Management	0.435	318	0.664	40 Years and below	54.73	14.44	0.435
				41 Years and above	54.02	14.63	

The independent samples t-test was performed to examine whether the Competence Beliefs of Teachers on Innovation Management varied by the age variable. The findings obtained are presented in Table 4. According to the findings obtained, the Input Management, Innovation Strategy and Project Management sub-dimension scores did not differ significantly between teachers in different age groups. On the other hand, it was found out that the Organizational Culture and Structure sub-dimension scores were in favor of teachers aged 40 and older ($p < 0.05$).

Table 5: Examination of the Competence Beliefs of Teachers on Innovation Management According to the Seniority Variable

		Squares T.	df	Squares O.	F	p
Input Management	Intergrup	111.69	5	22.34	0.938	0.457
	Intragrup	7479.05	314	23.82		
	Total	7590.75	319			
Innovation Strategy	Intergrup	226.53	5	45.30	1.115	0.352
	Intragrup	12756.19	314	40.62		
	Total	12982.72	319			
Organizational Culture and Structure	Intergrup	273.38	5	54.68	1.304	0.262
	Intragrup	13168.16	314	41.94		
	Total	13441.55	319			
Project Management	Intergrup	924.964	5	184.99	0.876	0.497
	Intragrup	66296.92	314	211.14		
	Total	67221.89	319			

The independent samples t-test was performed to examine whether the Competence Beliefs of Teachers on Innovation Management varied by the seniority variable. The findings obtained are presented in Table 5. According to the findings obtained, all of the sub-dimension scores did not differ significantly between teachers with different seniority levels.

Table 6: Examination of the Competence Beliefs of Teachers on Innovation Management According to the Educational Status Variable

	t	df	p		N	\bar{X}	X_{sd}
Input Management	0.447	313	0.655	Undergraduate	232	17.49	4.94
				Postgraduate	83	17.21	4.66
Innovation Strategy	0.275	313	0.784	Undergraduate	232	21.99	6.53
				Postgraduate	83	21.77	5.99
Organizational Culture and Structure	0.867	313	0.387	Undergraduate	232	22.47	6.59
				Postgraduate	83	21.75	6.17
Project Management	0.4	313	0.689	Undergraduate	232	54.73	14.33
				Postgraduate	83	53.98	15.12

The independent samples t-test was performed to examine whether the Competence Beliefs of Teachers on Innovation Management varied by the educational status variable. The findings obtained are presented in Table 6. According to the

findings obtained, all of the sub-dimension scores did not differ significantly between teachers with different educational levels.

5. CONCLUSION

It was observed that the competence beliefs of teachers on innovation management did not vary significantly between female and male teachers by the gender variable, and they also did not vary significantly by the age variable; on the other hand, the Corporate Culture and Structure sub-dimension scores were in favor of teachers who were 40 years old and older. Furthermore, it was observed that they did not vary significantly between teachers with different seniority levels by the seniority variable and they did not vary significantly between teachers with different levels of education by the status of education variable.

Furthermore, it was also observed that teachers' perceptions of the innovation management competencies of school administrators were the highest in the *project management* sub-dimension, were moderate in the *innovation strategy* and *organizational culture-structure* sub-dimensions and low in the *input management* sub-dimension.

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