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Assoc. Prof. Gülten HERGÜNER
Chief Editor

Dear readers, precious scholars.,

In this issue of our magazine, we have included a total of 03 research and application studies. In this issue of the journal, we would like to express our sincere thanks to the authors who support us with their valuable studies. We would also like to express our thanks and appreciation to the precious arbitration committee members who never leave us alone and enable this issue to meet with our dear readers with their worthful efforts and contributions, as they have done in each issue. We also greatly appreciate the efforts of the editorial board, system management, and the precious scholars taking place in the editorial board for making an effort in the background of the publication of this journal. Dear scientists, we still continue our applications and works to enable our journal to be in different indices. Our announcements about the evaluation of the studies published in our journal to be assessed by different readers and literatures also still continue. We have also speeded up our communication studies and the delivery of the journal and its issues to scientists and scholars all around the world. The next issue of our journal will reunite with the readers in june, 2018. In the hope of reuniting and meeting with you again with our next issue, we sincerely wish you, dear readers and precious scholars of the science world happiness, peace, goodness, and days full of science. Peace be with you, yours respectfully.

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INTERNATIONAL PEER-REVIEWED JOURNAL OF HUMANITIES AND ACADEMIC SCINENCE

DIFFERENCES IN FINANCIAL LITERACY IN TERMS OF GENDER IN TURKEY (1)

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Abstract: Aim: The result has emerged from that financial literacy is an important subject for individuals to make financial decisions after the financial crises. There are many different definitions in the literature on the scope of financial literacy. In this study, big three questions that take financial literacy as basic financial concept knowledge and ability to make simple calculations and the correct answers given to these questions are used. In the survey, the question "is there any difference about the basic financial literacy levels among the students in terms of gender?" **Method**: The study is an empirical research. As a data collection tool surveys were used and 819 valid surveys were obtained. Population of this research consists of the students at Bilecik Seyh Edebali University located in Bilecik. Chi square analysis was used to detect the differences in the financial literacy levels of the students who participated in the research in terms of gender. **Result**: In our study, 51.34% of male participants and 32.81% of female participants responded correctly to the initial two questions. All three questions answered correctly by 32.51% of men and 20.31% of women. **Conclusion**: In this context, when the basic levels of financial issues such as the time value of money, inflation and diversification are examined, it is concluded that male participants are more informed than female participants. When the financial literacy levels of participants at the first and last year level were examined, there was no statistically significant difference between the students in terms of financial literacy levels.

Key Words: Financial Literacy, Financial Education, Financial Knowledge

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INTRODUCTION

Individuals make different financial decisions throughout their lives or have different financial behaviors. Many subjects such as sharing of income between expenditure and saving, the evaluation of funds in different investment instruments, risk management, in what quantity of debt and how to debt constitute of financial decisions. This ensure success in these decisions depends largely on the individual's financial knowledge, in other words on the level of financial literacy.

Financial literacy was first described by John Adams in the United States in 1787 as credit in financial markets, various calculations and overcoming widespread confusion situations. After that, there have been many developments in financial literacy that has been repeatedly used and expressed differently by researchers, organizations and governments (Garg and Singh, 2018: 174).

In the study Remund (2010: 291) focused on the definition of financial literacy in the United States by examining research after 2000. As a result of the examination, it is stated that there is no common area of measurement and functioning of financial literacy in research and education programs.

Mandell (2008: 181) observed that higher financial literacy scores were associated with financial behavior. In addition, it has been argued that the lack of basic financial literacy led to inadequate financial decisions.

Lusardi and Tufano (2009: 1) focused on "debt literacy" as an important component of financial literacy and designed a questionnaire on the subject. Debt literacy refers to the ability to make simple decisions about debt contracts, and to apply basic knowledge about interest on daily financial preferences. The relationship between debt literacy and financial decision making has been examined.

Bucher-Koenen, Lusardi, Alessie and Van Rooij (2017: 256-257) argues that there is a theoretical model that explains the accumulation of financial literacy, and that these models are derived from differences in financial literacy differences in utility and cost of financial information acquisition. In addition, the use of the same financial literacy questions among countries allows researchers to identify similarities in the financial information in different institutional, cultural, social and economic settings.

Three questions were asked to assess the financial knowledge of Americans, including basic concepts of participation, economy and finance, simple calculations of interest rates

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and inflation as expressed in everyday transactions, and risk diversification (Lusardi and Mitchell, 2011: 3).

In the study, financial knowledge and planning are interdependent, and women with high financial literacy are more likely to be planners and successful planners. The study shows that the financial literacy rates of elderly women in the USA are low and the majority of women do not plan retirement (Lusardi and Mitchell, 2008: 413).

On the other hand, OECD comprehensively describes the concept of financial literacy as “knowledge and understanding of financial issues and risks, the ability to apply this kind of knowledge and understanding to make effective decisions in various financial conditions, to increase motivation and confidence, to provide financial well-being for individuals and society” (OECD, 2014: 32).

In the OECD studies, three main dimensions of financial literacy are; financial knowledge, financial behavior and financial attitude In this respect, financial literacy is an important life skill for the individual and is expressed as all of the financial awareness, knowledge, skills, attitudes and behaviors necessary to be able to make the right financial decisions and to get individual financial refund (Oecd, 2005, 2013, 2014; Infe, 2011; Atkinson and Messy, 2012: 43-46).

Researchers use frequently conceptual models of financial literacy proposed by the OECD and Lusardi (Garg and Singh, 2018: 175). As financial literacy, some of the questions that include calculations of simple interest, inflation and risk diversification and understanding of different financial concepts, and some of the studies that examine the relationship between correct answers and gender are summarized below.

LITERATURE

There have been many studies on the world when researches on financial literacy are examined. The majority of these studies are evaluated on the basis of gender terms. In the United States, the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation has researched over 1,500 adult individuals by telephone. More than half of the participants were unable to respond to the interest rates and the inflation questions correctly, and only one in three responded correctly to these three questions. As a result; it turns out that a large part of Americans do not know the basic financial concepts (Lusardi and Mitchell, 2011: 3-5).

Almenberg and Säve-Söderbergh (2011: 12) reported that only 14 percent of women and 29 percent of men responded correctly to all three questions in their study of 1,300 participants in financial literacy in Sweden. It turns out that the percentage of financial literacy for women in Sweden is not very low due to the high participation rates of Swedish women in the labor force. For this reason, it has been found that women use some of their public pension fund and occupational retirement plans as much as men, and that women are as active as or more active than men in managing retirement savings. A possible case of gender differences in financial literacy is that; women who do not make economic decisions within the household.

In Crossan, Feslier and Hurnard (2011: 9) work on 850 participants in New Zealand, only 16 percent of women and 32 percent of men answered all three questions correctly. On the other hand, similar results were obtained in the study conducted in Italy and 17.04% of the women and 29.51% of the men answered correctly in three questions (Fornero and Monticone, 2011: 23).

The financial literacy level in Japan is low. The majority of the participants in Japan have given correct answers to the question of interest as it was in our study, but more than half of the participants have failed to give the correct answers to the question of risk. Japanese households' noticeable feature did not respond by saying that many of them did not answer or do not know the answer. In particular, 13%, 29% and 56% of Japanese participants stated respectively that they do not know the answer to the question of interest, inflation and risk. In addition, women perform worse than men in answering questions. 20.6% of the women and 34.3% of the men answered correctly to the three questions (Sekita, 2011: 10).

Agnew, Bateman and Thorp (2013: 8) has reported, women responded that men are relatively fewer than men in Australia. 34% of the women and 54% of the men answered correctly to the three questions. For the question of interest rate, the answers are quite consistent among the genders, the differences are more apparent for the questions of inflation and risk. In addition, women are more likely to respond with "I do not know". In the total sample, more than half of the women were directed to the "I do not know" option in at least one question, while only 31% of the men answered at least one question "I do not know".

Women performed worse than men in three questions when the research in Canada is examined. For every question, women chose the "I do not know" option more than men, as the rate of correct answers is lower for women. It is seen that this ratio is especially high for the risk diversification question and 40% of the women answer "I do not know". 32.85% of the women and 51.36% of the men answered correctly in the three questions (Boisclair, Lusardi, Michaud, 2014: 11-12).

In the Finnish study, the rate of those who answered the three questions was significantly higher in men. It is seen that women have lower financial knowledge than men in Finland, both in the basic questions and in the wider context when we watch out gender differences. 21.7% of females and 44% of males gave right answers to three questions. In addition, while 18% of women choose at least one "I do not know" answer, only 10% of men have at least one "I do not know" answer (Kalmi and Ruuskanen, 2015: 9-10).

Arrondel, Debbich and Savignac (2014: 7) in their work in France; male participants tend to be more likely to respond correctly to each question. Indeed, 36% of men (compared to 26% of women) answered correctly to all questions. Moreover, women say that they do not know the answer according to men. This situation is widespread, but it reflects the fact that men are overreacting and women are less likely to respond if they are not sure. The highest difference between men and women was observed in the question of inflation, and men (67%) answered this question more correctly than women (56%).

Men are superior to women in all questions when the study in Switzerland is examined. They found that 62% of men responded correctly to all questions, but only 39% of women (Brown and Graf, 2013: 7).

Male participants in the study responded more correctly than female participants when the research conducted in Italy was examined. Therefore, 29% of men and 17% of women correctly answer all questions. On the other hand, although most individuals are more familiar with inflation and stocks than with compound interest, they do not have knowledge of basic financial concepts (Fornero and Monticone, 2011: 6-7).

According to the research in Romania; similar findings in other countries, older participants, women and less educated people are less likely to respond correctly to financial literacy questions. Therefore, 5.4% of men and 2.4% of women correctly answer all questions. It also shows that individuals who remember economic turbulence during the transition period of the economy have a higher level of financial literacy (Beckmann, 2013: 6-7).

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FINANCIAL LITERACY RESEARCH in TURKEY

It is great importance to educate qualified human resources in finance field. Turkey has a significant growth potential in all areas of financial services. When considered that the financial sector in our country is still in the stage of growth, it is foreseen that financial education will contribute to the growth of the financial sector as well as to economic growth and social welfare. In the field of financial education in our country were carried out on separate platforms through institutions with different duties and responsibilities until 2014.

In the year 2014, under the leadership of the Ministry of the Undersecretariat of Treasury, ***Financial Stability Committee*** was formed consisting of the president of the Central Bank of the Republic of Turkey, Banking Regulation and Supervision Agency, the Capital Markets Board and the Savings Deposit Insurance Fund.

In June 2014 by the Committee, the Financial Education Action Plan and the Financial Consumer Protection Action Plan were enacted. The main purpose is to spread the financial products and services to all segments, to include the people who are outside of the financial system to the system, to increase the quality and utilization of existing products and services. In this framework, the strategic goal is to increase access to financial products and services and increase the use of financial products and services through increased awareness and awareness (Genelge, 2014: 2).

The Central Bank of the Republic of Turkey is determined to be responsible organization for “Increasing the awareness of savings and encouraging the use of the Kurus (Turkish Currency)” and “Informing the media employees about the financial issues that they need”, and they are carrying out various activities and activities in this direction within the scope of “Financial Access, Financial Education and Financial Consumer Protection Strategy and Action Plans”. It is also aimed to take effective precaution to protect the financial consumer (Genelge, 2014: 14).

The Central Bank of Republic of Turkey also contributed to and participated in the OECD International Financial Education Network (INFE) in the international field. One of the INFE meetings twice a year was held in Istanbul in May 2014 in this framework (Online). In the short term, it is expected that the economic prosperity of the individuals increase, the investor base expand, financial sector qualified labor force, and financial markets

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grow and work more effectively along with the dissemination of financial education within the framework of the Financial Education Action Plan .

In the middle and long term, the economy of the country is expected to become more stable and social welfare increase. The Financial Education Action Plan covers the entire population, groups such as family and women, primary and secondary education, universities and academia, public and private sector employees, financial sector, disabled people, elderly people, unemployed young people and those who are in important point in their life such as marriage, divorce consist of the target groups of financial education (Genelge, 2014: 8).

In our country, responsible banking for the protection of financial consumers has a functional distribution within the framework of capital markets, insurance and insurance-related services and payment systems and there is no exclusive administrative structure for the protection of the financial consumer. In this framework, there is a need for coordination and cooperation between organizations with authority and responsibility for the protection of financial consumers and is need for these organizations to increase the human, physical and financial resources allocated for the protection of the consumer and active participation in international platforms on the subject (Genelge, 2014: 19).

Some of the researches that have a possible relationship between financial literacy and gender in our country are summarized below.

In Ergün, Şahin and Ergin (2014: 852-855) study, the financial knowledge of university students was researched by survey method. The survey used in related literature have been researched. As a result, the questionnaire developed by (Lusardi, 2008) was used. The survey aimed to measure the knowledge of the students about the basic interest, inflation, the function of the stock exchange, the investment fund, the interaction between interest rates and bond prices, stock market diversification, risk levels of financial instruments, long term inflation, asset diversification. In addition, in the same survey, the demographics revealed the students' gender, the grade level, the grade point average (GPA), parents' educational level and average of monthly household income. As a result of the research; the genders of the students were found to be effective on the basic inflation knowledge and the main inflation knowledge was not independent of the gender factor.

Barış (2016: 22-28) also included university students who had economics and finance

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courses. In the questionnaire, 16 financial knowledge questions were asked in order to determine the financial literacy levels of the students. As mentioned by Van Rooij, Lusardi and Alessie (2011) the first 5 questions are basic level and 11questions are advanced financial literacy questions. As a result of the analysis, it was determined that there is a significant relationship between gender and financial literacy. In terms of percentage, 52.4% of male students and 21.7% of female students have financial literacy levels. While 13,6% of female students have high financial literacy level, this rate is 12,3% for male students. There was no correlation between other demographic variables and financial literacy.

Temizel and Bayram (2011: 80-82) is aimed at determining the awareness of certain concepts related to students' financial knowledge and financial literacy levels and what their behaviors are in their study. Statistical analyzes were made on 433 questionnaires. When chi-square analysis is performed to determine whether the variables such as gender, age, and class are related to success perception in financial situation management, there is no relationship between these variables and success perception.

In the study of Başarır and Sarıhan (2017: 151-153) were collected data through questionnaires to measure the financial literacy levels of the students and to examine the factors affecting these levels. 407 students were sampled by random sampling method. The first seven chapters of the eight-part questionnaire contain questions aiming to measure the level of financial literacy. The last part of the questionnaire contains the demographic characteristics of the students and their expressions about their participation in the financial system. When the results are considered according to gender; it is seen that male students have achieved a success rate of 60% and female students have achieved a success rate of 57%. However, female students are more successful than male students in terms of insurance and financial subjects. As a result of the analysis, it is seen that there is a significant difference between male and female students' financial literacy achievement levels ($p<0,05$). Male students' financial literacy achievement levels (%60,82) are higher than female students (%57,37).

In the study of Coşkun (2016: 2256), there are 17 questions about financial issues. These questions consist of awareness of financial products, ownership status of these products, information acquisition and decision making preferences in selection of these products, basic financial calculations and concepts. As a result of the study, it was observed that the

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demographic characteristics of the students did not affect the financial literacy level.

The aim of the research by Baysa and Karaca (2016: 114-121) is to reveal the financial literacy levels of individual, commercial and agricultural bank clients and which group is more financial literate. Based on the analysis results; it has been found that financial literacy levels of bank customers are low. In addition, the level of financial literacy in the customers who are in the commercial group is high, while it is the lowest in the customers who are in the agricultural group.

Yılmaz and Tunce (2017: 319-320) aim to measure the financial literacy of students in their research and to determine whether there is a relationship between demographic characteristics of students and financial literacy level. In addition, it was researched whether there is a meaningful difference between financial literacy level among students who use and do not use financial instruments such as credit card, private pension system and internet banking. There was no significant relationship between the demographic characteristics of the students and the financial literacy levels according to the class, education type, education level of mother and father. Students who use financial instruments such as credit cards and internet banking are found to have higher financial literacy levels than other students.

METHOD

The financial literacy questionnaire developed by Bucher-Koenen et al. (2017) and applied in the Financial Industry Regulatory Authority (FINRA) in the United States, a bank and Tilburg University in Netherlands and in the Munich Aging Center in Germany and in many other countries were used to determine the basic financial literacy, consisting of three questions. In order to assess financial literacy, participants were asked three basic questions about economic and financial concepts, which are expressed in everyday terms, which need to understand simple interest calculations, and the functioning of inflation and risk diversification. These questions are given in **Appendix-1** and **Appendix-2.**

The survey formed within the scope of the study consists of two parts. In the first section, participants were asked questions such as gender, faculty, class, etc., while in the second part, questions were made to determine participants' financial knowledge levels.

The Purpose and Theoretical Model of Research

The study is an empirical research. In the survey, the question "Is there any differ-

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ence about the basic financial literacy levels among the students in terms of gender?" Based on the literature, the theoretical model for the determination of the financial literacy levels of students is as follows,

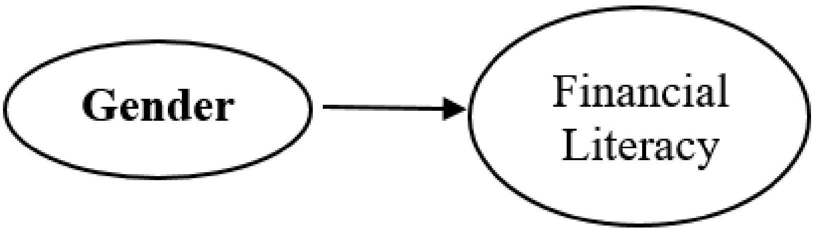

Figure 1. Theoretical model

H_1: *There is a statistically significant difference in the level of basic financial knowledge of students in terms of gender.*

Population of this research consists of the students at Bilecik Seyh Edebali University located in Bilecik. As a data collection tool surveys were used and 819 valid surveys were obtained. There are also some limitations for his research. The application of the research at the Bilecik Seyh Edebali University and the use of the survey method only in obtaining the data constitute of the main limitations of this research. The fact that only the students who respond to the questionnaire at the university is composed of the students is another limitations of the research. The fact that the work is carried out within a certain period of time also constitutes of the limit of the research.

FINDINGS

The findings of demographic characteristics such as gender, graduated high school, faculties etc. are all shown in Table 1 below.

The number of students participating in our research is 819 and, as seen in Table-1, 50.5% are male, 47.1% are female students. A large ratio of my research participants, 42.5% of them are studying at the Faculty of Economics and Administrative Sciences. When the educational status is examined, 38.5% of the participants were graduated from Anatolian High School and 33.6% of them were graduated from the other language. In addition, 42.6% of the participants are in 1st year; 37,7% of the students are in 4th year at university.

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Table 1. Frequencies

		Frequency (n)	Rate (%)
Gender	Male	414	50,5
	Female	386	47,1
	Unanswered	19	2,3
	Total	819	100
Faculty	The School Of Applied Science	119	14,5
	Faculty of Economics and Administrative Sciences	348	42,5
	Faculty of Science and Letters	132	16,1
	Faculty of Engineering	162	19,8
	Unanswered	58	7,1
	Total	819	100
Educational Status	Science High School	14	1,7
	Social Science High School	9	1,1
	Anatolian high school	315	38,5
	Trade Vocational High School	75	9,2
	Girls' vocational high school	45	5,5
	Technical High School	48	5,9
	Other	275	33,6
	Unanswered	38	4,6
	Total	819	100
Class	First year	349	42,6
	Last year	309	37,7
	Unanswered	161	19,7
	Total	819	100

When the answers given to first question *"Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have*

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in the account if you left the money to grow?" in the survey are examined, 72.4% of the 793 participants answered correctly.

However, when we analyze the responses in terms of gender, the male participants are more likely to respond correctly to the first question than female. So, there is a statistically significant difference between male and female in terms of the responses given to the question.

Table 2. Gender-Based Financial Literacy Levels

Question 1	**Male%**		**Female%**		**Total%**	
>102 TL	330	80,7%	244	63,5%	574	72,4%
=102 TL	23	5,6%	45	11,7%	68	8,6%
<102 TL	26	6,4%	34	8,9%	60	7,6%
I don't know	23	5,6%	42	10,9%	65	8,2%
I refuse to answer	7	1,7%	19	4,9%	26	3,3%
Total	409	%100	384	%100	793	%100
Chi^2 Test: chi^2: 31,405 p-value: 0,000 df: 4						
Question 2						
More than today	59	14,4%	73	19,0%	132	16,6%
Exactly the same as today	44	10,8%	55	14,3%	99	12,5%
Less than today	232	56,7%	163	42,3%	395	49,7%
Don't know	55	13,4%	68	17,7%	123	15,5%
Refuse to answer	19	4,6%	26	6,8%	45	5,7%
Total	409	%100	385	%100	794	%100
Chi^2 Test: chi^2: 16,513 p-value: 0,002 df: 4						
Question 3						
True	103	25,1%	104	27,1%	207	26,1%
False	217	52,9%	192	50,0%	409	51,5%
Don't know	64	15,6%	68	17,7%	132	16,6%
Refuse to answer	26	6,3%	20	5,2%	46	5,8%
Total	410		384		794	

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Chi² Test: chi²: 1,587 p-value: ,662 df: 3						
Cross Questions						
Question 1 and 2	210	62,1%	126	37,3%	336	100%
All of them	133	62,4%	78	36,6%	211	100%
None of them	9	31%	20	69%	29	100%
At least one “I do not know”	168	54,9%	138	45,1%	309	100%
All “I do not know”	7	38,8%	11	61,2%	18	100%
Question 1 and 2	210	51,34%	126	32,81%	336	
All of them	133	32,51%	78	20,31%	211	
None of them	9	2,2%	20	5,2%	29	
At least one “I do not know”	168	41,07%	138	35,93%	309	
All “I do not know”	7	1,71%	11	2,86%	18	

When the answers given to second question *“Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, with the money in this account, would you be able to buy…”*in the survey are examined, 49.7% of the 794 respondents answered correctly. However, when examined in terms of gender, male are more likely to respond correctly to the second question than female. There is a statistically significant difference between male and female in terms of the answers given to question 2. In this context, similarly to question 1,

male participants are more mastered on interest and inflation than female participants. When the answers to the second question “I do not want to answer” and “I do not know” are examined; there is no great difference between male and female.

When the answers given to third question “Buying a single company stock usually provides a safer return than a stock mutual fund. Do you think the following statement is true or false?” in the survey are examined, 51.5% of 794 respondents answered correctly. However, there is no statistically significant difference between the male and female participants in terms of the answers given to question 3. In our study, 51.34% of male participants and 32.81% of female participants answered correctly the first two questions.

Chi square analysis which is an analysis method that operates on frequency distributions, is used in order to see the differences in the level of financial literacy in terms of the gender of the students participating in the research. In this context, while male participants responding to questions 1 and 2 in the survey was 62.1%; this rate for female participants is decreasing to 37.3%. When the participants who answered correctly to all questions are examined, 62.4% were male and 36.6% were female participants. In addition, 7.4% of the participants did not respond correctly to any of the questions. Only 9 of the men and 20 of the women answered all the questions wrongly.

DISCUSSION

When studies on financial literacy are examined, it turns out that a large part of Americans do not know simple financial issues. More than half of the participants were unable to respond to the interest rates and inflation questions correctly, and only one in three responded correctly to these three questions. Men are more likely to answer financial literacy questions than women (Almenberg and Säve-Söderbergh, 2011; Fornero and Monticone, 2011; Crossan et al., 2011; Sekita, 2011; Agnew et al., 2013). For each question, the rate of correct answers is lower among women than men. For example, 55% of men and 38% of women responded correctly to interest and inflation questions. Moreover, 38% of men and only 22% of women responded correctly to three questions (Bucher-Koenen et al., 2017: 259).

Swedish women answered less as “I do not know” than men. This also shows that women are aware of the lack of financial knowledge. The high participation rates of Swedish women in the workforce indicate that women have knowledge of financial literacy. In Japan, the level of financial literacy is low. In Japan, most of the participants in the research have been able to give correct answers to the question of interest as we did in our study, but more than half of the participants failed to give the correct answers to the questions. Japanese households’ multiplier feature did not respond by saying that many Japanese participants did not answer or do not know the answer. In New Zealand, the financial literacy level of men is lower than women. In studies in Australia, women answered fewer questions than men. While the responses of the interest rate are fairly consistent across genders, the differences are more apparent for inflation and risk questions. It is concluded that there are similarities between women in Australia and women in Sweden.

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In Finland, rate of participants who answered correctly to three questions are higher on males. When we examine gender differences, it has been seen that women have lower financial knowledge than men in Finland, both in the basic questions and in the wider context.

In France, studies have shown that male participants tend to be more likely to respond correctly to each question. In Switzerland, the results of our study and previous studies confirm the difference between the genders in financial literacy. According to the research in Italy; male participants responded more correctly than female participants. Similar to research findings in other countries, older participants, women, and less educated respondents in Romania responded the least correct answer to financial literacy questions. Men have a relatively higher percentage than women in all questions.

In the researches in our country; In Ergün et al. (2014), it has been determined that inflation knowledge is not independent of gender factor. Başarır and Sarıhan (2017) found that male students and female students had a significant difference in financial literacy achievement levels and male students' financial literacy achievement levels (60,82 %) were higher than female students (57,37 %). However, in other studies, there was no significant relationship between financial knowledge and financial literacy in terms of gender.

CONCLUSION

Within the context of this research, three questions created by using financial basic concepts similar to the international literature and the answers to these questions one by one, one by one correctly, "refuse to answer" and "I do not know" are analyzed according to male and female participants. Similarly, the distribution of participants responding to the first and second questions by gender, responding to all questions, or responding as "I do not know" has been examined. When we examined the researches in our country, we did not meet any studies with the results in this context. For this reason, these findings in the context of the research are compared with the international literature.

In this context; in this study, similar to the international literature, when examining the basic levels of female participants in financial matters such as time value, inflation and diversification; male participants are more informed than female participants. Similar to the first question, this research has reached the conclusion that male participants are more dominant in terms of interest and infla-

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tion than female participants. When the level of financial knowledge of the participants at the first year and last year was examined, there was no statistically significant difference between the financial knowledge levels of the students.

Men have been seen to play an active role in managing future savings plans, borrowing money from banks, controlling monthly household purchases, and managing savings. The reason for the differences in financial literacy is women who do not make economic decisions within the household. The research has resulted that men are more cautious in Turkey than women, and that the responsibility for the economic livelihood of the whole family is based on men.

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TÜRKİYE'DE CİNSİYETE GÖRE FİNANSAL OKURYAZARLIKTA FARKLILIKLAR

Öz: Giriş: Finansal okuryazarlık, bireyler için önemli bir yaşam becerisi ve doğru finansal kararlar verebilmek ve bireysel finansal refaha kavuşmak için gerekli finansal farkındalık, bilgi, beceri, tutum ve davranışların tümü olarak ifade edilmektedir. Finansal okuryazarlık terimi ve gereksinimi ilk kez finansal piyasalardaki kredi, çeşitli hesaplamalar ve yaygın olarak yaşanan karışıklık durumlarının üstesinden gelebilmek olarak dile getirilmiştir. Bundan sonra finansal okuryazarlık konusunda birçok gelişme yaşanmış ve finansal okuryazarlık terimi, farklı araştırmacılar, kuruluşlar ve hükümetler tarafından tekrar tekrar kullanılarak, farklı şekilde ele alınmıştır (Garg and Singh, 2018: 174). Ekonomik İşbirliği ve Kalkınma Örgütü (OECD), ise kapsamlı bir şekilde finansal okuryazarlık kavramını "finansal konular ve riskler hakkında bilgi ve anlayış, çeşitli finansal koşullarda etkin kararlar almak için bu tür bilgi ve anlayışı uygulama becerisi, motivasyon ve güveni artırmak, bireylerin ve toplumun finansal refahını sağlamak ve ekonomik yaşama katılımını arttırmak olarak tanımlamıştır"(OECD, 2014). Finans alanında donanımlı insan kaynaklarının yetiştirilmesi büyük önem arz etmektedir. Finansal hizmetler sektörünün bütün alanlarında, Türkiye'nin oldukça önemli bir büyüme potansiyeli bulunmaktadır. Ülkemizde finansal sektörün henüz büyüme aşamasında olduğu dikkate alındığında, finansal eğitimin hem finansal sektörün sağlıklı büyümesine, hem de ekonomik büyüme ve toplumsal refaha önemli katkı sağlayacağı öngörülmektedir. Finansal eğitim alanında ülkemizdeki çalışmalar 2014 yılına kadar farklı görev ve sorumluluklara sahip kurumlar üzerinden ayrı platformlarda yürütülmüştür. 2014 yılında Hazine Müsteşarlığının bağlı olduğu Bakanın başkanlığında, Hazine Müsteşarı ile Türkiye Cumhuriyet Merkez Bankası (TCMB), Bankacılık Düzenleme ve Denetleme Kurumu (BDDK), Sermaye Piyasası Kurulu (SPK) ve Tasarruf Mevduatı Sigorta Fonu (TMSF) başkanlarından oluşan Finansal İstikrar Komitesi oluşturulmuştur. Komite tarafından Haziran 2014'te, Finansal Eğitim Eylem Planı ile Finansal Tüketicinin Korunması Eylem Planı yürürlüğe konmuştur. Temel amaç, finansal ürün ve hizmetlerin tüm kesimlere yayılması, finansal sistem dışında kalan kişilerin sisteme dâhil edilmesi, mevcut ürün ve hizmetlerin kalitesinin ve kullanımının artırılmasıdır. Bu çerçevede, stratejinin hedefi bilgi ve

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bilincin artırılması yoluyla finansal ürün ve hizmetlere erişim ile finansal ürün ve hizmetlerin kullanımının artırılmasıdır (Genelge, 2014). Finansal okuryazarlıkla ilgili tanımlamalar için temel dayanak bilgidir. Bazı tanımlamalar sınırlı düzeyde bilgi formunu içermektedir. Mandell (2007) ve Lusardi ve Tufano (2008) tarafından yapılan çalışmalarda finansal okuryazarlığın karar verme yönü vurgulanmaktadır. Lusardi ve Tufano (2008), belirli bir finansal okuryazarlık biçimi olan borç okuryazarlığı ele alınmıştır. Moore (2003) de pratik deneyimin, bilgi ve finansal okuryazarlığın diğer yönleri için temel oluşturduğu görüşü yer almaktadır. Literatürde finansal okuryazarlığın ölçümü için geliştirilen stratejiler incelendiğinde; çoktan seçmeli sorulara verilen doğru cevap yüzdesi, doğru/yanlış ifadesi içeren sorulara verilen doğru cevaplar, 3, 5 ve 8 hesaplama sorusuna verilen doğru cevaplar şeklinde olduğu görülmektedir. Finansal Okuryazarlık ile yapılan çalışmalar incelendiğinde; dünya üzerinde yapılmış birçok çalışmaya rastlanılmıştır. Bu çalışmaların çoğunun cinsiyet açısından ülkeler bazında değerlendirildiği göze çarpmaktadır. **Amaç:** Araştırmaya temel teşkil eden soru: “cinsiyet açısından öğrencilerin temel finansal okuryazarlık düzeyleri arasında fark var mıdır?” olarak hazırlanmıştır. Yapılan birçok sayıdaki araştırmalardan yola çıkarak, öğrencilerin finansal okuryazarlık düzeylerinin belirlenmesine dair oluşturulan hipotez aşağıda sunulmuştur; H1: Cinsiyet açısından öğrencilerin temel finansal okuryazarlık düzeyleri arasında istatistiksel açıdan anlamlı fark vardır. **Yöntem:**Bu araştırmada da Lusardi ve Mitchell (2007)’de yer alan ve temel düzey finansal okuryazarlık ölçümünde kullanılan paranın zaman değeri, enflasyon ve çeşitlendirme kavramlarını içeren 3 soru yer almaktadır. Çalışmamız ampirik bir araştırma niteliğindedir. Araştırmada veri toplama aracı olarak anket yöntemi kullanılmaktadır. Araştırmanın evrenini Bilecik Şeyh Edebali Üniversitesi öğrencileri oluşturmaktadır. **Bulgular ve Sonuçlar:** Araştırmada 819 öğrenciden geçerli geri dönüş elde edilmiştir. Araştırmaya katılan öğrencilerden %50,5’i erkek, %47,1’i kadın iken, %42,5’i İktisadi ve İdari Bilimler Fakültesi’nde öğrenim görmektedir. Eğitim durumuna bakıldığında; katılımcıların %38,5’i Anadolu Lisesi mezunu olmakla birlikte %33,6 ‘si diğer liseden mezun oldukları görülmektedir. Ayrıca katılımcıların %42,6’sı 1.sınıf; %37, 7’si 4. Sınıf üniversite öğrencilerinden oluşmaktadır. Araştırmaya katılan öğrencilerin cinsiyetleri açısından finansal okuryazarlık düzeylerindeki farklılığı görmek amacıyla frekans dağılımları üzerinden işlem yapan bir analiz yöntemi olan Ki Kare analizi kullanılmıştır. Bu bağlamda araştırma 1. ve 2. sorulara cevap veren erkek öğrenciler %62,1; kadın öğrencilerde ise bu oran %37,3’e gerilemektedir. Tüm sorulara doğru yanıt veren katılımcılar incelediğinde; %62,4’ü

erkek ve %36,6'sını kadın katılımcılar oluşturmaktadır. Ayrıca araştırmaya katılanların %3,65'sı soruların hiçbirine doğru yanıt verememiştir. Erkeklerden sadece 9 kişi, kadınlardan 20 kişi tüm soruları yanlış cevaplamıştır. Bu bağlamda enflasyon ve çeşitlendirme gibi finansal konulardaki temel düzeyler incelendiğinde; erkek katılımcıların kadın katılımcılara oranla daha fazla bilgi sahibi oldukları sonucuna ulaşılmaktadır. İlk ve son sınıf düzeyinde katılımcıların finansal okuryazarlık düzeylerine bakıldığında, öğrencilerin finansal okuryazarlık düzeyleri arasında istatiksel olarak bir fark bulunamamıştır. Çalışmanın literatürdeki eksikliğin giderilmesine katkı sağlayacağı, yazına ve pratik uygulamaya yönelik yararlı fikirler sunacağı düşünülmektedir.

Anahtar Kelimeler: Finansal Okuryazarlık, Finansal Eğitim, Finansal Bilgi

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Appendix-1 Big Three Financial Literacy Questionnaire

1) "Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?"

( ) More than \$102 ( ) Exactly \$102 ( ) Less than \$102 ( ) Don't know ( ) Refuse to answer

2) "Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, with the money in this account, would you be able to buy…"

( ) More than today ( ) Exactly the same as today ( ) Less than today ( ) Don't know ( ) Refuse to answer

3) "Do you think the following statement is true or false?

Buying a single company stock usually provides a safer return than a stock mutual fund."

( ) True ( ) False ( ) Don't know ( ) Refuse to answer

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Appendix-2 Big Three Financial Literacy Questionnaire(Turkish Version)

1.Vadeli mevduat hesabınızda 100 TL ve yıllık faiz oranının da %2 olduğunu varsayalım. 5 yıl sonra, hesabınızdaki paranın toplam tutarının ne kadar olacağını düşünürsünüz?

( ) 102 TL'dan daha fazla ( ) Tam 102 TL ( )102 TL'dan az

( ) Bilmiyorum ( ) Cevap vermek istemiyorum

2.Vadeli mevduat hesabınızın 1 yıllık faiz oranının %1 ve enflasyon oranının da yıllık %2 olduğunu varsayalım. Bir yıl sonra hesabınızdaki para ile ne kadar satın alma işlemi yapabilirsiniz?

( ) Bugünkünden daha fazla ( ) Bugünkü kadar ( ) Bugünkünden az ( ) Bilmiyorum ( ) Cevap vermek İstemiyorum

3.Aşağıdaki ifadeye Doğru veya Yanlış olarak cevap veriniz.

"Satın alınan tek bir şirkete ait hisse senedi, genellikle bir yatırım fonundan daha güvenli getiri sağlar."

( ) Doğru ( ) Yanlış ( ) Bilmiyorum ( ) Cevap vermek istemiyorum

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PRIME NUMBERS UNDER THE LIGHT OF PROVED GOLDBACH CONJECTURES [(1)]

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Abstract: Aim: The purpose of this research is to determine the major prime numbers by taking advantage of the relation between the prime numbers prescribed by Aksoy Prime Number Theorem. In addition, by using the proofs of Goldbach's Conjectures, it is aimed to prove four hypotheses that had not been proved to date. **Method:** The first hypothesis that has been introduced, a formula could be developed with the help of Aksoy Theorem, and with this help it would be possible to obtain large prime numbers. The second hypothesis can be summarized by suggesting that the space between two consecutive prime numbers should not skip the basic MUZ set introduced in the computer program. The third hypothesis is Polignac's Conjecture, which claims that twin and cousin prime numbers are infinite. Another hypothesis is Legendre's Conjecture which claims to be at least one prime between the squares of two consecutive numbers. The last hypothesis in this study claims that there are infinite numbers in the form of (n^2+1) primes. **Findings:** An effective computer program and a formula to provide access to large prime numbers have been developed. It is understood that the second hypothesis is not true when a 60-point gap between consecutive prime numbers is found: there is no prime between prime numbers 299,999,999,971-300,000,000,031. It is proved that twin and cousin primes are infinite in this study, but it is difficult to determine them and especially the big ones. It is proved that there exists at least one prime number between the squares of two consecutive numbers. The last hypothesis is proved to be correct, there are infinite number of primes in given format. **Conclusion:** As a conclusion, albeit there are institutionalized methods on computing prime numbers, an efficient way of computing bigger prime numbers can be based on the formula by using Aksoy Prime Numbers, that the article has shed light on. Proofs presented will introduce new horizons to relevant academicians on number theory. Defining this new perspective might also help one to expand the scope of the study related to even if there is a pattern on prime numbers so that we can compute bigger numbers feasibly. Although it is easy to prove that twin and cousin prime numbers are infinite, it will not be easy to identify them. Legendre Conjecture is proved, there is at least one prime number between the squares of two consecutive numbers.

Key Words: Goldbach Conjecture, Prime Numbers, Cryptology, Aksoy Theorem, Twin Primes

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INTRODUCTION

The objective of this study is to make use of the findings that the proof of Goldbach Conjecture which has not been proven yet for centuries will bring, in order to do research on unresolved questions and conjectures on primes in number theory, and to share those findings. It is thought that by proving Goldbach Conjectures (Aksoy,2018), and through a systematic approach a computer program can be developed to generate prime numbers. A sequential connection towards this aim was developed. These efforts showed that the prime numbers did not proceed randomly; they were arranged according to a rule. When an upper bound is given it is shown that primes below this bound can be determined with a rate depending on the performance of the computer at hand. By the test of the number that is guessed to be a prime, it is determined if this number is truly a prime, and if not a component of the number is determined. Given that reconsidering unknowns and estimates about prime numbers would be useful, researches are done and a new way of passing to large primes is discovered and introduced. Twin and cousin primes are defined according to the new method. The findings on some hypotheses were introduced.

CONTENT

At the beginning of the research, the prime determining computer program was developed and made more efficient in the light of proofs. With the help of the proofs and this computer program, the following hypotheses were searched.

H¹: Aksoy Theorem that is found with the help of proofs and is given a proof is summarized as: “Every prime number greater than five can be written as sum of at least three or, if the quantity of the prime is large enough, powers of three many smaller primes. Since there is no constraint in the theorem, there is a connection to larger primes and this connection can be used.

H²: There is at least one prime number in a period of the MUZ that is introduced in the computer program.

H³: With the new approach that the proofs have brought the location of twin and cousin primes can be determined and these are of infinite numbers, the Polignac Hypotheses is true.

H⁴: Legendre’s assumption is correct: there is at least one prime number that provides the condition: $n^2 < p < (n+1)^2$ (Hardy and Wright, 1979: 415, Ribenboim, 1996: 397-398).

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H[5]: There is an infinite prime number in the form (n^2 + 1). (Euler, 1760:99-153, Hardy and Wright, 1979: 19, Ribenboim, 1996: 206-208).

As the prime numbers are bigger, the capacity and speed of existing computers is insufficient for research and analysis. Undoubtedly, some of the gaps in the theoretical studies will take time to be filled because the proofs have just been made.

LITERATURE REVIEW

FERMAT'S PRIMES

It would be nice to have a formula that produces prime numbers. Because of the lack of such a formula, mathematicians have long been searching for a formula that produces only prime numbers. French lawyer and mathematician Pierre de Fermat introduced the formula in Table 1 in 1640 and suggested that the numbers produced from it are prime. Euler (1760:99-153) showed that the formula $2^{2^P} + 1$, given by Fermat does not always produce prime numbers. The fact that the numbers produced are growing rapidly and are not suitable for mathematical operations is also another shortcoming.

Table 1. Fermat's Primes

P	0	1	2	3	4	5
$2^{2^P} + 1$	3	5	17	257	65,537	4,294,967,297
A: Asal	A	A	A	A	A	641x6,700,417

WILSON PRIMES and WILSON'S THEOREM

Wilson's partition W(p) is as follows; p being a prime number:

$$W(p) = \frac{(p-1)!+1}{p}$$

The partition only gives an integer when p=1, W (1) = 2, or when p is prime. A Wilson prime is the prime providing the following circumstance:

$W(p) \equiv 0 \ (mod \ p)$, or equivalently:

$$(p-1)! \equiv -1 \ (mod \ p^2)$$

Wilson's Theorem: The necessary and sufficient condition for p to be prime is that, (p-1)! +1 must be a multiple of p:

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$$(p-1)! \equiv -1 \ (mod\ p)$$

This theory, previously known by Leibniz, was put forward by John Wilson, published by Warring (1770), and proved by Lagrange in 1973. Unlike Fermat's Little Theorem, Wilson Theorem includes both the necessary and sufficient conditions to be prime. Several Wilson partitions: p = 2,3,5,7,11 for respectively: 1,1,5,103,329891, 36846277, 1230752346353 ..., and a few Wilson primes: 5,13,563. Crandall et al. (1997:433-449) showed that no Wilson prime exists up to the boundary: 5×10^8 (McIntosh, 2004), followed immediately by this higher boundary: 2×10^{13} (Costa, 2012). It is clear that today's computer capacity and speed are insufficient for such calculations that are growing at a factorial rate.

MERSENNE PRIMES and LUCAS-LEHMER TEST

Mersenne prime is a prime number in the form: $M_n = 2^P - 1$, n ≥ 2b. Here it is necessary that p is a prime, but it is not sufficient to make the number a prime number. People continue to investigate which Mersenne primes are real. A volunteer group (GIMPS = the Great Internet Mersenne Prime Search) on the Internet published the 50th Mersenne prime as $2^{77,232,917} - 1$ when this research was being done[1]. The advantage of this formulation which does not always produce prime numbers, is that it is favourable for the Lucas-Lehmer test, in (p-1) steps it is possible to determine whether the number produced is prime. Taking, $r_1 = 4$ Lucas-Lehmer test defines the index; $r_1, r_2, r_3, ..., r_{p-1}$ for $k \geq 2$, such that:

$$r_k = (r_{k-1}^2 - 2)\ mod\ M_p$$

In this case, for M_p to be prime the necessary and sufficient condition is $r_{p-1} = 0$. Proof of this test is beyond the scope of the research. A notable point is that the test results in p-1 steps. Example: For p = 5 $M_5 = 31$ Then,

$$r_1 = 4$$

$$r_2 = (4^2 - 2)\ mod\ 31 = 14\ mod\ 31 = 14$$

$$r_3 = (14^2 - 2)\ mod\ 31 = 194\ mod\ 31 = 8$$

$$r_4 = (8^2 - 2)\ mod\ 31 = 62\ mod\ 31 = 0$$

, $M_5 = 31$ is prime. It is not known whether or not Mersenne primes are infinite.

TWIN PRIMES

It is reported that it is hard to determine whether there is a prime number between the given two numbers (Chen, 1975: 611-627, Iwaniec and Pintz, 1984: 115-143, Hardy and Wright, 1979: 415). Twin prime conjecture is

1 https://www.mersenne.org/primes/

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also known as Polignac conjecture.[2] It states that there exists an infinite number of primes that differs by two. (Dickson, 2005:424). For example, 3 and 5, 5 and 7, 11 and 13, 17 and 19 are twin primes. As numbers grow, frequency of primes, thus twin primes become less and less (Guy, 1994:19-23). Hardy, G. H. and Wright (1979:5), had stated that back then proving or disproving this statement was not possible with the mathematical body of knowledge at hand. Twin prime conjecture was first stated by French mathematician Alphonse de Polignac, he conjectured that every even number can be written as difference of two primes in an infinite number of ways. When the even number is two, then this statement implies there are infinitely many twin primes (Ball and Coxeter, 1987:64), but so far, this is neither proved nor disproved. This conjecture is sometimes called as Euclid twin prime conjecture; he proved the infinitude of primes but could not conjecture infinitude of twin primes. Very little calculation was done on this conjecture until 1919. At that time, Norwegian mathematician Viggo Brun, showed that sum of reciprocals of twin primes converge to a number that is today known as Brun constant. Unlike this, sum of reciprocals of primes diverges. A generalized version of this conjecture is known as strong twin prime conjecture (Shanks, 1993:30), or first Hardy-Littlewood conjecture. Brun constant was approximated to 1.90216054 by using 100 billion twin primes in 1976. U.S. mathematician Thomas Nicely, considering twin primes less than 2x10^16, gave Brun constant as 1.902160583209±0.000000000781. Next big step was in 2003. U.S mathematician Daniel Goldston and Turkish mathematician Cem Yıldırım has published a result that states the existence of infinitude of primes with small gaps. U.S. mathematician Yitang Zhang showed that there exists an infinitude of primes that differs by 70 million. In 2014, this gap was improved to 246, by accepting Elliot Helberstam conjecture, or its generalized version it was improved to 12 and 6 respectively. It is believed that this method can help to improve Riemann Hypothesis which is based on the prime number theorem that gives prime numbers less than a certain number.

BERTRAND'S THEOREM

Bertrand's postulate, also called the Bertrand-Chebyshev theorem or Chebyshev's theorem, states that if n>3, there is always at least one prime p between n and 2n-2. (Bertrand, 1845:123-140, Nagell, 1951:67). It was first proved by Chebyshev non-elementary in

2 http://mathworld.wolfram.com/dePolignacsConjecture.html

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1850 (Chebyshev, 1854:17-33, Derbyshire, 2004:124). The first elementary proof was done by Ramanujan and improved by Erdös at age 19 (Hoffman, 1998:37).

RESEARCH METHOD

AKSOY PRIMES

Aksoy's Theorem (Aksoy, 2018b), presented after the proofs of Goldbach Conjectures can be expressed as "every prime number greater than five, is a sum of three many small primes or if the prime is large enough, powers of three many small prime numbers". This can be written as follows:

$$p_m = \sum_{i=1}^{3^r} p_i \quad ,where: \frac{3^r(3^r+1)}{2} < m, \qquad p_i < \ p_{i+1}, \forall\ (\ i, r, m) \in Z$$

In this summation, start with a prime number(type1) of 6k+1 form:

In the first step, the prime number can be expressed as a sum of 3 primes, according to the weak conjecture, 2 primes are of the form 6k+1(type1), the other is 6k+5(type2).

At second step $3^2 = 9$; 5 many primes are of type1, 4 many primes are of type2.

At third step $3^3 = 27$; 14 many of primes are type1, 13 many of primes are type2.

In general, for step 3^r , $(3^r + 1)/2$ many primes should be type1, $(3^r - 1)/2$ many should be type2 (If started with type 2, quantities will change place). So, if we write the summation accordingly:

$$p_m = \sum_{i=1}^{(3^r+1)/2} (6k_i + 1) + \sum_{i=1}^{(3^r-1)/2} (6k_i + 5)$$

$$p_m = \sum_{i=1}^{(3^r+1)/2} 1 + \sum_{i=1}^{(3^r-1)/2} 5) + 6 \sum_{i=1}^{(3^r+1)/2} k_i \ + \ 6 \sum_{i=1}^{(3^r-1)/2} k_i$$

When choosing the k values in the sum, the sum should not be composite, sometimes taking all of the numbers consecutive can give a result, in this case doing the necessary arrangements:

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$$p_m = \frac{3^r+1}{2} + 5\frac{3^r-1}{2} + 6\sum_{i=1}^{3^r} i = (3^{r+1}-2) + 6\,x3^r\,(3^r+1)/2$$

$p_m = 3^{r+1}(3^r+2) - 2$

If we start from type2:
$p_m = 3^{r+1}(3^r+2) + 2$.

These relations can be of great benefit in determining large primes. Table 2 and 3 are prepared with regard to these relations.

Table 2. Aksoy Primes (6k+1) Form

r	$3^{r+1}(3^r+2)-2$	A: Prime B: Composite	Components
0	3(3)-2 = **7**	A	
1	9(3+2) -2 = **43**	A	
2	27(9+2)-2	5x	
3	81(27+2) -2 = **2,347**	A	
4	243(81+2)-2 = 20,167	B	67x301
5	729(243+2)-2 = **178,603**	A	
6	2187(729+2)-2	5x	
7	6561(2187+2)-2 = **14,362,027**	A	
8	19683(6561+2) -2= **129,179,527**	A	
9	59049(19683+2)-2 **= 1,162,379,563**	A	
10	177147(59049+2)-2	5x	
11	531441(177147+2)-2 =94,144,241,707	B	156,077x603,191
12	1594323(531441+2)-2 = 847,291,798,087	B	497x1,704,812,471
13	4782969(1594323+2)-2 = 7,625,607,050,923	B	653x11,677,805,591

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In Table 2, for the first property, for ease of calculation, some part of the calculation of r+1 is taken from the calculation done for r. It is not necessary to calculate the second property for r values of the form 4n+2 since the number to be found is divisible by 5.

Proof: $p = 3^{4n+3}(3^{4n+2}+2)-2 = 81^n.3^3((81^n.9+2)-2)$

= (10. a+1).27 ((10. a+1)9+2)-2= (10.c+7) ((10. d+9) +2)-2= (10.c+7) ((10(d+1) +1)-2

=10f+7-2=10f+5, divisible by 5. 7 of the 11 candidates is prime (64%). Note that, sum of numerical value of each prime is equivalent to 7 in this table.

Table 3. Aksoy Primes (6k+5) Form

r	$3^{r+1}(3^r+2)+2$	A: prime B: Composite	Components
0	3(3) + 2 = **11**	A	
1	9(3+2) + 2 = **47**	A	
2	27(9+2) + 2=299	B	13x23
3	81(27+2) + 2 = **2351**	A	
4	243(81+2) + 2 = 20,171	B	23x877
5	729(243+2) + 2 = 178,607	B	143x1,249
6	2187(729+2) + 2=**1,598,699**	A	
7	6561(2187+2) + 2 = 14,362,031 (+180) = **14,362,211**	B **A**	37x388,163
8	19683(6561+2) + 2= 129,179,531 (+180) = **129,179,711**	B **A**	3,853x33,527
9	59049(19683+2) + 2 = 1,162,379,567 (+180) = **1,162,379,747**	B **A**	21,767x53,401
10	177147(59049+2) + 2=10,460,707,499 (+1080) = **10,460,708,579**	 **A**	99,443x105,193
11	531441(177147+2) + 2 =94,144,241,711	B	228,587x411,853

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12	1594323(531441+2) + 2 = **847,291,798,091**	A	
13	4782969(1594323+2) + 2 = 7,625,607,050,927 (+100,080) = 7,625,607,151,007	B ?	3,797x200,818,291

Candidate primes in Table 3 can be found by adding 4 to those numbers in table 2 (could be cousin primes). When relations are determined, to simplify the calculations k values were taken in an order. With the intention of expanding, it was thought that instead of adding 4 to previous candidates, a number should be added such that: it must be divisible by 30 and 4, the sum of numerical value must be 9 (to not affect the numerical sum). The smallest of such number is calculated to be 180. As the candidate number grows, it is thought that it can be added as 180, 1080,10080, 100080, …, which is tried and positive results are got. In Table 3, the sum of numerical value of each candidate prime is equivalent to 2, and the estimated prime number ratio is 9/14 (64%). The ratios, which we got in our research for large primes, verify the first conjecture. Even determining whether they are prime or not depends on capacity and speed of the computer, determining the next primes with this ratio can cast a light on the world of large primes.

GAPS BETWEEN PRIMES

In the proof of Goldbach conjectures it is stated that all numbers can be divided into 6 sets and prime numbers are in four of these subsets; (6k+1) (type1) and (6k+5) (type2). At first, taking 30, product of 2,3,5, as period and taking (1,7,13,19) from type 1 and (11,17,23,29) from type 2 and forming a ring MUZ = [1,7,11,13,17,19,23,19] index can be obtained. Computer program that is based on this index, gives whether the number that is to be decided a prime or not, has a component or not by taking the square root of the number as an upper bound, and by defining two factors where the small factor is equal or smaller than the bound, by applying a backward tracking method. Looking at the proofs, small factor can be of type 1 or type 2. If the searched number is of type1 form, then its factors, writing small one first; can be as type1.type1 or type2.type2; if the number is of type2 then its factors can be, writing small one first, type1.type2 or type2.type1. In this case, ring can be narrowed down, for example, it can be enough to look for a sub factor only for type

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1 or only for type 2. With this thought, a computer program is arranged and the process is accelerated. In Table 4, from MUZ index that contains all primes and their components, prime numbers from various sections and their intervals are summarized. In the table, another noticeable finding besides deciding primality or components of a number is that the largest interval among two primes is the 24 gaps between 300,000,007-300,000,031 and this number is smaller than 30, period of MUZ. Another property is that Table 4 has a pair of twin primes (1,800,000,047-1,800,000,049) and two pairs of cousin primes (1,800,000,043-1,800,000,047 and 1,800,000,049-1,800,000,053).

Table 4. First Review, Before Program Improved

A number From MUZ Set	**A**: Prime B: Composite	First (small) Component	Second Component
300,000,001	B	49	6,122,449
300,000,007	A		
300,000,011	B	211	1,421,801
300,000,013	B	61	4,918,033
300,000,017	B	23	13,043,479
300,000,019	B	5599	53,581
300,000,023	B	6091	49,253
300,000,029	B	7	42,857,147
300,000,031	A		
1,800,000,001	B	1411	1,275,691
1,800,000,007	B	6,019	299,053
1,800,000,011	A		
1,800,000,013	B	38,591	46,643

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1,800,000,017	B	1,159	1,553,063
1,800,000,019	A		
1,800,000,023	B	71	25,352,113
1,800,000,029	B	6,067	296,687
1,800,000,031	B	47	38,297,873
1,800,000,037	B	4,213	427,249
1,800,000,041	B	7	257,142,863
1,800,000,043	A		
1,800,000,047	A		
1,800,000,049	A		
1,800,000,053	A		
1,800,000,059	B	34,177	52,667

After speeding up the program by looking for factors only type 1 or only type 2, the results summarized in Table 5 are obtained. There is an important property in the table: between **299,999,999,971-300,000,000,031** prime numbers there are 60-point gap. In the period **299,999,999,971**-299,999,999,999 there is one prime number, in the following 300,000,000,001-300,000,000,029 period there is no prime number; with this result there may be a MUZ period without any prime; so, the second hypothesis is not true.

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Table 5. Second Review, After Program Improved

A number From MUZ Set	**A**: Prime B: Composite	First (small) Component	Second Component
299,999,999,971	A		
299,999,999,977 Arada asal sayı yok	B	1,957	153,295,861
300,000,000,029	B	206,881	1,450,109
300,000,000,031	A		

POLIGNAC'S CONJECTURE, TWIN and COUSIN PRIMES

It was shown that primes can be either type 1 or type 2 With the leading one being the small one, two consecutive prime numbers can be represented with one of the 4 states in Table 6. If composites were not to interfere in between, the difference between primes would be 2,4 and 6; since type 1 and type 2 represents ones with composites; those can interfere; so, 2 and 4 occurs rarely and 6 and larger gaps occur more frequently. In the first and the last case the difference between numbers is a multiple of 6. In the second case, the difference is 4, so it gives cousin numbers. Third case gives twin primes, since the difference is two. We know Euclid's theorem 2 and Proofs of Goldbach Hypothesis that type1and type2 represent infinite prime numbers. There exists infinite number of k_1, k_2 for primes in the Table 6. So Polignac Conjecture is true: there are infinitely many twin primes and cousin primes.

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Table 6. Gap Between Two Consecutive Primes

No	First Small Prime	Second Big Prime	Difference (gap)
1	$6k_1 + 1$	$6k_2 + 1$	$6(k_2 - k_1) = 6$, $k_2 = k_1 + 1$
2	$6k_1 + 1$	$6k_2 + 5$	$6(k_2 - k_1) + 4 = 4$, $k_2 = k_1$
3	$6k_1 + 5$	$6k_2 + 1$	$6(k_2 - k_1 - 1) + 2 = 2$, $k_2 = k_1 + 1$
4	$6k_1 + 5$	$6k_2 + 5$	$6(k_2 - k_1) = 6$, $k_2 = k_1 + 1$

As seen in the MUZ= [1,7,11,13,17,19,23,29] index introduced by the computer program; twin primes candidates can have periodic values 11-13,17-19 and 29-31; one of them having component, increases the length of the interval. In this index, every new prime means infinite composite. Each composite increases the gap between twin and cousin primes. For this reason, number of twin and cousin primes is very rare compared to other gaps. It was shown above that the gap between primes has reached to 60. Some examples of twins are given in Table 7. Even though it is easily proven that twin and cousin primes are infinite, separating them from their components and detecting their place is hard.

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Table 7. Some Twin Primes

k_1, k_2	$6k_1 + 5$ Small Candidate	$6k_2 + 1$ Big candidate	İ: Twin prime B: Composite
1, 2	11	13	İ
6, 7	41	43	İ
16, 17	101	103	İ
116, 117	701	703 B	703=19x37
216, 217	1301	1303	İ
1316, 1317	7901	7903 B	7903=7x1129
213146, 213147	1278881	1278883 B	1278883=983x1301

LEGENDRE CONJECTURE

Legendre Hypothesis: There is at least one p prime satisfying the condition: $n^2 < p < (n+1)^2$. The interval between the bounds is (2n+1). Lehmer has listed primes up to 10,000,721 and pointed to 36 gaps between **8551-9587** primes as the large gap. In MUZ index primes related to periods (30x318+1= 9541) <9551 <(30x318+29=9569) and (30x319+1 = 9571) <9587 < (319x30+29 =9599) do not go past periods. An important property discovered in this study is that, there is 60 number long gap between **299,999,999,971-300,000,000,031** and there is no prime between these numbers. So, if (30k+1) which is the smallest element of a period, were to take value n in the (2n+1) interval, to represent the primes in the MUZ index, then it gives an interval of length 60k+3, the smallest being 63, no such gap has been found among primes. Since the largest gap is 36 up to number 10,000,721 for values greater then this number the 2n+1 gap will be over very large numbers. So, it is understood that the hypothesis is true.

There exist infinitely many primes of the form $n^2 + 1$;by a similar approach proof of this conjecture is easier. Now, we know that prime numbers of the form type1 or type2 are infinite. So, if n=6k+1 is set to represent type1; a prime number p:

$$p = (6k+1)^2 + 1 = 36k^2 + 12k + 1$$

$$p = 6(6k^2 + 2) + 1 = 6t + 1$$

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is of type1 form. Here; $t = 6k^2 + 2$ and there is a t for every k; so there exists t for an infinite number. Even some are composite, it covers an infinite number of primes, like Polignac's Conjecture, so the conjecture is true.

FINDINGS

Some conjectures regarding primes have been re-evaluated with the new approach. To pass on large primes a consistent, comprehensible method has been developed, tried, identified as efficient and introduced. When looked upon the gaps between primes; gaps as large as 60 numbers are observed which is limited to the capacity and speed of the computer. It was determined that the period of prime number candidates formed by MUZ index covers the composite numbers and, every new prime generates infinite composites, so as the number grows, within a certain bound, twin primes and cousin primes get less frequent compared to primes with larger gaps but never ends. It is clear that this rarefaction will cause a slowdown of component number for the next numbers, and the drop in the rate of these numbers will stop. It is determined that it is not easy to locate twin and cousin primes with the knowledge at hand. It is shown that there exists a prime number between the squares of two consecutive numbers. Also, it is proven that there are infinitely many primes of the form: $n^2 + 1$.

CONCLUSIONS

By using a computer with an İntel® Core™ i5 2450 M CPU@ 2,5 GHz processor, the computer program which developed during the research can determine whether a given number appropriate to the present MUZ index is prime or not, up to 10^{13}.If it is not a prime number, the computer program can determine the two of the components, one being smaller than its square root, in a short time. It takes time to determine for larger numbers. In the proof of Goldbach Conjecture, with the motivation that every prime number is of type1 and type2 form, it was shown that the formulas developed thanks to Aksoy Theorem can be effective (64%) in determining large primes. The prominence of major prime numbers in cryptology is known. Encryption will be redesigned in line with the proofs. It is shown that gaps between two consecutive primes can be larger than expected by giving two primes distanced 60 apart as examples. It is proven that there may be infinite number of twin primes, but hard to locate. It is determined that there may be bigger gaps between large primes than expected. Polignac Conjecture is verified, in this study it is theoretically proven that twin and cousin primes are

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infinite, but it is not easy to determine them, especially large one, despite the conjectures, more research is required. Legendre Conjecture which states that there is at least one prime number between the squares of two consecutive numbers, and the conjecture that states there are infinitely many numbers of the form $n^2 + 1$ is verified and proved. Proof of certain conjectures in light of proofs of two Goldbach Conjectures will guide the new researches on the topic. Easily determined large primes and composite numbers will cast light on important developments.

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GOLDBACH HİPOTEZLERİNİN İSPATI IŞIĞINDA ASAL SAYILARA YENİ BİR BAKIŞ

Öz: Giriş: Goldbach Hipotezlerinin ispatlanmasıyla, asal sayılar kümesinde, sistematik bir yaklaşımla asal sayı üretmek üzere ardışık bir bağlantı geliştirildi. Bu çabalar asal sayıların rastgele dizilmediğini, düzenli bir kural içinde dizildiğini gösterdi. Bir sınır verildiğinde, bu sınırın altında kalan tüm asal sayıların, mevcut bilgisayarın performansına bağlı bir hızla belirlenebileceği gösterildi. Asal olabileceği öngörülen sayının bu kurallar çerçevesinde test edilmesiyle, gerçekten asal olup olmadığı, değilse en azından iki bileşeni belirlendi. Bu bilgisayar programı ve ispatların ışığında asal sayılar üzerinde yapılan varsayımlar yeniden değerlendirildi, sonuçlar paylaşıldı. **Amaç:** Bu çalışmanın amacı, yüzyıllardır ispatlanamayan Goldbach Hipotezlerinin ispatlanmasının getirdiği bulgularla, sayı teorisinde asal sayılarla ilgili yanıtlanamayan bazı kestirimlere yanıt aramak ve Aksoy Teoreminden faydalanarak büyük asal sayılar üretmek üzere bir formül geliştirmektir. **Kapsam:** Araştırmaya başlarken öncelikle asal sayı belirleyen bilgisayar programı ispatların ışığında geliştirildi, daha da etkin hale getirildi. Asal sayılar üzerinde yapılan araştırma ve kestirimler yeniden gözden geçirilerek belirlenen beş adet hipoteze yanıt arandı. İlk hipotez, büyük asal sayı üretmek üzere Aksoy Teoremi 'ne dayanılarak bir formül geliştirilebilir varsayımıdır. İkinci hipotez, tanıtılan bilgisayar programına temel oluşturan bir MUZ periyodunda en az bir asal sayı olduğu öngörüsüdür. Ele alınan üçüncü hipotez, ikiz asallar ve kuzen asalların sonsuz sayıda olduğunu öne süren Polignac Kestiriminin doğru olduğu öngörüsüdür. Dördüncüsü Legendre Kestiriminin doğru olduğu, beşincisi de $n^2 + 1$ biçiminde sonsuz sayıda asal sayı olduğu varsayımının doğru olduğudur. **Araştırmanın Yöntemi:** Asal sayılar üzerinde yapılmış çalışmalar ayrıntısıyla incelendi. Bu çalışmada beş adet hipoteze yanıt arandı. Euclid 'in İkinci Teoremi asal sayıların sonsuz sayıda olduğunu belirtir ve ispatı vardır. Ayrıca, Goldbach Hipotezlerinin ispatında, asal sayıların tip1 ve tip2 biçiminde ve sonsuz sayıda olabileceği belirtiliyor. Bu tespitlerden hareketle ispatların temelini oluşturan tip1= (6k+1) ve tip2= (6k+5) aday asal sayı alt gruplarının tek veya birlikte ele alınmasının bilgisayar programını hızlandırabileceği değerlendirildi. Bilgisayar programında tanıtılan küçük çarpanın tip1 veya tip2 den hangi biçiminde olacağı, araştırılan MUZ setine uygun olarak verilen aday asal sayının hangi biçimde olduğuna bağlıdır;

zira, küçük çarpan ilk olmak üzere, verilen sayı tip1 biçimindeyse iki bileşeni (tip1) (tip1), verilen sayı tip2 biçimindeyse iki bileşeni (tip1) (tip2) veya (tip2) (tip1) sırasıyla olmalıdır. Bu gerçeklerden hareketle bilgisayar programı iyileştirildi. Kriptolojide çok önemli olan büyük asal sayıların belirlenmesi ve test edilmesi kolaylaştırıldı, büyük asal sayılara ulaşmak için sistematik bir yaklaşım getirildi, etkinliği test edildi, sonuçlar paylaşıldı. Daha da büyük asal sayılara ulaşmak eldeki bilgisayarın kapasitesine ve hızına bağlıdır Araştırmanın amacına uygun olarak belirlenen hipotezler tanıtıldı, cevapları araştırıldı. Polignac Hipotezi doğrulandı, ikiz ve kuzen asal sayıların teorik olarak sonsuz sayıda olduğu ispatlandı. Legendre Hipotezinin doğru olduğu ispat edildi. **Bulgular**. Goldbach Hipotezlerinin ispatlanması, asal sayılarla ilgili bazı kestirimleri yeniden gözden geçirmeyi kolaylaştırdı. Bunlardan ilki olan yeni **Aksoy Asal Sayılar Teoreminin** önemli bir uygulaması tanıtıldı. Büyük asal sayıları belirlemede yeni bir bağıntı geliştirildi. Büyük asal sayılar arasında öngörülenden daha büyük aralıklar olabileceği belirlendi. Polignac Hipotezi doğrulandı, ikiz veya kuzen asalların teorik olarak sonsuz olduğu bu çalışmada ispatlandı ancak, özellikle büyük olanlarını önceden belirlemek, bazı kestirimlere rağmen bugün için kolay değildir, daha fazla aydınlatıcı çalışmaya gereksinim vardır. Ardışık iki sayının kare değeri arasında en az bir asal sayı var olduğunu ileri süren Legendre Hipotezi ve n^2+1 biçiminde sonsuz asal sayı olduğu kestirimi de ispat edilerek doğrulandı. **Sonuçlar:** Araştırmada, İntel® Core™ i5 2450 M CPU@ 2,5 GHz işlemcili bir bilgisayar kullanılarak, 10^{13} e kadar MUZ setine uygun her aday asal sayının gerçekten asal olduğu, değilse iki çarpanı kısa sürede belirlendi. Daha büyük sayıları belirlemek eldeki bilgisayarın hızına ve gücüne bağlıdır. Asırlardır sayı teorisinde araştırmacıların önüne set geren varsayımlardan birisi olan Goldbach Hipotezlerinin ispatlanmasının ışığında, asal sayılarla ilgili bazı kestirimler de ispatlanarak, asal sayıları belirleme ve incelemenin yeni yolları araştırmacılara olabildiğince açıldı. Goldbach Hipotezlerinin İspatları sonucunda belirlenen ve ispatı verilen Aksoy Teoreminden hareketle, büyük asal sayıları belirlemede etkin bir formül geliştirildi, işleyişi gösterildi. Bu formüller ispatı verilen teoreme dayandığından temeli sağlamdır, bir varsayım değildir. Geliştirilen formüllerle üretilen aday asal sayıların 64% oranda asal sayı olduğu örneklerle gösterildi. İkiz ve kuzen asalların tanımı ve konumu ispatların ışığında yeni bakış açısıyla incelendi, bunların sonsuz sayıda olduğu ispatlandı ancak önceden yerlerinin tespitinin güçlüğü paylaşıldı. Asal sayılarla ilgilenenleri meraklandıran varsayımlardan Polignac Kestirimi ve Legendre Kestirimi ispatlanarak doğrulandı. Benzer biçimde, (n^2+1) biçiminde sonsuz sayıda asal sayı

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olabileceği ispatlandı. Kriptolojide büyük asal sayıları belirlemenin önemli olduğu bilinir. Belirlenen formüllerle hesaplanan asal sayı adaylarının 64% oranında asal sayı olduğu gösterildi. Lucas -Lehmer Testine rağmen, bir tek büyük asal sayı belirlemek için, yüzlerce bilgisayarcıdan oluşan ortak çalışma grubunun bir aydan fazla süre uğraştığı düşünülürse işin ne kadar çetin olduğu, bu konuda yapılan aydınlatıcı çalışmaların önemi daha iyi anlaşılabilir. Asal sayıların tip1 ve tip2 biçiminde sonsuz sayıda olması ve bunların kendinden büyük bileşenlileri ve asal sayıları belirlemedeki rolü, ileri incelemelere yol gösterici olarak ışıldamaktadır. Büyük asal sayılara ulaşmanın yolu açıldı, şifreleme işlemlerinin yeniden tasarlanacağı öngörülmektedir.

Anahtar Kelimeler: Goldbach Hipotezi, Asal Sayılar, Kriptoloji, Aksoy Teoremi, İkiz Asallar

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NEW PARADIGM IN HIGHER EDUCATION; ENTREPRENEURIAL UNIVERSITY (1)

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Abstract: Aim: In this study, it has been focused on entrepreneurial university trend, which has been very popular especially for a few decades. Entrepreneurial university interlinks its three missions: education, research and serving society. That has meant partly having in a university structure besides traditional education and research functions a technology transfer office (TTO) and active patenting of own research results by the university. That means also creating entrepreneurial competencies and mind set among university members, active position to production and implementation of university knowledge for prosperity of society and entrepreneurial environment inside and around the university supporting knowledge transfer. The concept of entrepreneurial university emerged as a response to a fast changing business environment and to the necessity of raising students more capable to solve more and more complex problems that business faces in the era of globalization. Here the target audience of the entrepreneurial university is industry and business world, and the cultivation of qualified work force to do work in this area is directed to enter the entrepreneurial university of the field. **Method:** This study is a descriptive and qualitative study in the survey model. The general survey model is a research approach purposed to describe a past or present situation as it exists and the event, individual and object are investigated and attempted to be defined within its own conditions .The concept of entrepreneurial university has been put forward in all aspects in the study and model based on literature and can be applied in our country and has been designed and the applicability of the model has been presented to evaluation of the experts of faculty members in this field. **Findings:** Entrepreneurial universities mainly aim to contribute to the development of society, transfer technology and produce innovatively as their third function after traditional functions of creating human resources and conducting research. Nowadays, in many places of the world, universities try to expand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an “entrepreneurial” approach to make more resources. This study states that universities should create more financial sources apart from traditional ones and describes the methods and ways in which they can accomplish it.

Key Words: Entrepreneurial University, Third Generation University, Multiversity, University-Industry Collaboration, Innovative University

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INTRODUCTION

Developed societies are in a process of change and this change is manifested in many institutions, including universities (Garraway, 2006: 474-475). Universities change, new initiatives, comparative evaluations in some basic functions and implementations motivate the universities and compel them to become entrepreneurs, to produce information, technology, innovation and build more relationships with the society (Lambert, 2009: 145). Since the end of the 1980s, universities around the world, especially EU universities, are facing irreversible change and the roots of this change are correlated with the paradigmatic political transformation of social, economic and educational policies. Some of these universities are facing change in financial and technical fields, while others have difficulties with vision and positioning (Mora and Vieira, 2009: 78). For example, some universities, faculties and departments continue their activities in the competitive market environment without financial pressure due to their secure resources, while others must act wisely against budgetary cuts and withstand this situation (Lambert, 2009: 145).

The first mission of the university is education. Since its foundation in the 12th century, education is the primary duty of the university. Since the 19th century, the mission of research has been added to the main mission of the university. Nowadays, universities are only educational institutions as well as act as institutions aiming at research especially in positive sciences. This change is expressed as the first academic change in the literature. The universities continued their existence as institutions, which provided education and conducted independent research particularly in the fields of science, social sciences and engineering until the first quarter of the 20th century. While the universities fulfilled their educational and research mission, all the financing they required was met by the state. In the 1930s, governments had to cut university funding for the first time due to the ongoing global economic crisis in the world. In this period when research activities have begun to be intensified and higher education demand has started to increase, university administrators have been searching for non-public finance resources in order to proceed with their research activities increased in cost as well as to provide quality education.

Universities have started to share data, technology and innovation that they have gained from scientific researches done in the campus with private companies, industry and in return began to getting supply funds for future investigates from public institutions. Commercial pressures have compelled universities to be entrepreneurial, successful in the context of developing research functions and meeting student expectations in a competitive situation (Rinne and Koivula, 2009: 185). Universities have had to open their doors to stakeholders outside the academic circle for the first time in order to reach rich financial resources for R&D studies and projects being conducted. This led to a shift towards third generation universities, which enabled universities to commercialize research results from the second generation research-based universities. In other words, the main focus and main effect of the change towards the third generation university is financing.

Brief History of Paradigm Change in Higher Education

Universities are now on the path to contribute to the regional and national development by making daily use of knowledge and earning profits from the conversion of produced knowledge to goods and services by allowing commercialization of scientific knowledge produced by the relations of industry and the state as well as traditional education and training, and to (Almeida, 2008).The basis view for traditional universities was that the main task of the universities was to produce only scientific information, but the transfer of this information to the commercial field was not the job of the university. However, universities are moving within the open innovation system; interacting more with companies and government agencies rather than closing in on itself (Chesbrough, 2003; Etzkowitz, 2006; Güntherand Wagner, 2007: 410: 196).

The roles are changing due to new social needs and the university should keep up with radical changes in its educational practices and research areas in order to be able to respond to all these needs (Farsi and Talebi, 2009: 196). The importance of education especially in higher education in a world where change is the main determinant is increasing expectations from public sense (Peterka, 2011). There is a matter of structural change in the transition from the traditional education and training mission (first mission) to the education and research mission (second mission) and then to the third mission (contribution to commercialization of knowledge and economic development) particularly at European universities (Guenter and Wagner, 2008).This leaning includes areas such as public budgetary cuts, suppressing the university against efficiency and effectiveness, contractual research, the application of appraisal and control systems, and the emphasis on entrepreneurial cultural values (Rinne and Koivula, 2009: 185). There is a matter

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of re-organization of knowledge produced in the university towards the expectations and needs of the market. The main purpose on the basis of an entrepreneurial university is to make research findings available to the industry rather than only education and research. In fact, traditional university advocates saw that the goal of contributing to social and economic welfare could not be achieved without changing their vision and mission in areas such as knowledge generation, education and research, and many scientists resisted this change had to use to the metaphor of "entrepreneurial university" to describe the university instead of the classic metaphor "ivory tower" (Sooreh, et. al., 2011).

The first change occurred in the transition from the education-based university to the research-based university, while the last change occurred in the transition from the research-based university to entrepreneurial university. The progress of knowledge-based innovation in the third generation university and the transfer of daily life (market) have been the main principle and duty of universities (Farsi and Talebi, 2009). Therefore, universities have to innovate in education and research to get a better position in the market (Suciu and Platis, 2009). The constantly changing nature of social demands is compelling universities to become information society, more innovative and creative (Zaharia and Gibert, 2005: 35). It is inevitable to change towards entrepreneurial university from traditional university in order to meet these expectations from the state, the market, civil society organizations and society.

PURPOSE of STUDY

The aim of this study is to present conceptual framework of the entrepreneurial university paradigm and being guide for traditional university administrators who want to transform entrepreneurial university and being resource for researchers to be able to contribute theoretically to the field and bring innovation to the studies in this field.

PROBLEM STATEMENT

What is the conceptual framework of the entrepreneurial university paradigm? What aspects can be taken into account while regarding a university as "entrepreneurial university"? What are the factors and merits that distinguish entrepreneurial universities from traditional universities?

LIMITATION of the STUDY

In this research, the concept of "entrepreneurial university" has been examined in the context of the definition presented in related literature.

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DESIGN of STUDY

This study is a descriptive and qualitative study in the survey model. The general survey model is a research approach purposed to describe a past or present situation as it exists and the event, individual and object are investigated and attempted to be defined within its own conditions (Karasar, 2014). The concept of entrepreneurial university has been put forward in all aspects in the study and model based on literature which can be applied in our country and has been designed and the applicability of the model has been presented to evaluation of the experts of faculty members in this field. Descriptive research tries to describe and explain what events, situations, assets, institutions. and so on are (Kaptan, 1993:59). Therefore, it has been decided that the research model should be qualitative so that information collected by qualitative data collection methods such as document analysis and interviews will provide an in-depth review. Yıldırım and Şimşek (2006) define the qualitative research as research that use qualitative data collection methods such as observation, interview and document analysis, and perceptions and events are revealed in in a natural, realistic and holistic manner and qualitative process is followed. Qualitative research purposes to identify phenomena and events in the natural environment. The researcher tries to reach the truth about the situation being studied instead of generalizing the findings and uses word analysis, detailed participant interview reports by revealing a comprehensive study table and organizes the research in natural environment (Ekiz, 2007; Karadağ, 2010). The main characteristic of the qualitative research is to reveal the points of view and world of meaning of study subjects and try to regard the world with their eyes (Kuş, 2009). Showing sensitivity to natural environment, being a participatory role of researcher, having a holistic approach, providing to reveal perceptions, having flexibility in design of study and having an inductive analysis are important characteristics of qualitative research techniques (Yıldırım and Şimşek, 2006).

The conceptual framework of the entrepreneurial university was presented to the reader in the study. The detailed information in subfields such as definition of the entrepreneurial university paradigm, parameters, principles and university-industry cooperation, commercialization of university studies and so on was given. Native and foreign sources related to the study were reached through university libraries and the internet. Firstly, literature was reviewed and related publications and resources were gathered in order to collect the data. The concept of “Entrepreneur Univer-

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sity" in the world was revealed in the study by reviewing literature.

Data Collection and Data Analysis

Document review method used in qualitative research methods was used as the primary data collection method in this qualitative research. Data were collected by reviewing documents of the sources in the written, visual, printed or virtual environment reached towards the research problem. In qualitative research, document review can be alone data collection method or it can be used with other data collection methods. Document review involves analysis of written materials including information about the facts or events aims to be investigated (Yıldırım and Şimşek, 2013). The data sources to be used in qualitative research are the objects obtained from personal or formal documents and research fields (Güler, Halıcıoğlu, and Taşgın, 2013 as cited in Bryman, 2004). Therefore, the sources of data used for this study includes;

- Performance reports of universities introduced as entrepreneurial universities,
- Websites of universities,
- Studies and publications of international institutions and organizations related topic,
- Written scientific studies conducted by different researchers in the field of higher education,
- Several statistical information about higher education,
- Native and foreign books that have entered the literature

Reasons for Transition to the Entrepreneur University

Globalization, the revolution in information technology, the changing education, needs and expectations that expects from its employees of the labor market and the rapidly increasing competition and strife between educational institutions have compelled the structures and systems of universities to change. Thus, this situation forced the traditional education paradigm to change (Oleksiyenko, 2002: 4). Universities have to focus on being faster, being more flexible, particularly on the point of responding to developing and changing market conditions in an ever-growing competitive market (Vorley and Nelles, 2010: 635).

In the creation of modern life, particularly in the last thirty years, a significant change has taken place and the market has been intensely affected by the state, civil society organizations and also universities as an institution. Higher education institutions have noticed

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the increasing reality of marketization with the pressures of the public sector (Zomer, 2011: 86). The universities which are living away from the public interest and attention until the 20th century, have begun to attract interest and attention again on self and act as an engine to increase the acceleration of innovation that comes with change in the age of entrepreneurship with this century (Nelles and Vorley, 2011: 166).

Internationalization, globalization, computer and internet and the adoption of English as an educational language have caused cooperation and competition among universities (Rabbinge and Slingerland, 2009: 55). The quality and quantity of the forces (market, business world, state, student, family, etc.) that influence the education sector have changed because of globalization and the development of communication technologies, slightly low cost of transportation and gaining momentum of the activity of students and academicians day by day has created a competition environment in national and international dimension (Dima and Vegheş, 2008: 57-58).Universities have had to change education programs, curriculum content and educational technologies to attract all stakeholders due to global competition, new technologies, increase in expectations and reorganize them according to the expectations of the market(Peterka, 2011). In the education sector, particularly the presence of foundation universities and private universities and factors such as globalization, the constant variability of market expectations, the demand for easy sections to cope with the increasing unemployment in the world and the massification of higher education since the last quarter of the 20th century caused the query of the quality of education given to universities. These factors have led to a revolutionary alteration in the field of higher education over the past thirty years and universities have had to do more contractual research, have richer funding resources, qualified academic members and brilliant students (both material and intellectual capital) (Gajon, 2007).

Today, competition has become a phenomenon that is universally accepted among all universities in the world and has redefined the rules of the game. The only way to attract the industry, academicians and students in this competitive environment is to provide qualified education. The main education policy dominant in the higher education world is; Strengthening cooperation in the business world, ensuring more resources to education and research from both the public and private sector, providing that the information and technology gained as a result of research are transformed into commercial values, contrib-

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uting to employment through entrepreneurial individual education and holding competitive advantage in information communication technologies that require advanced expertise, health sciences and various engineering disciplines (Rinne and Koivula, 2005: 100-103). The way to reach these goals is to transform the university towards the entrepreneurial paradigm.

Universities have passed through two revolutions: the first is the transition from the universities with only educational purposes to research universities and now especially in America and Europe, universities are considered to have passed this stage. While the traditional Humbold type of universities have carried a mission of foundation focused on the educational intent, universities especially after the Second World War have begun to carry out a research-focused mission. The second revolution has changed from research universities to entrepreneurial universities (Farsi and Talebi, 2009: 456). In universities, a structural shift stands out in a shift from a traditional education and research mission to a third mission (commercialization of produced knowledge and contribution to uneconomic development) (Guenter and Wagner, 2008: 412). Information production and transformation of knowledge into knowledge-based innovation that can be used and “monetized” are aimed in the third-generation university. The mass production which started with the industrial revolution, the production based on the raw material and industry-oriented production now came to the end of the period. Today, we live in a process based on the knowledge in production, process, evaluating and transforming it into a meta that can be “sold”.

Peterka (2011) examines the factors that compel education-research-based universities to turn towards monetizing entrepreneurial universities by providing commercialization of research results in five basic categories:

1. **Increasing demand for higher education:** In this century, more and more people than all human history will attend higher education institutions and universities. The funding proportion that the public allocates for higher education is steadily declining in the presence of an increasing number of students inversely proportional. Therefore, in parallel with the increase in the number of students attending higher education, the university needs additional resources to be able to carry out qualified education activities. This situation forces universities to cooperate more closely with the market.

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2. **Internationalization of education and research:** This tendency has been accelerated visibly with the development of information and communication technologies. Competition emerging because of internationalization, competition among states, competition among universities and different universities such as competition among research institutes may be exemplified.

3. **Increase in the number of institutions producing information:** Dissemination of innovation and information is no longer unique to universities because of globalization and technological developments. The rapid increase in the number of institutions producing information has had a serious impact on universities that want to maintain leadership in this area.

4. **Rearrangement of information:** This trend has two views that seem to be completely opposite. Variety in increased knowledge, specialization in specific areas, emerging of specific purpose-based research and the emphasis is on the basic areas of scientific research as interdisciplinary, for instance the progressive development of important social problems such as progressive development and growth. That is, the restructuring of knowledge is meant to remove the limits of basic and applied research.

5. **New expectations from university:** Universities must respond to the demands in the fields, such as scientific and technical education, lifelong learning, financial management, organizational management, negotiation management in the process of transitioning to information society.

It is an obligation to restructure the university in the structural, academic and administrative fields to be able to efficiently and effectively perform all its applications (education, research, etc.) that the university has revealed based on its mission and vision. For example, the traditional Humbolt type university model has a rigid, hierarchical structure and entrepreneurial university requires a more flexible and transparent management structure which is more intensely cooperated with society and the economy. Hence, universities like companies and businesses prepare for the future by knowing what the future will bring to them and developing strong strategies that will cope with change based on strong predictions for sustainable growth and development.

The management style of the Second Generation (Humbolt type) universities is severely criticized in the literature. Non-functioning

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management structure, fusty management style, excessive dependence on public resources, excessive bureaucracy in basic management functions, inadequate budgeting, hierarchical human resources management, and out of social and business life education and research processes are basic criticism points (Dziechciarz, 2011).With the change of the management model, instead of Humbolt-type management, a system which entrepreneurial management is dominated, institutional autonomy is provided, state control is minimized, and stakeholders such as NGOs, local administrations, business and economics have more say in management and a leader facilitates change and transformation is proposed. University administrators should provide "marketization" in the local and national context by continuing education and research activities and transferring information and technology to the sector that contribute to socio-economic development (Mowery and Sampat, 2006).

We can see that higher education and the new economic order cannot be separated from each other due to contribution of higher education to economic development and progress as is often expressed in the literature (Penksa, 2010). It is unimaginable to be unaffected by universities in this global world where national borders are now left over in today's new economic order, transportation and communication facilities are increasing and getting cheaper with technological developments, trade is made through imports or exports via online systems and countries' individual currencies lose importance. Universities have had to take a permanent place in this economic discipline with the increase of university-sponsored patents and companies focused on information-technology and new production paradigms based on knowledge-based production.

The globalization of economic and social relations and ascent of information society have caused a direct influence on the university, the ongoing innovation in information technologies and the requirement to respond more flexibly to changing market conditions has also changed the production methods entirely (Subotzky, 1999: 512). Therefore, the universities have to guide the enterprises which are based on scientific knowledge, discovering and applying new production methods, growing qualified human power, producing new goods and services by achieving knowledge-based production in order to help the country to cope with global competition.

Today, accessible higher education, increase in communication and transportation opportunities have led to serious competition

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among the universities. This competition also put forward the matters such as attracting more qualified students and faculty members to their universities (Röpke, 2000), creating more resources by providing the desired quality goods and services through cooperation agreements at higher sums in the public sector especially in business, preparing global curriculum and course contents that enable to grow individuals who know changing production systems, discover information and can easily adapt to work anywhere in the world.

The emergence of changing power balances and private/foundation universities in education at the national level and the rapid increase in competition between universities at international level due to its rapid and cheap mobility have seriously affected the higher education sector (Dima and Vegheş, 2008: 56). While students expect education based on high technology and a program to better prepare them the new economic system from universities, higher education institutions add more computer-aided programs which are appropriate for the expectations of business and economics concerning their curriculums (Penksa, 2010).

The competition triggered by free trade and globalization has put considerable force on the universities with the privatization of the economy and the mutual cooperation of national governments, so left the place to international corporations and universities with the weakening of the public sector (Rinne and Koivula, 2005: 189). Moreover, concepts such as governance, accountability, customization, globalization has led to the adoption of market values such as business, profit, production, value added, productivity, investment, advertising, etc. by the university (Curri and Newson, 1998). Universities began to change their educational and research-based programs they introduced to the labor market by altering product portfolios and introducing themselves to the market with large advertising expenditures (Colado, 2001: 208).

Universities have faced with new responsibilities like contributing to regional, economic and social development, coping with the decline in public resources, competition in the education market and so on. In this respect, universities are under new obligation to be more entrepreneurial, to promote the commercialization of research results together with knowledge-based initiatives, and establish new companies or cooperate with companies (Cano, et. al., 2006).

The new economic system and higher education are now regarded as indivisible whole

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because of the added positive value of higher education to economy. Universities have become the basic element of the new economy with patent rights held by the university with the commercialization and transformation of information to a usable and buyable meta, thus universities are now more centralized to processing like market and market-oriented activities (Park, 2012: 90).

Globalization and integration process increasing with the economic dependence of the nations of the world on one another creates competitive opportunities for talented and successful individuals and knowledge-based investments as well as creates opportunities of global production and information exchange for international companies, firms and corporations. Thus, higher education institutions become a vital part of the creation process of research and innovation (Zaharia and Gibert, 2005: 35). It is a matter that the transfer of knowledge to the private sector in the universities with the commercialization of university researches and the use of this information as goods and services are used as economic development tool. Knowledge transfer and entrepreneurship are becoming the engine of economic development (Curri, 2008).

The globalization of the world's social and economic relations and the rise of information society have also influenced the universities. Increased innovation in information technology and flexible and rapid response to ever-changing market conditions have changed the forms of production (Subotzky, 1999: 516); and this changed the information production forms, creates need more flexible, creative and knowledge-based skills to skills in modern and high technology-based business environments (Zhou and Peng, 2008: 639). As a result, all these changes have been reflected on the educational and research activities of higher education institutions (Subotzky, 1999). Traditional classroom education has left its place to online and distance education. The partnerships with the business world have not only been scientifically based, but also have opened commercialization (Park, 2012: 92). The universities diversify their educational programs and research areas they offer for the market, enrich product portfolio and prepare education programs in accordance with international standards (Colado, 2001: 208).

The entrepreneurial university is a university where anticipation of the business and the industry market is mutually negotiated constantly and made necessary arrangements with traditional academic research curiosity.

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In this context, the entrepreneurial university is not only in a fixed static position also has function as a reflection of new attitudes and expectations against the roles and aims of the university in the new common system based on the information economy (Styhre and Lind, 2010: 916). In the same way, as a response to the rapidly changing business world, entrepreneurial universities have been described as universities which raise students who have the qualifications to find solutions to the increasingly complex problems faced by the business world in the global age (Razvan and Dainora, 2009). Here the target group of the entrepreneurial university is the industrial sector and the business world. The education and orientation of qualified human power that can serve in these areas is in the field of entrepreneurial university.

We have been witnessing that advances in the fields of globalization, economy, international competition, international trade, information era, informatics and communication have changed the science therefore universities towards a life style that values all of these changes, social transformation, cultural integration and a new production and consumption habit (Büyükuslu, 2011). Almost all of the universities around the world started reconstruction process after the last quarter of the 20th century. Modern universities founded based on the needs of modern societies are being reconstructed depending on the necessities of information communities. Traditional Humbold type universities can no longer respond to the requests of the society. Relatively more static, consistent and predictable higher education institutions were forced to transform structurally in order to stand still in this unfamiliar territory and sustain the functions of their existence as basic education, research/information production and public service in a strategic administrative model. To achieve this, universities must undergo changes from traditional to entrepreneurial university. In this study, administrative approach and processes of entrepreneurial university were emphasized; a new executive style to facilitate faster and more effective meet of expectations from industry, society and economy was promoted.

University is regarded as a crucial instrument in creation of modern information-based economy. Since most of the scientific information exists in universities and government-funded institutions; universities are viewed as accelerator of regional socio-economy with their founded or partnered companies, innovative enterprises and production of information that creates added value (Cano, et.al, 2006). Entrepreneurial university is a strong concept that stems from the responsibility of

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universities with economic development and bonds with industry with its researches (Razvan and Dainora, 2009).

University's functional environment is highly dynamic and changeable. In this sense universities do not only stay responsive to ever-increasing production of information, but also try to keep up with the changing process around themselves by technology transfers in association with industry, foundation of new companies or partnership agreements with existing companies (Lehrer, et al., 2009: 274). Thus, comparing with the traditional higher education sector, a new university model with various structures and regulations cannot stand strong in the heating competition of the education platform unless it is entrepreneurial university (Dima and Vegheş, 2008: 57-59).

In the last two decades, universities have evolved from the state of being relatively financed by public resources to more financial autonomy with higher financial risks as results of their actions. This situation leads to an uncertainty related to universities and this uncertainty might be attributed to factors such as commercialization of scientific knowledge, supply of resources from private sector in purpose of research, over emphasis of performance based evaluation criteria, avoiding from researches that have no commercial value(e.g.: social sciences), technology transfer and share by the way of industry-university partnerships, foundation of consortium, owning the rights of intellectual property and leaving the functionalities of education and research behind or aside(Gupta, 2007). This study describes the financial sources of entrepreneurial university and the importance of fiscal autonomy on utilization of these sources and invention of more resources.

In our globalized world; concepts of innovation based production, innovative thinking, computation and preservation of competitive edge, terms concentrated on production of information and technology, economic growth indexed on scientific research and development of technology help promote the universities that have scientific productivity (Büyükuslu, 2011). In this respect; educational activities that were limited with traditional class and research operations restricted with laboratory now have moved beyond campus borders and started spreading in society by industry sector, business world, civic society organizations and government institutions. Technology based new education models of this study in educational theme explain the interdisciplinary and supra-disciplinary importance of education and interactions or co-

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operations with other institutions for the purpose of increasing educational quality.

Universities' adaptation to national and international educational, social, economic political and technological advances as a higher education institution is obligatory. In order for universities to lead the change and initiate the change expected from themselves, they should be able to predict the future from today and make decisions and plans accordingly. This study underlines the new roles and responsibilities of academic and executive administration of university and importance of strong vision under determined mission.

The first transformation was observed in change from educational universities to research-based universities, the last transformation was seen in the change from research based university to entrepreneurial university. In the third generation university, development of information based innovation and its passage to daily life(market) has become the main duty of universities (Farsi and Talebi, 2009: 455-456). Pressure on higher education institutions for meeting the changing needs of society was expressed by many scientists, new variables and trends have impact on university while transforming to information based economy(Farsi and Talebi, 2009: 455-456). Therefore, universities must pursue novelties in education and research to gain better position in market (Suciu and Platis, 2009: 594). Constantly changing nature of societal demands pushes universities towards becoming information communities with more innovative and creative environment (Zaharia and Gibert, 2005: 36). It is inevitable for traditional universities to transform to entrepreneurial shape for the sake of meeting the expectations of government, market, civil society organizations and in wider perspective the whole society.

Apart from the traditional academic functions such as formation of human resources and research, as a third function, entrepreneurial university adopts the duties of technology transfer, innovative production, economy and contribution to society. Nowadays, in many places of the world, universities try to expand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an "entrepreneurial" approach to make more resources. This study states that universities should create more financial sources apart from traditional ones and describes the methods and ways in which they can accomplish it.

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What is Entrepreneurial University?

Entrepreneurial universities mainly aim to contribute to society, transfer technology and produce innovatively as their third function after traditional functions of creating human resources and conducting research. Nowadays, in many places of the world, universities try to expand and diversify their sources of income. Aside from public sources assigned to them, universities evaluate their facilities, vehicles, knowledge sources, and qualified work force with an "entrepreneurial" approach to make more resources. This study states that universities should create more financial sources apart from traditional ones and describes the methods and ways in which they can accomplish it.

Wissema (2009) lists the reasons of passage to entrepreneurial university as follows: private sector's inclusion on covering increasing costs of ground breaking scientific researches, global competition in education and research, more R&D operations of technology based companies in universities, concentration on interdisciplinary research, high demand for contractual researches, non-public resource search, production of goods and services based on information, technology and innovation. Based on all of these causes, this study will provide a new entrepreneurial approach to higher education institutions, government bureaucracy, and industrial parties. Also, this study hopes to increase the limited native literature on the subject of entrepreneurial university.

Entrepreneurial university takes on three traditional roles (education, research and service) (Mets, 2009: 3). This means that aside from education and research, entrepreneurial university institutionally serves to itself and its hosting society by technology transfer centres that acquires patent and license rights and turns the findings of scientific researches into products and services to make profits. On the other hand, entrepreneurial university creates entrepreneurial competence and courage in the mental world of academic staff, students and graduates and commercializes the information by making products and services out of it. Howard (2005) argues that the information that improves prosperity can be conveyed to industry and manufacturing sectors in these four ways:

1. Diffusion of Information: The first step of using information is assimilation of research findings of universities by industrial sector with cooperation, education or cultivation. This is the step where scientific information of university is recognized by industry.

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2. Production of Information: Contractual selling of scientifically produced information of university to industry sector by reserving copyrights.

3. Information Bond: Transformation of information to products and services. University utilizes its opportunities in the context of intellectual properties, trade secrets and usage of information to cooperate and partner with industry.

4. Partnership of Information: Production of information in order to produce financial benefits and make mutual profits.

As noticed, entrepreneurial university plays an active role on information economy by being the third-generation university. Entrepreneurial university conducts the transfer of information and technology by establishing direct or indirect connection with business world, selling patents and licenses, founding small sized firms (spin off) based on new ideas and using transfer offices, incubation centres or university based technoparks (Guenter and Wagner, 2008). Entrepreneurial university forms the culture of entrepreneurship within and around itself, supports local development by establishing new enterprises, commercializes the findings of researches by ways of spin off[1] and spin out[2] firms, patent and license rights or transfer contracts (Gajon, 2007).

Entrepreneurial university is a new organizational model that allows the competition for the purpose of finding more external resources, increasing efficiency, contributing to economic development and commercializing the results of the studies (Hakala, 2009: 137-141). In such entrepreneurship-focused universities, research and learning events are developed through individuals of different levels (student, faculty member, executive personnel) with initiative development skills, these universities are subjected to be governed so as to contribute to the economic and social improvement (Etzkowitz, 2006).

A research carried out by Sooreh, et al., (2011: 185-189) suggests a systematic approach while describing the concept of modern entrepreneurial university. According to this, entrepreneurial university is a dynamic system involving the inputs such as resource, rules and regulations, structure, mission, entrepre-

1 Spin off: The name of the firm that is founded separately from the institutional identity of the university and utilizes the information and technology acquired from R&D studies within the university for the goal of making products and providing services.

2 Spin out: The name given to firms that are founded within the institutional identity of the university by using the information, technology and innovation obtained from R&D studies by students and academic staff of the university.

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neurship competencies, societal expectations, industry, government and market; a network consisting of education, research, logistics, commercialization, budgeting, finances and executive operations; a process including multidimensional relationships, innovation, research and developmental events; and lastly an organizational model targeting entrepreneurial human resources in accordance with the demands of the market. Likewise, Heinonen and Hytti (2008) defined entrepreneurial university as the entrepreneurial shape, attitude and action inside the university that promotes the entrepreneurial individuals and entrepreneurship culture, encourages change and risk-taking, and involves academic staff and students who are capable of making technology transfer and innovation sustainably.

Entrepreneurial university strongly affects the rise of the local and global industry, and leads to the economic development through effective research, transfer of technology and entrepreneurship abilities (Zhou and Peng, 2008: 641). Entrepreneurial universities are the institutions that take active roles in shaping their surrounding environment, find new demands and customers for their products by various functions, create added value for socio-economic development with its shareholders(students, graduates, academicians, local and regional authorities, regional, national and international business world, civic society organizations, chambers of industry and commerce and etc.), and constitute the production of information based services (Pawlowski, 2001: 431-434).

Basic arguments of entrepreneurial universities include research and development related to industry sector, consultancy, technology transfer, providing life-long learning opportunities, admittance of increasing number of foreign students, carrying out education abroad by offshore campuses, franchise campuses, providing distance learning chance, and providing the opportunity to benefit from physical campus facilities (meeting halls, advertising in sports events and classrooms) (Davies, 2001).

According to Marginson and Considine (2001), getting pressured by resource availability and finances, higher education institutions find ways to enrich their resources by cooperating with non-public firms and companies and commercializing the information and technology they produce.

Entrepreneurial university bears an important function on producing scientific information and sharing it with the public by means of publications. In this sense, entrepreneurial university defines a creative organization which develops joint strategies to reach the best stance in finding finance resources, electing quality

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students and faculty members or conducting qualified research in a limitless competition environment, tries to be more productive and bonds strongly between the functionalities of education and research (Kirby, 2005; cited Guerrero and Urbano, 2010). Today, the indicator of a successful university is the ability to turn the research findings and scientific knowledge into high quality, low cost products and services. Efficiency is of paramount importance in international economy, and competition is the most crucial element in world trade. Accordingly, universities should not only restrict themselves with education and research but also target novelties using innovation tools in today's world economics where entrepreneurship is valued (Sarchami and Sarchami, 2010).

Entrepreneurial university can cooperate intensely with public institutions and industrial firms, create a wide range of income sources, support the entrepreneurial activities of all its parties, develop distinct strategies to found new companies and make changes in its organizational structure to make all of these possible (Cano, et al., 2006).

Entrepreneurial university is a multi-layered structure that allows the passage of scientific information from academy to industry through university based techno parks and establishes indirect relationships with industry sector with its entrepreneurial training (Günther and Wagner, 2007). In modern higher education field, entrepreneurial university appears as a symbol that represents the collaboration of business world and academy, which used to be far apart (Mautner, 2012: 112).

In the process of creating new working fields, entrepreneurial universities support entrepreneurial individuals (faculty members and students) in education, finances and marketing techniques, provide experiences for the investors in finance and marketing on reaching out to new working fields, possess the facilities to foresee the possible opportunities and threats and connect the firms and companies working on similar sectors (Sarchami and Sarchami, 2010).

We can summarize that entrepreneurial university is the total of university's definitive and basic reactions on production of information and technology and efficiency of transmission of these components from university to industry and society in regional and national innovation system. In information-based economy, university has become the key institution of innovation with its support of creation of human resources by working together with government and industry and foundation of information based firms (Peterka, 2011).

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Entrepreneurial university proposes a new, competitive, autonomous, innovative, proactive and risk taking model that initiates enterprises independently by taking all the risks and utilizes all given resources, especially human resources, in different fields and duties creatively to contribute to the socio-economic development of the region (Suciu and Platis, 2009).

Gjerding, et al., (2005) expressed that universities should possess these three convergent and dependent factors in pursuit of entrepreneurial identity:

Strategy: University must continuously and clearly define its entrepreneurial vision and detect which measurable results are targeted and who will achieve them

Structure: Both formal and informal university structures should be scrutinized to facilitate and promote entrepreneurship

Culture: The process of entrepreneurship is dependent on entrepreneurs. The examples of successful enterprises should be regular shown to the entire staff to lead the way for creation of an entrepreneurial spirit.

One of the mostly attributed definitions in the discussion of entrepreneurial university in academic platform is this: Entrepreneurial university acts as a company in trying to find external sources for university and engages in commercial activities like a business and this definition refers to the joint activities with information and technology transfer (Kyrö and Matilla, 2012). According to this definition, university focuses on outer results of the entrepreneurship such as commercializing the research findings, founding companies and capital investment.

Entrepreneurial university is the organization functioning on many areas, constantly looking for new opportunities and taking significant role in the shaping of our future. In addition, this type of university is seen as the institution to follow the multidimensional and changing market that works towards meeting the needs, evaluating new opportunities and keeping the superiority in competition (Pawlowski, 2001: 432).

Lehrer, et al., (2009) keep the entrepreneurial university as the equivalent of “dynamic” university and state that the opposite would be “bureaucratic” or “static” university that does not have a roadmap on the adaptation to the changing environment and institutional development. The adjective of “entrepreneurial” means the same as “commercial”. In this context, the opposite of entrepreneurial university is the traditional university, which is largely occupied with scientific information, how-

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ever does not commercialize the information with the help of technology transfer offices, incubation centers and bonds with industrial world. Entrepreneurial university supports regional and national development by technology transfer of academic researches, patent licensing and university based start ups (Levine, 2009).

Developmental Stages of Entrepreneurial Universities

It is a significant fact that in the last thirty years, universities have evolved from traditional styles to entrepreneurial structures with more entrepreneurial activities. Levie and Autio (2008: 246-249) has classified the factors stimulating this change in two categories. The first one is the fact that research findings of universities that brought up technology transfer philosophy were used commercially and that was made possible by "Patent and Trademark Law Amendments Act" or known as Bayh Dole Act in 1980. In accordance with this act on the congress, changes were made in copyright laws to commercialize the researches financed by public in partnership with industry (Yusof and Join, 2008: 85). The other cause is that, besides education and research universities had to serve to a third purpose (supporting economic and social development) and therefore the university's role on national innovation altered (Zaharia and Gibert, 2005: 36) which brought new responsibilities to universities.

Etzkowitz (2006) claims that entrepreneurial university is the second academic revolution. The first revolution is the duty of conducting research apart from traditional education in universities and the second one is contributing to social and economic life by commercializing the scientific information obtained from education and research and thus transforming it into products and services that create added value (Farsi, et al., 2012: 197-200).

Despite social, political and economic changes in the world, from the Medieval Ages to the 20th century, university had not shown a significance change and remained relatively constant, preserving its status (Harloe and Perry, 2005: 35). From Medieval times to nowadays, education was accepted as the main function of the university; research began to involve in university's responsibilities in the end of the 19th century and at the beginning of the 20th century. After almost a hundred years, apart from education and research missions of the university, the third mission defined as contribution to society and economy was included. In many developed countries that experienced industrial revolution, with the new higher education paradigm flourishing in the 1980s,

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change in economic, social and educational policies has reflected on all parts of community (Rinne and Koivula, 2005: 188). The source of information and new ideas and the place of the distinguished elites has become a contributor of economic development with the last transformation (Heinonen and Hytti, 2008: 330).

The term entrepreneurial university was first stated by Etzkowitz (1983) who is an eminent figure in the field of change and transformation of modern university. Afterwards, Webster and Etzkowitz (1991) defined entrepreneurial university as the second academic revolution putting economic effectiveness of profit and sources in the heart of university and indispensable university of the future cited (Nelles and Vorley 2009: 345). Entrepreneurial university was particularly associated with Burton R. Clark. His book that was published in 1988 titled “Towards Entrepreneurial University: Roadmap of the Organizational Change” expressed the university model of the 21th century and has been the most attributed source in the whole world especially England, North America and Australia (Mautner, 2012: 99). The book examines the events taking place in 8 different universities. These universities are as follows: Warwick (United Kingdom), Strathclyde (Scotland), Twente (Holland), Joensuu (Finland), Chalmers (Sweeden), Makarere University (Uganda), Catholic University (Chile) and Monash University (Australia).

Promoting socio-economic benefit as the third function besides traditional education and research functions, entrepreneurial university has started a new trend by conveying scientific knowledge and technology to industry and production sector in several ways. Nowadays, university is not the place where only knowledge is produced, but also carries out the functions of making contractual studies with business sector, conducting result-oriented projects in partnership with industry sector, expanding the vision of science world by scientific publication and founding spin-off firms. This term that is called as “commercialization of scientific knowledge” and led to practice usage of scientific knowledge in daily lives by strong relationship between the producer of the knowledge(academy) and the exerciser of the knowledge(industry). The foundation of this change was especially laid in United States after the World War II, then it was followed by Europe after the last quarter of 20th century (Rinne and Koivula, 2005). Etzkowitz (2003a) describes the motives of passage to entrepreneurial university as follows:

1- Non-public resource search of American universities after the decrease in central and

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federal governments' resources as of the 19th century.

2- The fact that European universities looked out for non-public resources to close the innovation gap with American universities (Lisbon Agreement was signed for this purpose in 2000 to make the continent of Europe the centre of entrepreneurship and innovation). Also the objectives of Bologna Process such as providing and spreading the mobility of students and faculty members and forming a synergy between Europe Higher Education Field and Europe Research Field serves to the same purpose.

From the standpoint of change in universities of Europe, traditional education based on guild system in which public servants receive education left its place Humbold type of organization that brings together the education and research and targets not only the elite and distinguished people but masses and finally resulting in entrepreneurial universities that commercialize the research (Rinne and Koviula, 2005: 125-127).

Marketing and the consequent value creation culture has become a key term that is frequently discussed in the higher education platform. In other words, definitions belonging to business area such as "educational entrepreneurship", "entrepreneurial university", "customer", "market", "market value", mission and vision descriptions", "profit rate", "added value", "sustainable progression and development", and "innovation" have become common in university culture and business based "entrepreneurial culture" has taken hold of universities (Xiong, 2012: 322). As inferred from the definitions, especially after the last quarter of the 20th century, it can be observed how duties and objectives of higher education institutions have confronted evolutional changes.

Elements of Entrepreneurial University

Clark (1998) states 5 main elements of entrepreneurial universities: Strong guidance basis, wide scientific environment, various sources of profit, supported academic environment and internalized entrepreneurial culture.

Guerrero and Urbano (2010: 55-59) define the elements of entrepreneurial university as follows: Pace and skills of adaptation to the environment, change in executive and institutional structure to provide the quick adaptation to changes in environment, new strategies for regulating internal and external affairs of the institution, the skills of creating new entrepreneurial events and associating them with the academic quality of the institution, environmental pressures stemming from the government and other surrounding parties, and applicable entrepreneurial advice.

Departure point of the three last stated elements stated above is the first element. The first step for university administrators and academicians to take towards entrepreneurial university model is to establish strong and stable willpower within the university. When the first stage is completed, all the voluntary parties of entrepreneurial organization will internalize the new institutional structure and tools to be used faster and easier.

Bratainu and Stanciu (2010: 120-122) list the elements of entrepreneurial university as the institutional culture that encourages risk-taking, flexible organizational structure, developing new strategies towards application, and forming strategical partnerships with outer parties.

Five Main Principles of Clark

It was suggested that the discussion of entrepreneurial university began by a study of Burton Clark on five universities in 1993; Clark reveals five main elements of entrepreneurial university in this study. These are:

A strong central administrative staff to bring academicians and executives together

Wide developmental environment to reach out beyond traditional university environment

Various sources of income with wide range, not only based on public resources

Academic units encouraged on conducting entrepreneurial operations

Entrepreneurial culture internalizing dedication to change

Clark (1998) describes how these elements are supposed to transform the university to an entrepreneurial organization in detail. He claims that these elements might seem independent; however, the full interaction of these five elements will turn the university into an entrepreneurial organization. He explains that these five elements were formed by the shared common values of all the universities of his research but also include local differences.

Furthermore, in the entrepreneurial university model, it is told that these elements complement each other and establishment of a single or several elements without reaching the full-set does not constitute significant meaning (Alayoglu and Karabulut, 2011; Oleksiyenko, 2002; Tuunainen, 2005).

The Role of Entrepreneurial University

Rinne and Koivula (2009) argue that universities should adapt to the changes much faster

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than before so as to preserve their leading role on contributing to social improvement in information societies. University is believed to have a responsibility and a central role on information production systems by actively engaging in entrepreneurial operations.

Moving by the fact that universities experience an era of change (Etzkowitz and Viale, 2010: 597), now universities are not only expected to perform education and research but also pay more attention society and economy, produce information in accordance with the expectations of society and economy and contribute to societal and economic development by turning this information to added value (Nelles and Vorley, 2009: 346). In ever changing and highly competitive global information economy, the value of education in higher education had never been more significant since higher education institutions are the primary sources of skilled labor and economic development, therefore societal improvement. This is true for both individual and societal development (Crow, 2008). Utilizing the information commercially apart from education and research missions of newly formulated university allows universities to better contribute the benefits stated above (Rabbinge and Slingerland, 2009).

In general, entrepreneurial university bears primary duties and responsibilities on making economic entrepreneurships by producing, utilizing and operating information, installing high quality and advanced manufactured systems, improving the quality of workforce, employment, increasing income by the way of individual employment(spin off spin out), finding solutions to problems by forming strong bonds between university, industry and society, increasing the production thus contributing to economic development and social prosperity (Sarchami and Sarchami, 2010).

CONCLUSION

In this study, the concept that is highly discussed in higher education platform of our country for the last several years, entrepreneurial university, was articulated with its all aspects. In the first section, the reasons for the transformation towards entrepreneurial university were explained and inner and outer factors impacting universities were stated.

More complicated structures of universities, increasing number of students as a result of massification and shareholders covering a quite large part of the community make it harder to govern universities in traditional fellow worker way. Therefore, it is suggested that entrepreneurial university should be governed by professional administrators. Entrepreneur

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university was founded upon the market demands of educational and research notions and entrepreneurial university is largely market-oriented. In this regard, it is important for university administrators to keep track of the market closely and respond to the demands, expectations and requests of the market effectively and timely. This can only be achieved by administrators who have a deep understanding of the market and can harmonize the expectations of market with sensitivities of academic community.

Most entrepreneurial universities are based on boutique university structure that clusters in a particular field and only operates in that field. For example, reviewing EU countries, it is observed that many universities consist of only a couple of faculties. In this sense, it is possible to notice universities with tens of faculties and hundreds of departments in public universities of Turkey. Entrepreneur universities seem to have only several faculties and limited number of departments within these faculties. Here, the purpose is to define a thematic field and conduct quality educational functions and authentic research and development activities in that field. Examining the academic units of recently founded private universities, it is obvious that they are made up of restricted number of faculties and departments. This is the right academical organization and the trend in the world is shifting towards this foundation. Hence, it is advised that the focus of existing universities should be on certain thematic fields and universities that will be founded in the future should consist of a few faculties and departments.

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YÜKSEKÖĞRETİMDE YENİ PARADİGMA; GİRİŞİMCİ ÜNİVERSİTE

Öz: Amaç: Bu çalışmada yükseköğretimin yeni bir yapılanması girişimci üniversite kavramı üzerinde durulmuş, gelişmiş ülkelerde özellikle son otuz yıldan bu yana sıkça gündemde olan ve birçok ülkenin yükseköğretim sistemlerinin de girişimci üniversiteye doğru evrildiği günümüzde bu yeni paradigmanın tüm boyutları ortaya konulmaya çalışılmıştır. Girişimci üniversite, teknoloji transfer ofisleri, kuluçka merkezleri üniversite temelli teknoparklar yoluyla teknolojinin ve bilimsel bilginin akademiden endüstri sektörüne doğrudan aktarımını sağlayan ve girişimcilik eğitimi ile de endüstri sektörüyle dolaylı bağlantılar kuran çok katmanlı bir yapıdır. İlk dönüşüm eğitim temelli üniversiteden araştırma temelli üniversiteye geçişte, son değişim ise araştırma temelli üniversiteden girişimci üniversiteye geçişte yaşandı. Üçüncü nesil üniversitede bilgi temelli inovasyonun gelişimi ve günlük hayata (piyasaya) aktarımı üniversitelerin temel işlevi ve sorumluluğu oldu. Toplumun değişen ihtiyaçlarını karşılama yönünde yükseköğretim kurumları üzerindeki baskılar birçok bilim insanı tarafından dile getirilmekte, bilgi temelli ekonomiye geçiş sürecinde üniversite üzerinde yeni değişkenler ve trendler etkili olmaktadır. Bu durumda üniversiteler, piyasada daha iyi bir konum elde etmek için eğitim ve araştırma alanında yenilik yapmak zorundadır. Toplumsal taleplerin sürekli değişen doğası üniversiteleri bilgi toplumu olma yönünde, daha inovatif ve yaratıcı olma yönünde zorlamaktadır. Devletten, piyasadan, sivil toplum kuruluşlarından ve en geniş anlamıyla toplumdan gelen bu beklentileri karşılayabilmek için geleneksel üniversitenin girişimci üniversiteye doğru değişimi kaçınılmazdır. Girişimci üniversite, geleneksel üç rolünü -eğitim, araştırma ve topluma hizmet- yeni bir yaklaşımla sürdürür. Bu şu anlama gelmektedir, eğitim ve araştırma yapmanın yanı sıra kurumsal olarak girişimci üniversite, teknoloji transfer merkezleri, araştırmaya dayalı patent ve lisans hakları elde eder. Girişimci üniversite, bilimsel araştırmalardan elde edilen sonuçları direk mal ve hizmete çevirerek karşılığında maddi kazanç sağlar ve böylelikle hem kendine ve hem içinde bulunduğu topluma hizmet eder. Girişimci üniversite geleneksel üç rolü (eğitim, araştırma ve topluma hizmet) yerine getirir. Bu şu anlama gelmektedir: Eğitim ve araştırma yapmanın yanı sıra kurumsal olarak girişimci üniversite, teknoloji transfer merkezleri yoluyla, araştırmaya dayalı patent ve lisans hakları elde eden ve bilimsel araştırmalardan elde ettiği

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sonuçları direkt mal ve hizmete çevirerek karşılığında maddi kazanç sağlayan ve böylelikle hem kendine ve hem içinde bulunduğu topluma hizmet eden üniversitedir. Diğer taraftan girişimci üniversite, akademik personelin öğrencilerin ve mezunlarının zihin dünyasında girişimci yeterlik ve cesaret yaratır, üretilen yeni bilgiyi, mal ve hizmete dönüştürerek ticarileşmesini sağlar Aynı şekilde girişimci üniversite, hızla değişen işletme dünyasına bir cevap olarak, iş dünyasının küresel çağda karşılaştığı git gide artan karmaşık sorunlara çözümler bulabilecek niteliklere sahip mezunlar yetiştiren üniversitelerdir. Üniversiteler şimdiye kadar göze çarpan iki devrimden geçmişlerdir: Birincisi salt eğitim öğretim amaçlı üniversiteden araştırma yapan üniversiteye geçiş aşamasıydı ve artık özellikle Amerika'da ve Avrupa'da üniversitelerin çok büyük bir kısmı bu aşamayı geçmiş olarak kabul edilmektedir. Geleneksel Humbold tipi üniversitelerin kuruluş amacı eğitim-öğretim odaklı bir misyon taşırken özellikle İkinci Dünya Savaşı'ndan sonra üniversiteler araştırma odaklı bir misyon taşımaya başlamıştır. İkinci devrim ise araştırma üniversitelerinden girişimci üniversiteye geçiştir. Üniversitelerde geleneksel eğitim ve araştırma misyonundan üçüncü misyona (üretilen bilginin ticarileşerek ekonomik gelişime katkısı) doğru dönüşümde yapısal bir değişim göze çarpmaktadır. Üçüncü nesil üniversitede bilgi üretimi ve üretilen bilginin bilgi tabanlı inovasyona dönüştürülerek kullanılabilir ve "para edecek" şekle dönüştürülmesi amaçlanmaktadır Burada girişimci üniversitenin hedef kitlesi sanayi sektörü ve işletme dünyasıdır. Alanyazında da çokça ifade edildiği üzere yükseköğretimin ekonomik gelişme ve ilerlemeye katkısı dolaysıyla yükseköğretimin ve yeni ekonomik düzenin birbirinden ayrılamayacağını görmekteyiz. Ulaşım ve iletişim imkânlarının teknolojik gelişmelerle birlikte arttığı ve ucuzladığı günümüz yeni ekonomik düzeninde artık ulusal sınırlarının kalktığı, ticaretin ithalat veya ihracatın online sistemler üzerinden yapıldığı ve ülkelerin bireysel anlamda para birimlerinin önemini kaybettiği bu küresel dünyadan üniversitelerin etkilenmemesi düşünülemez. Üniversite destekli patentlerin ve bilgi-teknoloji yoğun şirketlerin artması ve bilgiye dayalı üretimi temel alan yeni üretim paradigmalarıyla birlikte üniversiteler artık bu ekonomik düzende kendilerine kalıcı bir yer edinmek durumunda kalmıştır. Bu çalışmanın amacı girişimci üniversite paradigmasının kavramsal çerçevesini ortaya koymak ve girişimci üniversiteye dönüşmek isteyen geleneksel üniversite yöneticileri için rehber, araştırmacılar için bir kaynak niteliğinde olup kuramsal olarak alana katkı sağlayıp ve bu alanda yapılan çalışmalara bir yenilik getirebilmektir. **Metod:** Araştırmada girişimci üniversite kavramı tüm yönleriyle ortaya konarak literatüre dayalı, ülkemizde uygulanabilecek bir model

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tasarlanmış ve modelin uygulanabilirliği alanda uzman öğretim üyelerinin değerlendirmesine sunulmuştur. Betimsel araştırma olayların, durumların, varlıkların, kurumların vb. alanların “ne” olduğunu betimlemeye, açıklamaya çalışır. Dolaysıyla doküman analizi ve görüşme gibi nitel veri toplama yöntemleriyle toplanacak bilgilerin konunun derinlemesine inceleme olanağı sağlayacağı düşüncesiyle araştırma modelinin nitel olması gerektiğine karar verilmiştir. Araştırmada okuyucuya girişimci üniversite ile ilgili kavramsal çerçeve sunulmaktadır. **Bulgular:** Girişimci üniversite paradigmasının tanımı, parametreleri, ilkeleri ile üniversite-sanayi işbirliği, üniversite araştırmalarının ticarileşmesi vb. alt alanlarda ayrıntılı bilgiler verilmiştir. Araştırma ile ilgili yerli ve yabancı kaynaklara üniversite kütüphaneleri ve internet aracılığı ile ulaşılmıştır. Araştırmada verilerin toplanması amacıyla önce alan yazın taraması yapılmış, konuyla ilgili yayın ve kaynaklar toplanmıştır. Çalışmada dünyadaki “Girişimci Üniversite” konsepti literatür taraması yapılarak ortaya konmuştur.

Anahtar Kelimeler: Girişimci Üniversite, Üçüncü Kuşak Üniversite, Multiversite, Üniversite-Sanayi Işbirliği, İnovatif Üniversite

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13 The internet resources should be indicated in the references part under the title of "INTERNET RESOURCES". The link should be included in the resources and the Access date should be after the link like "E.T. 01.01.2017).

14 Typesetting and editing of the paper should be in accordance with the sample article format on the website and the references within the text must be prepared as per the sample article.

15 The current papers are uploaded to the system by the author being the member of the system step by step. The paper uploaded is sent to the relevant field editor by the system manager and asked for approval for referee evaluation. If there are more than one author name in the paper, this information should be inserted in the system together with the names and institutions of author(s) while uploading the paper to the system. Our journal and management never accepts responsibility regarding the problems that may arise about the names and institutions of authors related to the article. This information must be unilaterally inserted in the system by author(s). Our journal and management aren't responsible to insert this information to the system. Our journal and management only take into account the information uploaded to the system by author(s).

16 The language of our journal is English. However, the papers prepared in different situations and principles are accepted in other languages. In this case, the publication board unilaterally reserves the right to use initiative or reject. Relevant author(s) cannot be effective or impose sanction on our journal in this matter.

17 The author cannot decide on which referee will evaluate the paper and won't know the information of the referee making the evaluation. After the referee evaluation of the relevant paper, the correspondent author who accepts the responsibility in uploading the paper to the system is informed via the web system. The e-mail address in the journal system should be valid and correct. The member author is unilaterally responsible for any delay and problem that may arise about the authors whose membership information isn't valid and correct in the system. Our journal doesn't address comments to other authors. The member author who uploads the paper to the system is the addressee and the responsibility belongs to the relevant author. If the paper is uploaded to the system by someone else whose name isn't in the paper, the relevant member becomes responsible for this situation. Our journal and management are never responsible for possible problems. All kinds of correspondences and information related to the article are directed to the member author. Our journal isn't supposed to inform other author(s).

18 Information about the authors and the materials of communication are confidential and it is only known by system manager and the editor. Therefore, authors don't have such a right to ask for referee evaluation or any other demand. Information on referees and authors are only shared with the system editor, technical editor, chief editor and the field editor.

19 The number of pages uploaded to the system is 20. This number can increase according to the subject of the paper. Annexes and tables can be excluded from this number. However, publication board, field editor and the chief editor unilaterally reserve their right to make a positive or negative evaluation. Author(s) cannot claim a right in this matter.

20 Our journal is an "e" electronic journal but is also published in paper version. Individuals who would like to get printed version of the journal can obtain it by paying the necessary fee to the relevant printing company. Our journal does not have to provide printed version of the journal to any author or individual. Annual membership fee should also be sent to relevant printing company for works sent to our journal. A reasonable amount of fee is requested from the author of the paper approved for publication considering the journal expenses and according to the conditions of that time. The relevant author or the person who makes the payment is sent a receipt about the payment by the beneficiary company.

21 Evaluation process of works uploaded to the system is two months. Works which are not evaluated within this period of time and about which information report is not received are sent to a different referee. Author(s) cannot claim a right on our journal and management because of this delay. It is out of question for the papers being in the referee evaluation process to be withdrawn from the journal under any circumstances.

22 Our journal publishes four times a year. The journal and publication board has a right to publish special issues. This is up to the initiative of journal management.

23 Publication and copyright of published papers belong to our journal. Publication right of every paper uploaded to the system is automatically transferred to the journal. The responsible author approves the transfer contract created at the same time with the button on the website while uploading the paper to the system. None of the authors are requested to sign the copyright agreement for this procedure. Journal management has the right to demand transfer agreement with wet signature if required. The papers being in the referee evaluation process cannot be withdrawn from the publication. A valid reason should be indicated for the papers that are withdrawn. Otherwise, legal action is unilaterally taken against the relevant author(s). Author(s) approve these conditions in advance for the paper uploaded to the system. None of the author(s) have a right to object.

24 Relevant author(s) are supposed to insert the ethics board or institutional approval while uploading the paper to the system if necessary. The whole responsibility unilaterally belongs to author(s) in case of a possible problem if the information of papers for which ethics board or institutional approval is required isn't inserted in the system or the journal management isn't informed. Our journal is never asked to accept such a responsibility. Our journal and management doesn't have to ask or monitor this information.

IT IS CONSIDERED THAT ABOVEMENTIONED 24 ITEMS OF PUBLICATION PRINCIPLES GUIDELINE ARE ACCEPTED BY AUTHOR OR AUTHORS WHO ARE INVOLVED IN THE SYSTEM. NO AUTHOR HAS THE RIGHT TO OBJECT TO THESE PRINCIPLES. OUR JOURNAL HAS UNILATERAL RIGHT IN TERMS OF PUBLICATION PRINCIPLES, AND PUBLISHING, EVALUATION OR REFUSAL OF WORKS. THIS RIGHT CANNOT BE CHANGED UNDER ANY CIRCUMSTANCES AND CONDITIONS. OUR JOURNAL HAS THE RIGHT TO USE ITS LEGAL RIGHTS WITHIN THE FRAMEWORK OF RELEVANT LAWS AND LIABILITIES IN CASE OF AUTHOR/AUTHORS WHO DO NOT ACT IN ACCORDANCE WITH RELEVANT PRINCIPLES AND RULES. EVERYBODY WHO IS INVOLVED IN THE SYSTEM HAS AUTOMATICALLY AGREED ON THESE POINTS IN ADVANCE.

GUIDELINES FOR THE AUTHORS

1 The language of the journal is English. Original researches, analyses, compilations, case studies, projects and book launches are accepted (they must be in an article format).

2 If the editorial board and the administrative board approve the papers prepared in different languages, it is accepted. The journal acts unilaterally.

3 The journal has a printed and electronic version. The articles are downloaded from the website and the relevant manuscript can be used on condition that it is referred to our journal and "article". The readers can have an access to all volumes of the journal for free on the website.

4 Papers are accepted on condition that the author is registered to be a member of the journal.

5 None of the authors can assert legal rights on the journal.

6 The journal cannot be held ethically and biostatistically responsible for the papers; however, the author himself/herself is unilaterally responsible for the articles. Our journal cannot be put under an obligation. Author(s) must get the relevant approvals and inform the journal management for the articles requiring ethics board or institutional approval. The information of the papers requiring ethics board and institutional approval should be entered into the system by the responsible member author while uploading the article. In case of a problem, author(s) are unilaterally held responsible. Our journal never accepts liability in any matters.

7 The papers, submitted to the journal, should not have been sent to another journal previously and under consideration of another journal for publication simultaneously. Also, if it is determined that an article sent and processed in our journal has been in the publication process at the same time, our journal unilaterally reserves its legal rights against the relevant author(s). If such cases occur, the article is rejected on condition that refutation is published and the journal imposes the required sanctions on the author(s).

8 Each study is evaluated by the two referees, and the approved papers by the two referees are saved to be published in the following issues. Evaluation period of papers is three months according to the responses of referees. The papers that don't yield any response regarding the evaluation within three months are directed to another referee. In this case, a time extension is in question and a demand cannot be raised. The author cannot claim any right or withdraw the article from the system. The manuscripts in the referee evaluation process must be analyzed in terms of plagiarism and they should be sent to us and uploaded to the system in line with the scientific ethical rules. In case it has been determined that the articles published in our journal don't comply with the scientific ethical rules, we reserve our legal rights against the relevant author(s).

9 None of the studies and authors has privileges in the journal. Each author and study has the same rights and they're equal. No privilege is granted.

10 The names of the referees-experts in their fields will not be revealed to the authors. Information concerning the authors is known only by the system manager and the editor. It is kept confidential.

11 The papers uploaded to the system are first evaluated by the editor. A correction demand can be raised by our editorial board for the manuscripts not complying with the spelling rules. The articles edited in line with the spelling rules are sent to referee evaluation. The corrections demanded by the referee can be seen on the system by the relevant responsible author with the membership information and the correspondent author is informed via the system by e-mail. Every referee has the right to claim correction three times for a paper. If the correction isn't still made after three demands, the paper is automatically "REJECTED". The papers corrected in accordance with the referee suggestions are "ACCEPTED" or "REJECTED" after being evaluated by the editor again. The correspondent author is informed via the system by e-mail. The paper can be REJECTED with the decision of chief editor even though it has gone through the referee approval. All rights belong to the chief editor in this matter. None of the author(s) can impose a sanction on the decisions of chief editor or raise any demand.

12 If the article is produced from the thesis, presentation, and so on, it should be stated and explained in the footnote. Otherwise the author is accused of plagiarism. In that case, the journal cannot be held responsible for this situation.

13 If the paper is not within the scope of the journal, it is the editors and the administrators who will accept or reject the paper unilaterally. The author cannot assert any legal rights.

14 The uploaded study belongs to the journal with its exclusive rights by author(s). For this reason, it is not necessary for the author(s) to sign any other documents. The studies uploaded to the system are regarded as being transferred to our journal with all rights. If necessary, author(s) can be demanded a transfer contract with wet signature.

15 In the articles evaluated in our journal, the correspondent author is regarded as the addressee; other authors are not communicated and informed. The journal is not supposed to give information to other authors.

16 The referees act independently in the journal. Authors cannot exercise power over the referees or cannot demand anything from the referees.

17 The journal publishes four times a year in March, June, September and December. However, there might be changes in the periods depending on the publication process. The journal cannot be held responsible for this.

18 Following the evaluation process of the papers, the referee report can be seen on the system and sent to the correspondent author by e-mail. After completing the two-referee evaluation process, correction demand can be made via the system by e-mail. The corrections made before that cannot be allowed in the system. The edited paper should be uploaded again with the registered ID number. The authors should make the required corrections in 15 days. If the corrections are not made within 15 days, the article is rejected by the system automatically. None of the authors can impose sanctions on the journal in this case.

WRITING RULES OF THE JOURNAL

- The bibliography is arranged according to the Turkish alphabet order. The sample article for the writing rules and preparation of papers can be found on our website in Word format. All authors are required to take into account the writing format in the last volume of the journal.
- The main text of papers, abstract, tables and footnotes that will be sent to the journal must be written in MS Word Program, with Times New Roman in 12 pt. and single spaced.
- Page layout must be with 3 cm margin in the top, bottom, left and right.
- Texts must be between 15-20 pages, they must be no longer than 20 pages and page number must be indicated at the bottom of the page. Annex documents, tables, figures, charts and similar materials aren't included in the number of pages.
- Page layout must include the titles, abstract and tables written in one column, the main text and the references should be given in two columns, justified and without indentation, spacing 12nk below the titles and paragraphs. Extended English Abstract must be provided after the references in 12 pt. and one column.
- On the first page, Özet and Anahtar Kelimeler in Turkish must be below the Turkish heading, Abstract and Key Words must be below the English heading. Abstract in Turkish and English must be no longer than 150-200 words in 12 pt. Sub-headings must include Abstract, Aim, Method, Findings, Conclusion and Key Words. Anahtar Sözcük(Ler)/ Key Words must be given in 3-7 words below the Abstracts by capitalizing the first letters of each word. In addition to this, key words must be written in the space provided by the system by capitalizing the first letters of each word and by separating each word by comma. It is necessary to choose the Turkish keywords according to "Türkiye Bilim Terimleri" and English key words in accordance with the "Index Medicus Medical Subject Heading (MeSH)" standards (http://www.bilimterimleri.com).
- If the article has been presented in a conference, the title of the conference, the date and the place of the conference and the type of the presentation must be provided below the "Author's note," after the References part. For example, Author's Note: This study has

been presented at "1.Ulusal Ana Çocuk Sağlığı Kongresi," on 19-20 December 2014, in İzmir as an oral presentation.

- The names and the affiliations of the authors must not be given on the text below the title; this information must be uploaded to the system on the website.

- It should be stated that research articles have been prepared according to the scientific ethical principles and ethical board report information (Name of the institution from which report is received, its date and the serial number of report) must be added to the system. It is also necessary to scan the ethical board's report and the institution's permit document and to send to our editorial office via e-mail. For the papers without ethical board report, a signed document indicating that it doesn't have the ethical board report must be sent to the editorial board via e-mail.

- The main text must include such parts as Introduction, Method, Findings, Discussion, Conclusion, References, Acknowledgement (persons and institutions not participated in the study but contributed to the development of the study should be acknowledged here) and Extended Abstract. Extended English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, and the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance (references can be given only in this part), Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided.

- Tables and figures must be placed in the text appropriately. Numbers and headings of tables/figures must be above the table; sentence case must be used in 12 pt., bold and justified. There must be a full stop between the table number and heading. Tables must only contain horizontal line. Each table must be referred to within the text. Items in the table must be in 1 line spacing and 12 pt. Explanations of the tables must be indicated below the table in 10 pt. and by putting * before it. E.g.: *Saraçoğlu, 2004:416-21.. Explanations about the abbreviations must be stated below the table and figure by using "*,**" or "a, b" in 12 pt. The number of tables and figures must be no longer than 6.

- Reviews must incorporate Turkish and English Headings, Abstract, Text, References and Extended English Abstract. Text should include a structure within a purpose, Conclusion parts must be completed. Headings, Abstract must be in one column; Text, References and Extended English Abstract must be in two columns, justified without indent and with 12 nk spacing in heading and at the end of the paragraph. Extended

English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, and the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance, Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided within the Extended English Abstract.

- Case reports must include Turkish and English headings, Abstract, Introduction, Case Report, Discussion, References and Extended English Abstract. Headings and Abstracts must be 12 pt. and in one column; Introduction, Case Report, Discussion, References must be 12 pt. and in two columns justified without indent and with 12 nk spacing in heading and at the end of the paragraph. Extended English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance, Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided. Reports can be supported with photos and flow charts. Necessary permissions must be taken for photos and flow charts and references must be indicated in 10 pt. with "*". E.g.: *Saraçoğlu, 2004:416-21.

REFERENCES WITHIN PAPER

- The sample article in the system must be used for citation rules. In other words, references are indicated with the name of author, the year of publication and page numbers in parentheses beside the main text (Surname, Year of Publication: Cited Page Number).
- Footnotes of extra explanations about the content and other explanations must be given below the page. Notes numbered in the text are located below the page by numbers with the explanations.
- Citations made from a source are indicated between double quotes in the text.
- Citations longer than 30-40 words are given as an indented paragraph without using quotes.
- While providing references, if the name of the author isn't within the text, the surname of the author and date of publication and the cited page are indicated in parenthesis: (Korkmaz, 2007: 23-45).
- If the name of the author is in the text, only the publication date of source and page number is given in parenthesis: Oskay et al.. (2005:36) in his/her study……….
- In sources with two authors, the surnames of both authors are indicated. If it is an English publication, it is separated with "and" (Morley and Robins, 2007:20).
- If it is Turkish, in sources with more than two authors, "vd." is indicated: (Yücel vd., 2012:236).
- If it is English, in sources with more than two authors, "et al." is indicated: (Hossain et al., 2007:156).
- If more than one study from the same author published in the same year must be used, the sources are separated by adding the letters like a, b, c: Such as (Ortaylı, 1999a:25) (Ortaylı, 1999b:43).
- If more than one source about the same subject is cited within the text, sources are separated with a semicolon: (Geray, 2005:33; Moran, 2006:36).

WRITING REFERENCES

- Only the sources cited in the text must be included in the references and those sources must be put in order alphabetically by the surnames of authors. If more than one study belonging to the same author is included in the references, it must be sorted by the date of publication (from old to new).
- If the number of the authors is 6 or less, all the authors must be listed, if it is 7 or more, the first 6 authors must be listed and “vd.”, for Turkish articles and “et al.” for English articles must be used. After the last author, “&” must be used before “vd.” or “et al.”
- Anonymous writers from Internet sources must not be cited.

* BOOKS

SEVİL, Ü., YANIKKEREM, E., (2006). Kadına yönelik aile içi şiddet. İzmir, Türkiye: İzmir Güven Kitabevi, ss.36-66

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TAŞKIN, L., YANIKKEREM, E., (2014). Aile planlaması. İçinde Kadın Sağlığı Hemşireliği, 12. Baskı, Ankara, Türkiye: Özyurt Matbaacılık, ss.527-545

SEVİL, Ü., YANIKKEREM, E., (2008). Adölesan dönemi. İçinde A. Şirin (Ed.), Kadın Sağlığı, İstanbul, Türkiye: Bedray Basın Yayıncılık, ss.57-90

BAYIK, A., SEVİL, Ü., (2004). Hemşirelik disiplini ve araştırma. İçinde İ. Erefe (Ed.), Hemşirelikte Araştırma İlke Süreç ve Yöntemleri, 3. Baskı, İstanbul, Türkiye: Odak Baskı Ofset, ss.13-26

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EGELİOĞLU, N., MUSLU, G.K., ŞEN, S., GÜNERİ, S.E., BOLIŞIK, B., SARUHAN, A., (2014). Ege Bölgesinde doğum sonu dönemde uygulanan geleneksel uygulamalar. Uluslararası Hakemli Hemşirelik Araştırmaları Dergisi (UHD), 1(1):22-35. Doi: 10.17371/UHD.2014018935

ÖZCAN, B., KOCAMAN, H., (2016). Eşler Arasındaki Yaş Farkının Boşanmalar Üzerindeki Etkisi, ACED Dergisi, 10:1-17 Doi: 10.17359/ACED.20161024262

ŞEN, E., GÜNERİ, S.E., YANIKKEREM, E., HADIMLI, A., KAVLAK, O., ŞİRİN, A., et, al., (2012). Determination of knowledge requirements and health practices of adolescent pregnant women. International Journal of Caring Sciences, 5(2):171-178

FREQUENTLY ASKED QUESTIONS

1 Is your journal a refereed and international journal?

Our journal is a refereed, scientific and international journal. It is indexed by many international indices.

2 Which fields are accepted in your journal?

Only the papers in the fields accepted by the journal are approved.

3 Does your journal charge any publication fee?

A certain amount of fee is requested per the manuscript accepted for publication in return for some expenses. There is no such demand for the rejected papers.

4 Are the readers allowed to access to the volumes and the articles without being a member of the journal?

All the volumes can be downloaded from our website in pdf format without being a member.

5 What is the publication frequency of the journal?

The journal publishes three times a year; the volumes with full texts are uploaded to the system at the end of April, August and December. However, some special issues can be published in some cases.

6 Are the authors informed about the evaluation process of the submissions?

The journal is web-based, and the authors can follow all kinds of information concerning their submissions from the membership panel of the system. The authors will also be provided with the necessary information about the process and procedure.

7 How many referees evaluate a manuscript?

Manuscripts are firstly evaluated by the field editors and then the ones found appropriate are sent to the referees by the field editors. Field editors send the approved papers to two field referees and referee evaluation process begins. This process takes two months at most according to the referee evaluation. If evaluation reports are not received within three months, the article is sent to the third referee. If there is still not any progress, field referee, and the editorial board decide on the publication process.

8 Is any information concerning "the author and authors" confidential?

In this journal and all the international refereed journals, information, concerning the author(s) is known only by the system editors, field editors, chief editor and assistant chief editors. This information is completely kept confidential. The referees or members of the journal are not allowed to access to the relevant information.

9 Are there a certain number of articles to be published in the journal?

There are not a certain number of articles in the journal. Each article, approved by the referees and the editorial board, is accepted to be published in the journal without delay and sent for the layout process which is the final stage.

10 Is an author allowed to submit more than one paper in the same issue?

It is out of the question in terms of ethics. However, more than one manuscript of the same author can be published in the same journal or the following issues if the publication and editorial board approve the articles. But this situation is only valid for specific cases and those requiring initiative. This case is only valid for special conditions and those requiring initiative.

11 Is there sufficient number of referees in all the fields that the journal accepts articles?

All the submissions sent to our journal are subjected to evaluation by expert academicians and scientists and referees are not getting paid for the evaluation they make. Evaluation and reports are only on a volunteer basis.

12 What is the duty of the science and advisory board?

The science and advisory board is responsible for solving the incompatibility problems that the referees experience; the board gives the final decision independently, and they act actively to solve such problems. The decisions of the science and advisory board are accepted without questioning. The decisions are applied accordingly. Their decisions cannot be changed and offered to be changed.

13 Is an author allowed to submit his/her paper to the science and advisory board in a negative situation?

This situation is out of the question. Functionality of science and advisory board occurs only with the approval of the editor-in-chief.

14 **If an author submits her/his paper simultaneously to another journal for consideration, and the paper is accepted in that journal too, what kind of procedures is taken?**
The executive board and editorial board give the final decision in such cases. As the publication board does not regard such attitudes as ethical, even if the paper has been published, it is removed from the system on condition that refutation is published, necessary institutions are informed, and the rights are reserved. However, in order to avoid such problems, the guidelines for the authors should be read carefully and the appropriate papers should be submitted. Our journal's all rights are kept reserved under the guidance of journal's legal advisors within the framework of Turkish Commercial Law and Law on Intellectual and Industrial Rights in such negative conditions. It defends its material and moral rights within the framework of Laws of Turkish Republic.

15 **Does your journal accept papers from other languages?**
Currently, the language of our journal is Turkish and English. However, studies in English and other languages are also accepted.

16 **Is an author allowed to get information about referees evaluating her/his paper?**
It is out of question. The names of the referees will never be revealed to the authors even if they want to learn. The author cannot recommend a referee for the paper s/he sent. Only the editor-in-chief, assistant editors, field editor and system editor can decide on this. It is also out of the question to assign a referee outside those boards and to give information.

17 **Is an author allowed to give a name of a referee that s/he does not want her/his paper to be evaluated by?**
If such a problem occurs, and the referee is in the journal list, on condition that the process is confidential, the author should submit the necessary explanations and reasons in an official document to the editor-in-chief. If this is approved by the chief editor, necessary steps are taken; otherwise, common procedures and standard working are carried out.

18 **Is an author allowed to suggest a referee to contribute to the evaluation process?**
It is out of question. The field and system editors decide on the issue. Authors cannot interfere in this process.

19 **Are the authors to sign the transfer agreement or publishing transfer contract?**
This situation is stated on the main page of the journal in the section titled publication principles. All the submitted papers are accepted to be transferred to the journal with exclusive rights. The author is not asked to **sign the document** concerning the submission.

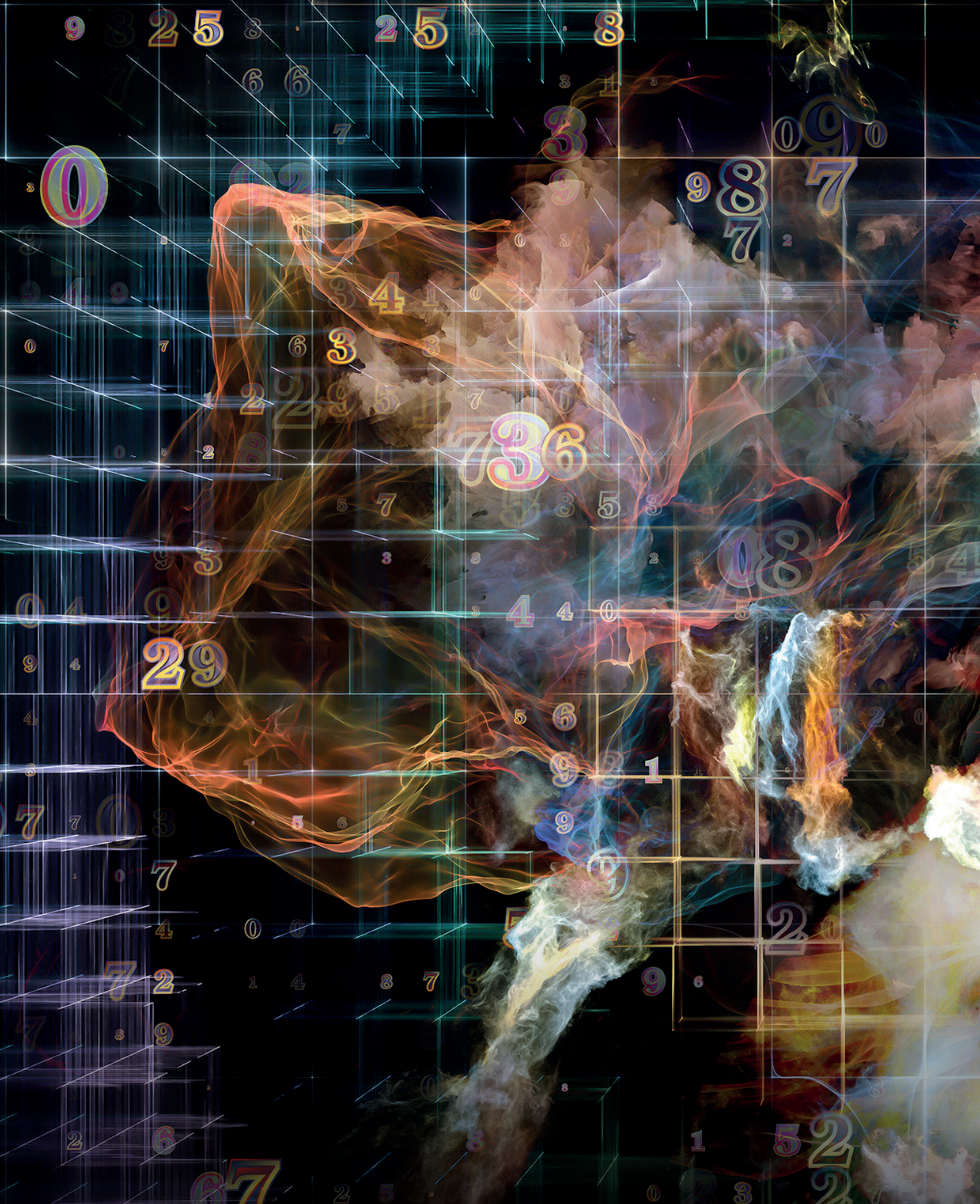
However, in some cases the author should sign the contract, required by the field editors or administrative board and submit it to the chief editor officially. Otherwise the paper will not be published.

20 Is an author allowed to withdraw his/her paper when desired?

If the evaluation process has started, papers cannot be withdrawn. The paper can only be withdrawn in case of plagiarism and scientific disquality and if the author sends an official letter, explaining the situation to the chief editor. The journal acts unilaterally in this issue.

21 What is the process in papers requiring the approval and report of ETHICS BOARD?

As in “Media Organs” of National and International journals, author(s) has to upload “Date of Report”, “Report Information-Report Number” to “Ethics Board Report Information” part of the publication submission system of the journal in “EXPERIMENTAL, CASE STUDY and INSTITUTIONAL” works requiring ETHICS BOARD approval and report. The chief editor has the right to ask for the original report if deemed necessary with an official approval of the institution. In such cases, if the chief editor doesn’t get the ethics board report despite the request made, the manuscript cannot be included in the system and published even if it has obtained referee approval and completed the publication process. The paper is rejected with the decision of chief editor and other editors. In this case, author(s) cannot make a demand for right. This information isn’t necessary for the papers not requesting ethics board report or being lack of this report. However, this information should be uploaded to the system by author(s) for the papers requesting and having the ethics board report. Author(s) are held responsible for this situation. Our journal doesn’t accept any liability and responsibility regarding this matter. The whole responsibility in legal process belongs to author(s). Otherwise, our journal cannot bear any legal, spiritual and material responsibility. Journal management and referees cannot be imposed any liability in this matter. In case of a possible negative condition, our journal unilaterally reserves its legal rights.



UHBAB - Uluslararası Hakemli Beşeri ve Akademik Bilimler Dergisi

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