OKAN UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

TO DETERMINE AND ANALYZE FACTORS PROVIDING COMPETITIVE ADVANTAGE TO TURKISH FOUNDATION UNIVERSITIES

Oya AYDIN

10DR01004

THESIS

FOR THE DEGREE OF

DOCTORATE OF BUSINESS ADMINISTRATION

IN BUSINESS PROGRAM

ADVISOR

Prof. Dr. Enar TUNÇ

ISTANBUL, May 2014

T.C.

OKAN UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

TO DETERMINE AND ANALYZE FACTORS PROVIDING COMPETITIVE ADVANTAGE TO TURKISH FOUNDATION UNIVERSITIES

Oya AYDIN

10DR01004

THESIS FOR THE DEGREE OF DOCTORATE OF BUSINESS ADMINISTRATION IN BUSINESS PROGRAM

Submission Date :
Dissertion Date : 26 May 2014

Advisor : Prof. Dr. Enar TUNÇ

Other Jury Members : Prof. Dr. Targan ÜNAL

Prof. Dr. Erdinç TELATAR

Prof. Dr. Refika BAKOĞLU

Prof. Dr. Ali İlker GÜMÜŞELİ

ISTANBUL, May 2014

CONTENTS

ACKNOWLEDGMENTS

This dissertation could not have been completed without the strong and continuous support, help and encouragement of my professors, friends and family. The thesis would not have been completed without their valuable assistance. First, I would like to thank my chair Prof. Dr. Enar Tunç for his patience, intelligence and guidance, which enhanced my research. I am grateful to my committee members: Prof. Dr. Targan Ünal and Prof. Dr. Erdinç Telatar for their kind support and suggestions.

I would particularly like to express my appreciation to Dr. Halit Fatih Aydın and Erhan Yüksel for his valuable contribution during the data collection process and I would like to thank Prof. Dr. İbrahim Güney and Associate Professor İbrahim Demir for his support during analyzing data.

To write a dissertation is a difficult process, which requires many hours reviewing research data, writing and editing. İlknur Çarpan is my friend and editor who provide assistance to writing structure, headings and grammar in a better research style of my thesis.

Moreover, I would like to thank my family especially my daughter for their support and patience during this journey. I will always feel their love and support for both my research and life.

SUMMARY

TO DETERMINE AND ANALYZE FACTORS PROVIDING COMPETITIVE ADVANTAGE TO TURKISH FOUNDATION UNIVERSITIES

With new challenges, Turkish higher education system has entered a new period with a phase of numerical enlargement and transformation. While, only 1 foundation and 27 state universities in 1984, the higher education system today have turned into a broad system with 108 state and 70 foundation universities. The growing rate which has brought with it competition and dynamism to the higher education has offered many alternatives to students in Turkey. In such higher education area, to identify and analyze the factors providing competitive advantage among universities is very important.

There are two main ideas in strategic management literature that discuss the concept of competitive advantage. One of them is Industry-Based View that is generally presented by Porter Theory. It says that the source of competitive advantage of a firm should be investigated within industrial factors. The second one is Resource-Based View. It underlines strategic resources and capabilities of a firm as the main source of competitive advantage. As the goal of this dissertation is to determine and analyze the factors that provide competitive advantage to foundation universities, research is conducted to: (a) Determine the external competitive forces of higher education in the context of literature. (b) Identify the internal resources affecting to higher education in the context of literature. (c) Specify the performance indicators to obtain competitive advantage in the context of literature. (d) Show the perception of academics about the effect of external environment tools on higher education performance. (e) Show the perception of academics about the relationship between internal resources and higher education performance. (f) Analyze relationship between internal resources and higher education performance.

The impacts of external forces and internal resources on university performance are examined through the perception of academics. In addition to perceptional views, the relationship between internal resources and university performance is examined through obtaining data from Turkish foundation universities. The thesis concludes the competitive advantage models, which explain the relation to internal resources and performance of higher education. As the external forces are only examined by using academics' perception, they cannot be included in models of study. The results of study can be used by government policy-makers and universities' managers to improve their strategy in achieving competitive advantage.

Keywords : Competitive Advantage, Porter Five-Force Theory, Resource-Based View, Higher Education, Turkish Foundation Universities

Date : May 2014

LIST OF SYMBOLS

Y: Dependent Variable

X: Independent Variable

e: The Error Terms

$\boldsymbol{\beta_0}$**:** The Constant Term

$\boldsymbol{\beta_p}$ **:** The Coefficients Relating the *p* Dependent Variables

LIST OF ABBREVIATIONS

ABET : Accreditation Board for Engineering & Technology
ARDEB : Araştırma ve Destekleme Programları Başkanlığı (tr)
Presidency of Research and Support Programs (en)
ARWU : The Academic Ranking of World Universities
COHE : Council of Higher Education
e.g. : Example Given
ECTS : European Credit Transfer
ERASMUS : European Community Action Scheme for the Mobility of University Students
et al. : And Others
EUA : European Universities Association
HE : Higher Education
HEEACT : Higher Education Evaluation and Accreditation Council of Taiwan
IO : Industrial Organization
IUC : Inter-University Council
iLab : Online Laboratories
KMO : Kaiser-Meyer-Olkin
METU : Middle East Technical University
MIT : Massachusetts Institute of Technology
MONE : Ministry of National Education
MÜDEK : Mühendislik Eğitim Programları Değerlendirme ve Akreditasyon Derneği (tr)
Association for Evaluation & Accreditation for Engineering Programs (en)
No : Number
OECD : Organization for Economic Co-operation and Development
ÖYSM : Öğrenci Seçme ve Yerleştirme Merkezi (tr)
Student Selection and Placement System (en)
PhD : Doctor of Philosophy
RBV : Resource-Based View
R&D : Research and Development
SANTEZ : Sanayi Tezleri (tr)
Industry Thesis (en)
SCP : Structure-Conduct-Performance

SPSS	: Statistical Package for Social Science
Std.	: Standard
SWOT	: Strength, Weakness, Opportunities, Threats
TPE	: Türk Patent Enstitüsü (tr) Turkish Patent Institute (en)
TÜBİTAK	: Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (tr) The Scientific and Technological Research Council of Turkey (en)
UK	: United Kingdom
UNESCO	: United Nations Educational, Scientific and Cultural Organization
URAP	: University Ranking by Academic Performance
US	: United States
ÜDK	: Üniversite Denetleme Kurulu (tr) The Council of University Supervision (en)
VRIO	: Value, Rareness, Imitability, Organization
YÖDEK	: Yükseköğretim Akademik Değerlendirme ve Kalite Geliştirme Komisyonu (tr) Academic Assessment & Quality Improvement Commission (en)
YÖK	: Yükseköğretim Kurulu (tr) The Council of Higher Education (en)
YÖS	: Yabancı Uyruklu Öğrenci Sınavı (tr) The University Entrance Exam for International Students (en)

LIST OF FIGURES

LIST OF TABLES

PAGE

CHAPTER 1
INTRODUCTION

With developments, the system of Turkish higher education like all around the worlds has undergone a transformation process. This transformation has brought with it a need for comparable, competitive and transparent higher education concept. For this reason, the universities clearly need to a position itself against competitors in order to remain attractive in the domestic and international education area.

In 1981, in accordance with the new Higher Education Law (*No. 2547*), the administration of higher education in Turkey was comprehensively restructured. The system became the centralized with all higher education institutions tied to the Council of Higher Education. After this restructuring, all institutions of higher education were designed as universities. Expansion of higher education throughout the country was achieved. The application to higher education was centralized, and a central university exam and placement were introduced. Since 1981, there are two types of universities in Turkey, namely public and non-profit foundation universities. In addition to public universities, the first nonprofit foundation university started to provide education in 1984. As end of 2013-2014 years of education, there are 178 higher education institutions in Turkey. 108 of them are state universities, 70 of them are foundation universities. It means that, there are many alternatives for students and they have been over loaded with information due to many global effects. That is why the higher education is becoming increasingly dynamic and competitive area in Turkey. In this competitive area, each of higher education institution is facing rigid competition from other universities. In this line, the dissertation tries to clarify the following questions:

a. What are the external competitive forces in Turkish higher education?
b. What are the internal resources of Turkish foundation universities?
c. What are the performance indicators to obtain competitive advantage?
d. What do academics think about the effect of external competitive forces on higher education performance?
e. What do academics think about the relationship between internal resources and higher education performance?
f. What is relationship between internal resources and performance indicators of Turkish foundation universities to obtain competitive advantage?

In the light of the research aims, the external forces and internal resources of Turkish foundation universities are examined obtaining competitive advantage models. Applied tools and their justification are given as below:

- The external environment that surrounds foundation universities is examined by using Porter's Five Forces model. External environment forces are determined as the following items: new entrant, competitive rivalry, suppliers, buyers, substitutes.
- The internal resources of foundation universities are analyzed by using Resource-Based View with following items: research and teaching, relationship-innovation, financial resources, the effective use of information technology, physical resources, and human resources.

As foundation universities are non-profit organization, the competitive advantage of them cannot be thought as making profit in Turkey. Hence, the competitive advantage concept is regarded as performance in the study. Based on the literature, the performance indicators of universities are classified into two categories. One of them is research dimensions with following items: the number of exchange students, the publication score, the citation score, the number of supported research-development project, the amount of research grant from TUBITAK, the number of PhD graduated and the number of patent. The other dimension is educational dimensions with following items: the number of bachelor enrolments, the number of bachelor graduated, the number of master enrolments, the number of master graduated, and the number of international enrolments.

The dissertation is applied quantitative research method to emerge the relationship between external environment factors-internal resources and performance of higher education institutions. The relationship between them is observed by two methods. One of them is the perception of academics. A survey is used to observe the perception of academics; it is applied to the academics who study in the foundation universities. The results of survey are assessed by descriptive statistics. Second method is to obtain measurable data for advanced statistical analysis. To provide measurable data, the primary sources and secondary sources are used. The main secondary sources used in this study include reports and documents such as annual reports, press releases and other documents published by the universities as well as official statistics such as The Council of Higher Education, TUBITAK. The research can attempt to collect a primary data in communicating with the universities' rectors, deans and head of departments.

At the end of the study, 11 competitive advantage models have emerged. The models of study are established using simple and multiple regression analysis. These models identify only the relationship between internal resources and performance of higher education institutions. As the external competitive forces are constant for all universities, they only analyzed according to the perception of academics. Therefore, the effects of them were excluded of study's models. The perception of academics is set out descriptive analysis.

The thesis is presented in five chapters, outlined as the following:

- Chapter 1 is the introduction that has provided an overview of the research. It has outlined the objectives, methods and structure of the thesis.
- Chapter 2 is the literature review that is classified into five sections. Section 1 reviews the theories relevant to this study, namely Porter's Five-Force Model and Resource-Based View. Section 2 is about Turkish higher education and foundation universities. This part also focuses on the evolution of Turkish higher education and highlights to the challenges of Turkish higher education. Section 3 looks at the relationship between higher education institutions and competitive advantage theories. Section 4 examines the new trends and challenges with competitive advantage factors in world higher education. The last part of literature review is about the performance measurements of higher education institutions.
- Chapter 3 is about methodology that outlines the method used for conducting the research. This chapter is divided into three parts. First is the conceptual framework of study. Then, first part of research method, which includes the external environment dimensions, research framework, survey of study, survey design, scaling, pre-test and item modification, sampling, and analysis of data. Lastly, second part of research method, which includes variables of study, hypotheses of research, proposed models of research, research framework, sampling, and analysis of data. The first part of research method is the descriptive statistical analysis about the perception of academics. The second part of research method is the advanced statistical analysis to establish the study models.
- Chapter 4 presents the research findings. The findings of research can be classified into two parts. First part of them identifies that the effect of external industry structure and internal resources on higher education performance by using the perception of academics. Second part identifies that the relationship between internal resources and higher education performance by using the advanced statistical analyses.

- Chapter 5 includes the conclusion of study and recommendations. In this part, the key findings regarding the competitive advantage are discussed in relation to the previous research and theoretical perspectives on Competitive Advantage Theory. In addition, there are some recommendations for the future studies.

CHAPTER 2
LITERATURE REVIEW

There are two main ideas in strategic management literature that discuss the concept of competitive advantage. One of them is Industry-Based View that is presented by Porter Theory. It suggests that the source of competitive advantage of a firm should be investigated within industrial factors. The second one is Resource-Based View that underlines strategic resources and capabilities of a firm. As the goal of this dissertation is to determine and analyze the factors that provide competitive advantage to foundation universities, the research firstly examines the literature of these two main ideas in strategic management field. Second part of chapter is evaluated Turkish higher education and then, third part is about the literature of competitive advantage relating to the higher education. In fourth part of the chapter, we will look at new trends and challenges with competitive advantage factors in higher education area. In this part, the eleven trend and challenges with eight competitive advantage factors for higher education are discussed. As Turkish foundation universities are a kind of non-profit organization, the competitive advantage concept is regarded as the performance in the study. Hence, the last chapter is about the performance of higher education institutions.

2.1. THE CONCEPT OF COMPETITIVE ADVANTAGE

The concept of competitive advantage especially has been discussed in two major ideas. One of the main schools of thought in strategic management has been the Industrial Organization, where the relationship between the firm and the industry is essential. A principal model of this school has been Michael Porter's (1985) "Five Competitive Forces" for analyzing industry structures with opportunities and threats. The second school of thought is the "Resource-based View" that is represented by the strengths and weaknesses of a firm. Resource-Based View focuses on the importance of a firm as the critical unit of analysis. To provide a theoretical background for competitive advantage concept, we begin with a general literature review to the two most important strategic perspectives and then move on to describing each of the views. In addition, the critique rose of each perspective and their comparisons are examined based on the relevant literature.

2.1.1. The General Literature of Competitive Advantage Concept

Alderson (1965) proposes three bases for differential advantage: technological, legal, and geographical, four strategies for achieving differential advantage: segmentation, selective appeals, transection, and differentiation. Hall (1980) says that successful companies will achieve either the lowest cost or most differentiated position. Henderson (1983) continues discussion of those unique advantage(s) of one firm over competitors; those who can adapt best or fastest gain an advantage over competitors.

Porter (1980) says that competitive advantage is at the heart of a firm's performance in competitive markets. He goes on to say that purpose of his book on the subject is to show "how a firm can actually create and sustain a competitive advantage in an industry—how it can implement the broad generic strategies." Thus, competitive advantage means having low costs, differentiation advantage, or a successful focus strategy. In 1985, Porter proposes Five Forces Theory for analyzing industry structures. In this model, a firm's profitability is influenced by its relative size compared to its industry rivals, suppliers and customers. Porter (1985) also introduces idea of the "value chain" as the basic tool for analyzing the sources of competitive advantage.

Coyne (1986) says that explanation of the conditions needed for a sustainable competitive advantage to exist idea of capability gaps. Ghemawat (1986) discusses about advantages that tend to be sustainable as size in the targeted market, superior access to resources or customers, and restrictions on competitors' options. Day and Wensley (1988) show the potential sources of advantage are superior skills and superior resources; in assessing ways to achieve sustainable competitive advantage, both competitor and customer perspectives should be considered. Dierickx and Cool (1989) have echoed Barney (1986) in arguing that competitive advantage is not obtainable from freely tradable assets. "If a privileged product market position is achieved or protected by the deployment of scarce assets, it is necessary to account for the opportunity cost of those assets. Many inputs required to implement a strategy may be acquired in corresponding input markets. In those cases, market prices are indeed useful to evaluate the opportunity cost of deploying those assets in product markets. However, the deployment of such assets does not entail a sustainable competitive advantage, precisely because they are freely tradable." They say that sustainability of a firm's asset position is based on how easily assets can be substituted or imitated.

Hamel and Prahalad (1989) think that a firm should not search for a sustainable competitive advantage; it should learn how to create new advantages to achieve global leadership. They (1990) also state that sustainable competitive advantage results from core competencies; firms should consolidate resources and skills into competencies that allow them to adapt quickly to changing opportunities.

Conner (1991) proposes with a resource-based view, to achieve above-average returns, a firm product must be distinctive in the eyes of buyers, or the firm selling an identical product in comparison to competitors must have a low-cost position.

Barney (1991) discusses four indicators of the potential of firm resources to generate sustainable competitive advantage: value, rareness, inability to be imitated and imperfect substitution. Barney (2002) says that a firm experiences competitive advantages when its actions in an industry or market create economic value and when few competing firms are engaging in similar actions.

Peteraf (1993) defines competitive advantage as “sustained above normal returns.” She defines imperfectly mobile resources as those that are specialized to the firm and notes that such resources “can be a source of competitive advantage”. Discusses four conditions which must be met for sustainable competitive advantage: superior resources (heterogeneity within an industry), ex poste limits to competition, imperfect resource mobility, and ex ante limits to competition. John Kay (1993) defines distinctive capabilities as ones derived from characteristics that others lack and are sustainable and appropriable. Bharadwaj, Varadarajan, and Fahy (1993) evaluate sustainable competitive advantage in a services marketing context; a sustainable competitive advantage exists only if customers recognize it.

Day and Nedungadi (1994) state that a firm’s use of strategy and reaction to the environment depends on its orientation (customer-oriented versus competitor-oriented); CA is based on this orientation. Hunt and Morgan (1995) compare neoclassical theory and comparative advantage theory of the firm; comparative advantage in resources can translate into a competitive advantage in the marketplace; offers categorization of resources. Powel emphasizes the role of certain tacit, behavioral, imperfectly imitable features, such as open culture, employee empowerment, and executive commitment, which can produce advantage. Firms should focus their efforts on creating a culture in organization, which can drive the success of other tools like quality training, process improvement, and benchmarking associated with Total Quality Management (Powell, 1995). Powell (1995) in his article together with historical uniqueness, casual ambiguity and social complexity names such “isolating mechanisms” like time compression diseconomies and connectedness of resources. The first means that a resource may require long-term accumulation before attaining value (e.g., learning, experience, or proficiency in a skill); the later means that a firm may acquire a competitor's valuable resource only to find that its success depends on some complementary resource that the firm cannot acquire (Powell, 1995).

Brandenberger and Stuart (1996) discuss multi-agent games (industries) and examine the conditions under which players can appropriate a portion of the total gains to trade. Agents include buyers, suppliers, and producers. Total gains to trade are maximum available from the assignments among agents. They conclude that the maximum value appropriated is limited by the agent’s value added to the game—the amount the game’s total value is increased by the agent’s presence. Oliver (1997) proposes a model of firm heterogeneity, which suggests that both resource capital and institutional capital are indispensable to sustainable competitive advantage. Thompson and Coe (1997) propose an approach to value pricing that can be used to seize and drive competitive advantage, and which yields a price that minimizes the risk that buyers will not perceive value at least equivalent to that provided by a reference product. At the same time, the risk to sellers of not achieving minimum margins is controlled. Srivastava, Shervani, and Fahey (1998) delineate market-based assets into two primary types: relational and intellectual. Largely intangible, these assets may be leveraged to achieve sustainable competitive advantage, if they can add unique value for customers. Discussion of those advantages tends to be sustainable: size in the targeted market, superior access to resources or customers, and restrictions on competitors’ options. Ghemawat and Rivkin (1999) say that a firm such as Nucor that earns superior financial returns within its industry (or its strategic group) over the long run is said to enjoy a competitive advantage over its rival. Petrick et al. (1999) present that the core capability differentials are based on skills (what the company can do) and assets (what the company has). Skills provide functional differential that is due to cumulative knowledge and experience (e.g., executive and team leadership know-how, supplier know-how, and distributor knowhow). Corporate assets, the second source of core capability differentials, are both tangible and intangible. The intangible resources of leadership skills and reputational assets those are more difficult to substitute or imitate by competitors than tangible resources.

Hoffman (2000) discusses the concept of sustainable competitive advantage to other concepts in the concepts of strategy such as market orientation, customer value, relationship marketing, and networks. Burden and Proctor (2000) examine how customer needs are represented within the training evaluation framework of an organization. Meeting customer needs on time, every time, is a route to achieving and sustaining competitive advantage, and training is a tool that organizations should use to succeed at this. Besanko, Dranove, and Shanley (2000) say that when a firm earns a higher rate of economic profit than the average rate of economic profit of other firms competing within the same market, the firm has a competitive advantage in that market. They also carefully define economic profit (1999) as the difference between the profits obtained by investing resources in a particular activity, and the profits that could have been obtained by investing the same resources in the most lucrative alternative activity.

Sadri and Lees (2001) state that positive culture can be a significant competitive advantage over organizations with which a firm competes. Saloner, Shepard and Podolny (2001) say that most forms of competitive advantage mean either that a firm can produce some service or product that its customers value than those produced by competitors or that it can produce its service or product at a lower cost than its competitors. They also say that the firm must also be able to capture the value it creates and in order to create and capture value the firm must have a sustainable competitive advantage. Coates and McDermott (2002) think that there are different categories of competence and technology competencies are important source of competitive advantage.

Adams and Lamont (2003) talk about organizational innovation, with specific emphasis placed on the role and effectiveness of knowledge management systems as a determinant of innovation practices, which may then contribute to the development of sustainable competitive advantage. Sharkie (2003) says that the development of sustainable competitive advantage is a vital management function and an important requirement is the nurturing of knowledge creating environment to enable the organization to exploit and develop resources better than rivals and to create sufficient knowledge to address the industry's future success factors.

Kotelnikov (2004) proposes a model of synergy of distinctive capabilities and reproducible capabilities as sources of sustainable competitive advantage. Khandekar and Sharma (2005) contribute to the existing theory about the strategic importance of human capital for organizational performance and sustainable competitive advantage from Resource-Based View of the firm in the Indian context. The findings of the study reveal that human resource capabilities are positively correlated to organizational performance. Furthermore, human resource capability is found to be a significant predictor of sustainable competitive advantage. Javalgi and Radulovich (2005) say that internet firms can achieve sustainable competitive advantage by developing internet interactive capability. The use of the internet's interactive capability for customer relationship management improves customer targeting for greater effectiveness of marketing communications, increases customer share and retention, and enhances revenue potential. Porter (2008) says that awareness of the five forces can help a company understand the structure of its industry and stake out a position that is more profitable and less vulnerable to attack.

2.1.2. Industrial Organization Theory - Porter's Five Force Model of Competition

Industrial Organization theory emphasizes the major effect of industrial structure on the performance of a firm. This theory proposes a model for industry competition levels, and methodological view for strategic management. The major environment-oriented perspective of strategy and competitive advantage is Porter's Five Force Model of competition. Porter interpreted this line of thought by substituting conduct with strategy, and argued that the firm performance is dependent on the industry structure. His starting point was the "Structure-Conduct-Performance" paradigm (Van Gils 2000). The SCP paradigm, traced back to Mason (1939) and Bain (1959), played a dominant role in the industrial organization field. In this paradigm, the industry structure determines the firm's conduct, which in turn determines the economic performance. A principal model of this school has been Michael Porter's (1985) "five competitive forces" for analyzing industry structures. In this model, firm's profitability is influenced by its relative size compared to its industry rivals, suppliers and customers. Porter's five-force model of competition has been greatly used an analytical tool to analyze the intensity of competition and to identify the level of profitability of an industry. This model also is used to find the ways for defending or developing some strategies against the competitive forces. The results of five forces assess the level of competition of an industry, and the ability making profits of firms in an industry. Porter's five-force model of competition has following five elements as shown in Figure 2.1.

- Threat of potential entrants
- Threat of substitutes
- Bargaining power of buyers
- Bargaining power of suppliers
- Competitive rivalry

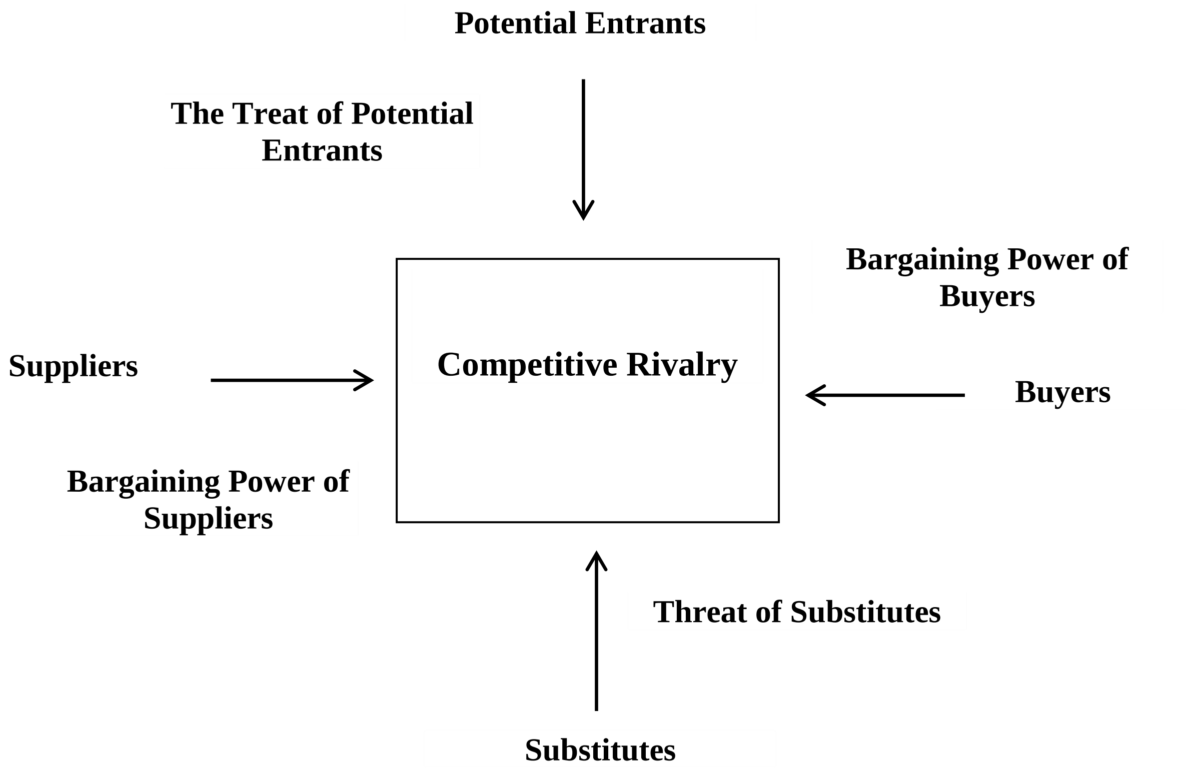

Figure 2.1 Porter's Five-Force Model of Competition

New entrants to an industry result pressure on prices, costs, and the rate of investment necessary for competition. If the barriers to entry remain high, the threat of new entrants is low. "Economies of scale, product differentiation, capital requirements, and switching costs, access to distribution channels, cost disadvantages, brand identity, government policy, and expected retaliation" are nine major sources of barriers to entry include.

Substitute products perform the same or a similar function as the product of an industry. Substitute products that deserve the most attention are those that (i) are subject to trends improving their price-performance trade-off with the industry's product; or (ii) are produced by industries earning high profits (Porter, 1980). If an industry does not distance itself from substitutes through product performance, marketing, or other means, it will suffer in terms of both profitability and growth potential (Pringle and Huisman, 2011).

Powerful customers can capture more value by forcing down prices and demanding better quality or more service, there-by forcing industry suppliers to compete more aggressively against each other, usually at the expense of industry profitability (Pringle and Huisman, 2011). A buyer group can be powerful if (i) buyers concentrate purchases in an industry; (ii) buyers purchase large volumes relative to seller sales; (iii) buyers face few switching costs;

(iv) buyers poses a threat of backward integration; (v) buyers have all the information they needs; and (vi) buyers purchase products that are standard and undifferentiated (Porter, 1980).

Power of suppliers means that if there is a limited number of a supplier for a larger number of customers with few substitutes available, then supplier power is great and the suppliers can both capture the value themselves and charge premium prices (Pringle and Huisman, 2011). A supplier group can be powerful if the following apply: (i) labor is a supplier. Scarce, highly-skilled employees can bargain away industry profitability; (ii) the supplier's product is an important input to the buyer's business; (iii) the supplier group's products are differentiated or it has built up switching costs; and (iv) the supplier group poses a credible threat of forward integration (Porter, 1980).

Competitive rivalry among existing competitors takes many forms, including price discounting, new product introduction, advertising campaigns, and service improvements. High rivalry limits the profitability of an industry (Pringle and Huisman, 2011). Factors influencing the intensity of competition include, slow industry growth, informational complexity, diversity of competitors, high brand recognition, high fixed or storage costs, lack of differentiation or switching costs, capacity augmented in large increments, high strategic stakes, and high exit barriers (Porter, 1980).

Five competitive forces together affect to the industry competition intensity and profitability. More specifically, the stronger the force or forces affecting industry competition and profitability, the more important they are in strategy formulation (Porter, 1980). Five forces will not have the same degree of effect on the level of competition and profitability in an industry. They will have different degree of effect for shaping industry competition and profitability. Thus, the formulation of a firm's competitive strategy is dependent on how it aligns with the external environment characterized by the relative strengths of the five competitive forces (Porter, 1980).

2.1.3. The Resource-Based View (RBV)

The RBV emerged as a complement or dual to Porter's theory of competitive advantage (Barney & Arikan, 2001). The Resource-Based View emerged an alternative view of the firm for competitive advantage. Hofer and Schendel (1978) suggest six resources items are financial resources, physical resources, human resources, technological resources, reputation and organizational resources. The subject of firm capabilities as one source of competitive advantage has been widely discussed in the literature on RBV theory. The term "distinctive competence" was first used by Selznick (1957) that identifies to the activities, which a firm tends to perform especially well in comparison to its rivals within almost same environment. Snow and Hrebiniak (1980) adopted the concept of "distinctive competence" and classified this into ten functional areas: general management; financial management; marketing and selling; market research; product research and development (R&D); engineering; production; distribution; legal affairs; and personnel. In 1984, Wernerfelt developed a theory of competitive advantage, which based on the resources for developing a firm. Wernerfelt (1984) shows the examples of resources are brand name, in-house knowledge of technology, employment of skilled personnel, trade contact, machinery, efficient procedures and capital. As such, both tangible and intangible assets are considered a firm's resources. Wernerfelt's (1984) primary contribution to the RBV literature was recognizing that firm specific resources as well as competition among firms based on their resources can be essential in order for organizations to gain advantages in implementing product market strategies (Barney & Arikan, 2001). Rumelt (1984) presents a different perspective. Rumelt (1984) also in his strategic theory offered many characteristics, which were later, associated with the RBV. In the field of strategic management, Barney published the third resource-based article in 1986. Barney develops the resources kind to implement for product market strategies. Itami (1987) emphasizes invisible assets, such as technology, customer trust, and brand image, control of distribution, corporate culture, and management skills. He says that they are necessary for competitive success and they are the main source of competitive advantage because to accumulate them is very hard and time-consuming. Itami says that the invisible assets lead to competitive advantage. Prahalad emphasizes the potential importance of sharing intangible assets across businesses. These shared intangible assets were called "a firm's dominant logic" (Prahalad and Bettis, 1986). The concept of a dominant logic led to the very influential paper that defined the notion of a corporation's "core competence". A core competence is defined as the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies (Prahalad and Hamel, 1990). In order to be a core competence, three criteria have to be met: the competence has to provide access to more than one market, give a significant contribution to the end product/products and be difficult for competitors to imitate (Hamel & Prahalad, 1994). Accordingly, if a company possesses a core competence and understands how to take advantage of it, it can lead to sustained competitive advantages. In addition, resource-based theory is based on the assumption that firms are fundamentally heterogeneous regarding their resources and internal competencies. It deals with the problem of how firms can exploit their internal resource base and capabilities to obtain sustained competitive advantages (Barney, 1991; Hamel & Prahalad, 1994). Barney (1991) defines the firms as bundles of productive resources, all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by the firm that enables the firm to conceive of and implement strategies that improve its efficiency and effectiveness. Barney (1991) states the VRIN (valuable, rare, imperfectly imitable and non-substitutable) framework associated with resources. Grant (1991) argued that durability, transparency, transferability, and replicability are the four major attributes of resources determining sustainable competitive advantage. Whereas Amit and Schoemaker (1993) suggested that resources should meet the following eight criteria: complementarity; scarcity; low tradability; inimitability, limited substitutability; appropriability; durability; and overlap with strategy industry factors. Verona (1999) describes to Resource-Based View as the combination of technological capabilities, marketing capabilities, and internal and external integrative capabilities. Teece, Pisano and Shuen (1997) propose the “dynamic capabilities” framework with a view to developing a new perspective for the strategic management of a firm in a greatly changing environment. According to Teece et al. (1997), the term “dynamic” refers to the capacity to renew competencies to achieve congruence with the changing business environment, and the term “capabilities” refers to a firm adapting, integrating and reconfiguring internal and external organizational skills, resources, and competencies to match the requirements of the changing environment.

In summary, the internal sources are important than external environment and RBV emphasizes the value of internal resources for growth, profit-earning and competitive advantage of a firm. The Resource-Based View may help managers to find the way of being successful in intense competition analyzing their internal resources rather than external environment.

2.1.4. The Critique of Porter’s Five Forces and Research-Based View

2.1.4.1. The Critique of Porter Five Forces Model

Porter’s theories base on the economic situation in the 1980. This period was characterized by relatively stable and predictable market structures. Porter’s models focus on the analysis of the real actor: customers, suppliers, competitors and on predictable situations new entrants, substitutes. A firm can obtain competitive advantages from strengthening the own position within this framework. Nowadays, global and networked markets require different thinking and strategy to deal with unstable and unpredictable environment. External industry analyze is again important to develop strategies and gain competitive advantage but a new business models should support this model. On today's industry structure, using only the Five Forces Model would never see these changes coming in time. Especially, because of points are shown as follows, this model cannot be sufficient to explain or analyze today's dynamic environment and changes. (i) Due to power of information technology, the players of all industry in a market will have opportunities to access more information. (ii) Improvements of communications and logistics have caused almost all businesses to buy, sell and cooperate on a global level. Customers have the chance to know and compare prices or other features of products globally. (iii) Recent years has seen an intense shrinking of government effect in a major number of industries like airline, education, communications, utilities, banking in the world. This means that the concept of privatization gained importance for one of the most important ways to overcome economic crisis in all world. Governments support the privatization in all these industries were able and forced to restructure their businesses.

An important extension to Porter was found in the study of Brandenburger and Nalebuff (1997) of Yale School of Management. Using game theory, they joined the concept of complementors , which is called also "the 6th force". This added concept means helping to clarify the reasoning behind strategic alliances. The idea that complementors are the sixth force has often been supported. According to most references, the sixth force is government or the public. Anyway, Porter (2008) indirectly said the assertions of other forces, by referring to innovation, government, and complementary products and services as "factors" that affect the five forces.

Coyne and Subramaniam (1996) says that buyers, competitors, and suppliers are unrelated and disambiguation concepts and do not interact each other. Larry Downes (1997) adds to three new forces to analyze the external environment of an industry. These are digitalization, globalization, and deregulation. The other criticism is about the model is based on the idea of competition. Nevertheless, nowadays, "win win" strategy for company is also important like strategic alliances, electronic linking of information systems of all companies, open access information system. Porter model thinks that all companies want to obtain competitive advantages over other players in the markets. That is to say, theory does not really take into consideration "win win" situations.

Porter theory lacks of the interest in only external environment. After analyze of an industry, a firm can be determined the attractiveness and profitability by using Porter's five-force model. However, this analyze will be lack of internal sources of firms which are necessary to be successful in this new market. Farahat (2011) says that analysts must also look within the corporation itself to identify internal strategic factors-critical strengths and weaknesses that are likely to determine whether a firm will be able to take advantage of opportunities while avoiding threats. Overall, Porters Five Forces Model has some important restrictions in today's market structure. However, it can be enriched the current situation and can be seen as a starting point for further analysis.

2.1.4.2. The Critique of Research Based View

The Resource-Based View proposes that sustainable competitive advantage is succeeding by looking from an inside-out perspective, the attributes of an organization. After Wernerfelt's study (1984), the development of the Resource-Based View has been continued in many studies. They were made by many scholars, such as, Rumelt (1984), Barney (1986, 1991), Dierickx & Cool (1989), Conner (1991), Conner & Prahalad, (1996), Castanias & Helfat (1991); Helfat & Lieberman (2002), Kogut & Zander (1992), Amit & Schoemaker (1993), Peteraf (1993), Teece et al., 1997, Armstrong & Shimizu (2007), Newbert (2007), Lockett, Thompson, & Morgenstern (2009). All of researchers have attempted to explore the mechanism of sustainable competitive advantage of a firm through the Resource-Based View with original concepts like that "heterogeneity & immobility" (Barney, 1991), "core competence" (Hamel & Praharad, 1994), "dynamic capability" (Teece, Pisano & Shuen, 1997) "VRIO (Value, Rareness, Imitability, Organization) framework" (Barney, 2002), "capability lifecycle" (Helfat & Peteraf, 2003).

This theory has been criticized as following points: Priem and Butler (2001) focus on that Resource-Based View should have managerial inclusions but theory has missed this point. They (2001) show the four main points of criticism: The RBV is tautological; different resource configurations can generate the same value for firms and thus would not be competitive advantage; the role of product markets is underdeveloped in the argument; the theory has limited prescriptive implications. Connor (2002) and Miller (2003) say that this theory seems to tell managers to develop and obtain valuable, rare, imperfectly imitable and non-substitutable resources and develop an appropriate organization, but theory does not say that how this should be done. In addition, Barney (2002) states a significant limit to the applicability of the resource-based view: it only holds as long as the rules of the game in an industry remain relatively fixed. In the changeable environment, in which new technologies and markets emerge, the value of resources can strongly change. For this reason, the Resource-Based View is not sufficient explaining a firm's sustainable competitive advantage. Miller's (2003) contention is that only firms that already possess valuable, rare, imperfectly imitable and non-substitutable resources can acquire and apply additional resources; otherwise, competitors would acquire them with equal ease. The key to the Resource-Based View is that sustainable competitive advantage can be achieved by applying resources and capabilities when these are valuable, rare, inimitable, and non-substitutable (VRIN) plus when there is an appropriate organization in place (O) (Barney, 1994). The first axiom has been subject to a further critique, that the VRIN/O criteria are neither sufficient nor necessary to explain sustainable competitive advantage. VRIN/O is neither necessary nor sufficient for sustainable competitive advantage by applying the VRIN/O logic to such "deployment capabilities" as well; the Resource-Based View skirts a full explanation for sustainable competitive advantage because we are left without a theory of capability deployment. Besides the sufficiency critique, there are also studies arguing the VRIN/O criteria are not necessary to explain sustainable competitive advantage.

Foss & Knudsen (2003), for example, argue that uncertainty and immobility are the truly basic conditions for a sustainable competitive advantage to arise; any other conditions, they argue, are simply additional to these. Along a similar line, Becerra (2008) points at value uncertainty, resource specificity, and firm-level innovation as conditions under which profits can emerge in the resource-based view. Hoopes, Madsen and Walker (2003) criticize that the Resource-Based View does not provide tangible translations for operationalizing the theory and furthermore many researchers consider the Resource-Based View to be a tautology, it stands on analytic statements that are tautological, true by definition that cannot be tested. Hedman & Kalling (2003) criticize the RBV for neglecting the obstacles to strategic dynamics and managements.

Chan et al. (2004) support this view focusing only on the internal resources or core competence of the firm can limit the reach for learning new competencies. Hence, core competencies can also become "core rigidities" in the firm, when established competencies become too dominant. Foss et al. (2008) say that the Resource-Based View does not recognize the role of the individual judgments or mental models of entrepreneurs and managers. They argue that the locus of sustainable competitive advantage lies in the characteristics of individuals and teams making up the firm rather than in resources or market failures. There may be plenty, including specific human resource practices, quality management systems and procedures that facilitate learning. The important point here is that to obtain sustainable competitive advantage a firm needs managerial capabilities as well as resources. In addition, all of them, to find a resource that satisfies all of the Barney's VRIN criteria is not may be impossible but is very difficult and ignoring external factors are not logical concerning the industry. Firms should think all external factors.

2.1.5. Comparisons of Five Forces Model and Resource-Based View

In the Five Forces Model to obtain above average profits, taking right decisions and chooses suitable strategy is the main tool with managing the five competitive forces. In resource-based view, to gets above average profits, using and developing resources is main tool. Teece et al. (1997) say that industrial organization theory sees the industry as the starting point of analysis but Resource-Based View sees the firm. In the industrial organization theory firm characteristic emerge according to typical of the industry but in resource-based view, it emerges unique by different source. In the industrial organization theory, sustainable competitive advantage stands on five-force theory but in resource-based view, it depends on heterogeneity, the imperfect mobility, imitability and substitutability of the resources. RBV is an inside to outside model whereas five forces is an outside to inside model to explain competitive advantage. Industrial organization theory examines industry effects but research-based view theory examines firm resources and capabilities influences on competitive advantage.

Grundy (2006) says that Porter's model, matched to the traditional SWOT (strength, weakness, opportunities, threats) analysis, assures to managers a complete tool to analyze the external environment encountered by the firm. This model assesses the threats of new entrants and substitutes, emphasizes the power of buyers and suppliers, and identifies how competitive rivalry is a function of the other competitive forces. This means that five forces theory emphasizes the opportunities and threats. The Resource-Based View emphasizes that the firms should position themselves strategically based on their valuable, rare, inimitable and non-substitutable resources and capabilities. This means that it shows strength and weakness of a firm. When a firm do SWOT analyze, the Five Forces theory shows the "opportunities-threats" part of analyze; the Resource-Based View shows the "strengths-weaknesses" part. With this focus, they have also a complementary contribution. Spanos and Lioukas (2001) say that the two perspectives are complementary in explaining the firm's performance, both theory try to explain the origin of a firm's competitive advantage and for these two theory, the firm is the main criteria of analysis.

2.2. TURKISH HIGHER EDUCATION AND FOUNDATION UNIVERSITY

2.2.1. A Historical Review of Turkish Higher Education

The institutions of Turkish higher education based on the Nizamiye Madrasa which is founded by Seljuk Turks in Baghdad in the 11th century. The madrasa system submitted courses in religion, law and rhetoric as well as in philosophy, mathematics, astronomy and medicine. In 1453, best-known Ottoman madrasas was that founded in Istanbul by Sultan Mehmet the Conqueror. However, these institutions, lacking the capacity to create and dissemination of intellectual knowledge, failed to adapt the modern world. The last term of Ottoman Empire, soon after the announcement of the Gülhane Imperial Edict (1839), the European type of university and some military colleges established. After an official declaration to modernize the Ottoman Empire education system Darülfünun (House of Sciences) was founded. After the foundation of the Turkish Republic in 1923 with the some suggestions from the report, which was prepared the Professor Albert Malche of the University of Geneva, the Grand National Assembly passed a law in 1933 with the law number 2252 replacing the Darülfünun with Istanbul University. Reinforced by Jewish and German academics escaping from Nazi persecution, Istanbul University soon became one of the main centers of education in Turkey and so Istanbul University is important for Turkish history.

After the Istanbul University, Istanbul Technical University and Ankara University were founded. As the number of universities increased, to coordinate of these universities, The Council of Interuniversity was established. In addition, “Law of Universities” was enacted in 1946 and with the law number 4936; universities were formally defined as “associations of higher research and education; that are in the form of faculties, institutes, schools and scientific institutions; that has autonomy and legal entity” (Yavuz, 2012). After these legal regulations, there have been several developments, which have the effects of the modern Turkish higher education system.

In the 1950s, the Democratic Party was established the Anglo-American styled universities, namely, Karadeniz Technical University in Trabzon, and Ege University in İzmir in 1955; Middle East Technical University (METU) in Ankara in 1956, and Atatürk University in Erzurum in 1957. In August 1960, the law number 43 enacted the other important law, Board of Trustees was dissolved and first Turkish rector of METU was appointed. Since then, in Turkey, the state universities are managed by senates with the leadership of rector appointed by the consent of the president. In 1963, to promote academic research in basic and applied sciences and to support young researchers TUBITAK (The Scientific and Technological Research Council of Turkey) was established. The increasing demand for higher education all over the world, in 1965, by the law number 625, establishment of private educational institutions were permitted; which would be retrieved in 1971. In 1967, Hacettepe University was founded. In 1863, the first American higher education institution founded outside the United States with having strong ties to the American educational system, namely Robert College. In 1971, it was renamed Boğaziçi University. In 1973, YÖK (Council of Higher Education) and ÜDK (The Council of University Supervision) was founded. These institutions intended to audit content, administration and finance of higher education. They were highly dependent to the government.

In 1981, Council of Higher Education was restructured and as of today with the Higher Education Law number 2547. The system thereby has gained a centralized structure, with all higher education institutions tied to the Council of Higher Education. This restructuring movement designated all institutions of higher education designated as universities. Expansion of higher education throughout the country was consolidated, access to higher education was centralized, and a central university entrance exam introduced. Student contribution fees at public universities were also introduced, and non-profit foundations were allowed to establish private higher education institutions. Since then, both public and private universities have been controlled and supervised, with the Council of Higher Education regularly checking their programs (Unesco-Mızıkacı). Thanks to the law number 2547, CoHE as an autonomous public corporation and in 1982, CoHE empowers as the central authority of higher education system.

In 1982, constitution permitted the opening of non-profit foundations universities. In 1984, the first Foundation University of Turkey, Bilkent University, was founded by İhsan Doğramacı. The most important increasing number of foundation universities occurred during the neo-libertarian Özal regime in 1990s. In this period, the effect of the global trends and neoliberal policies, establishment of foundation universities were came into prominence. After the1992, the number of foundation universities increased with the law number 3837. The foundation universities are autonomous in finance and management unlike public universities. Financially, they can support from state budget and their foundations and administratively Board of Trustees manages them and the Board of Trustees has the right of choosing and appointing university rectors. With the debate on the idea that public universities are not able to fulfill the increasing demand for higher education in terms of number, capacity and quality, foundation universities gained central importance to Turkish higher education. The first of foundation universities was established in 1984 and reached the number of them has been 70 in the year 2013. As of today, there are 178 universities with 108 public and 70 foundation universities.

2.2.2. The Structure and the Current Situation of the Higher Education in Turkey

Upper bodies of higher education have two parts in Turkey. One of them is Council of Higher Education (CoHE). It is a fully autonomous corporate public body, which has no political or governmental affiliation and composed of 21 members, responsible for planning, coordination, governance and supervision of higher education within the provisions set forth in the constitution (articles 130 and 131) of the Turkish Republic and the Higher Education Law (Law No. 2547). The Inter-University Council (IUC) is another important part of Turkish higher education. An academic advisory and a decision-making body in some academic matters and composed of rectors and one elected professor of each higher education institutions.

Turkish Higher Education was unified in 1982 by Law Number, with changes in time designating three types of higher education institutions to be established as state universities, foundation universities, two-year foundation vocational schools and all off these are to be governed by the same higher education law. Universities are founded by law to be enacted by the Parliament upon the recommendation of the CoHE to the MoNE (Ministry of National Education) and the approval of the cabinet. The faculties, graduate schools (institutes) and the four-year (vocational/professional) higher schools are founded by the decision of the cabinet. Establishment of the two-year vocational higher schools as well as the opening of degree programs with in the academic units at any level are subjected to ratification by the CoHE upon application of the higher education institutions.

In state universities, the rector is appointed by the President of the Republic from among three candidates holding the academic title of professor, selected by the faculty members. Foundation universities are required to conform to the basic academic requirements and structures set forth in the law no 2547. Apart from this, they are free to manage their own affairs according to the rules and regulations adopted by their boards of trustees. The boards of trustees appoint the rectors and the deans. The appointment of the rectors, however, is subject to the consent of the CoHE.

The number of state universities is 108, the number of foundation universities is 70, the number of foundation 2-year vocational schools is 9, and the number of other higher educational institutions is 37. Total number of higher education institutions in Turkey as of 2013 is 224. The statistics are examined about the number of universities it can be observed that the university numbers are increasing year by year.

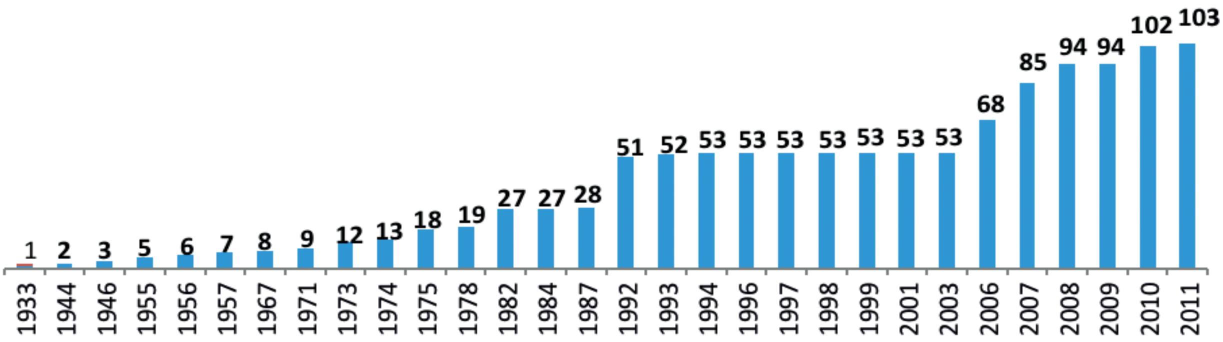

Figure 2.2 Numbers of State Universities by Years (Günay and Günay, 2011)

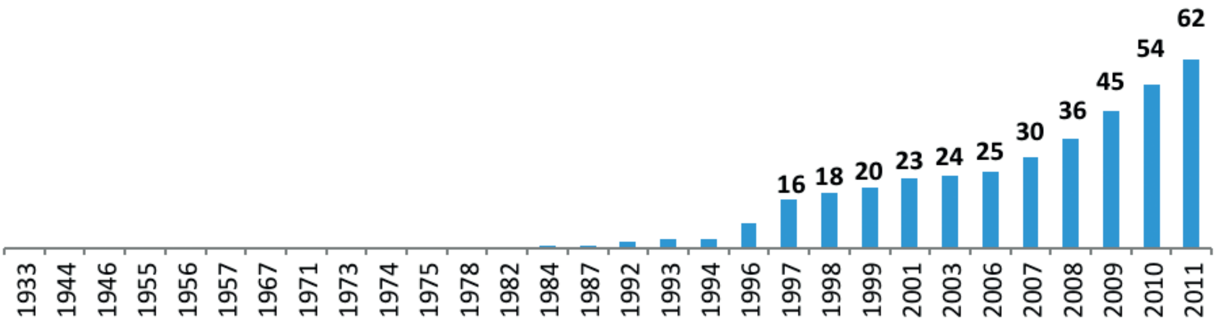

Figure 2.3 Numbers of Foundation Universities by Years (Günay and Günay, 2011)

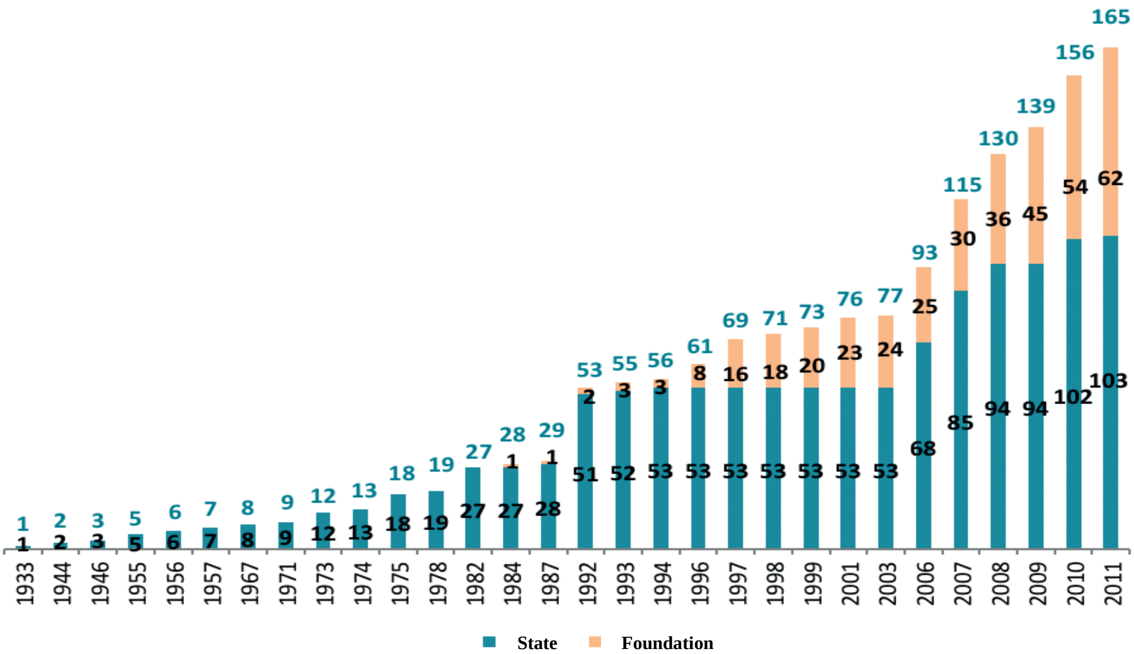

Figure 2.4 Numbers of All Universities by Years (Günay and Günay, 2011)

To access the higher education for national students, admission to undergraduate degree programs is centralized and based on a nationwide two-stage examination administered by the Student Selection and Placement Center (ÖSYM). For foreign students, admission of them to undergraduate degree programs was used to be centrally managed via an examination called the Examination for Foreign Students (YÖS) organized by Student Selection and Placement Center by 2010. However, since 2010, admission of foreign students to the programs at all levels of higher education can be done by direct applications of candidates to the higher education institutions and assessment by the higher education institutions within the frameworks of the publicly available national and institutional regulations.

The student enrollment of higher education in Turkey also increases day by day. In 1981, the number of student enrollment was 237.369; in 1991, the number of student enrollment was 695.730; in 2000, the number of student enrollment was 1.503.981; in 2010, the number of student enrollment was 3.529.334. Since 2006, student enrollments in Higher education institutions have increased by nearly 50 percentages.

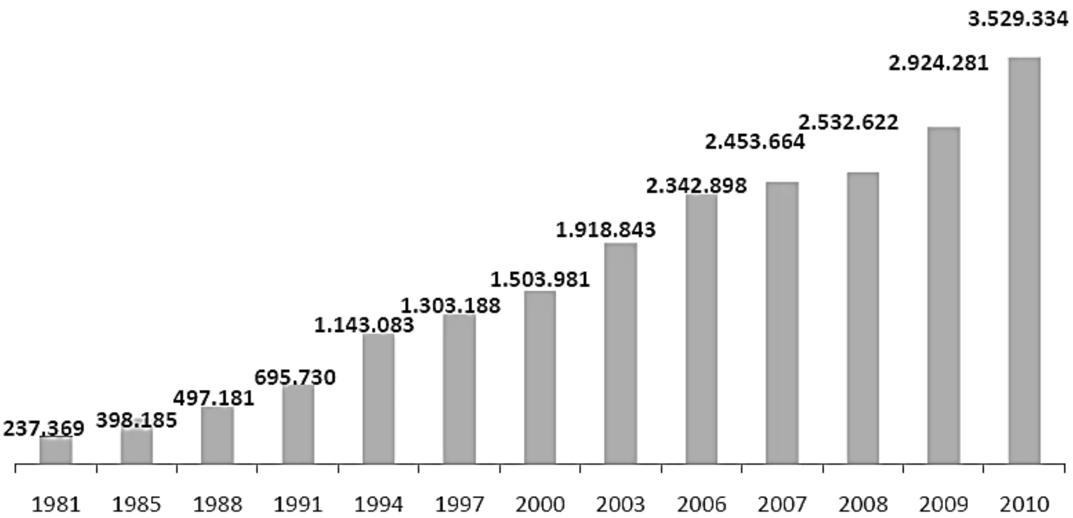

Figure 2.5 Numbers of Student Enrollments by Years (Özcan, 2011)

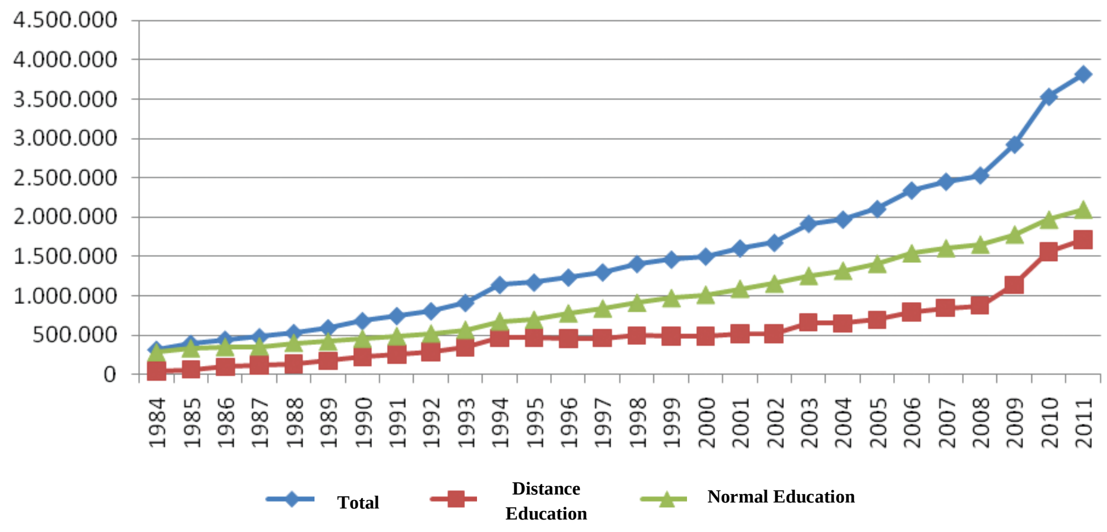

Figure 2.6 Changing in the Number of Students in Higher Education (Günay and Günay, 2011)

As of today, 70 of 178 universities are foundation universities but only 5-6% of the students are enrolled in foundation universities. As can be observed from numbers, despite rapid growth the number of foundation university, they cannot be shown by a parallel rising in number of students.

Table 2.1 Numbers of Student Enrollments in 2009-2010 (Özcan, 2011)

HEIs/Programs	Associate	Bachelor	Master	Doctorate	Specialty in Medicine	Total	%
State	988.769	2.147.044	120.997	42.260	12.920	**3.311.990**	**93.84%**
Foundation	30.894	126.101	18.466	2.147	656	**178.264**	**5.06%**
Foundation Vocational	3.565	-	-	-	-	**3.565**	**0.10%**
Others	19.122	7.064	580	361	8.388	**35.515**	**1%**
Total	**1.042.350**	**2.280.209**	**140.043**	**44.768**	**21.964**	**3.529.334**	**100%**

The number of academic and teaching staff of higher education in Turkey also increases about 25%. With this increase number of students per teaching staff (excluding open education) has decreased to approximately the ratio of 18 approaching to the of the OECD Average ratio of 16.

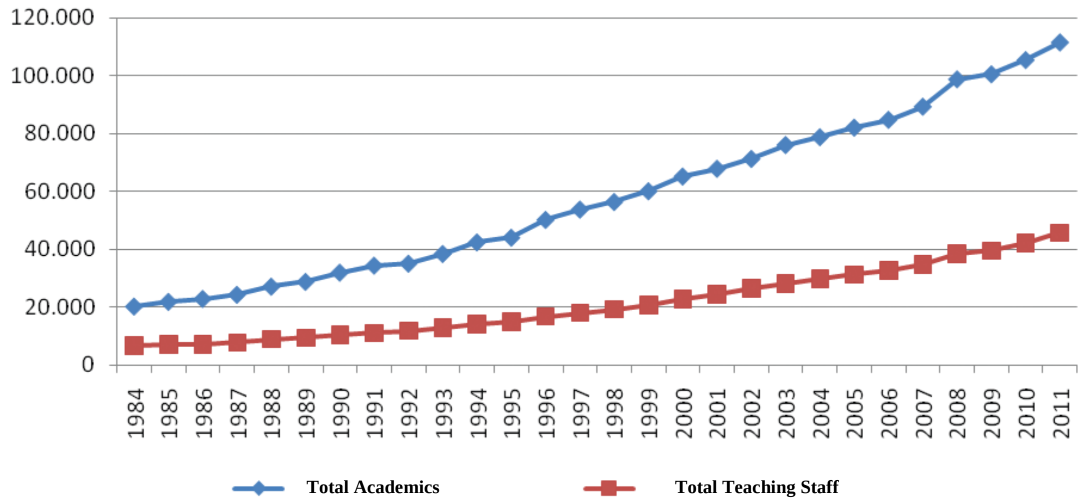

Figure 2.7 Changing Numbers of Academic and Teaching Staff by Years (Günay and Günay, 2011)

According to types of higher education institutions, the number of academic and teaching staff is illustrated in Table 2.2. While nearly %6 of students are enrolled in foundation universities, the staff rate is about %11. This means that the rate of students per teaching staff in foundation universities is lower than state universities. In state universities, teaching staff deal with more students than foundation universities.

Table 2.2 Numbers of Staff According to Programs and Types of Higher Education Institutions (Özcan, 2011)

HEIs/Staff	The Number of Academic & Teaching Staff in the 2009-2010										
	Prof.	Assoc. Prof.	Assist. Prof.	Lecturer	Reader	Specialist	Research Assit.	Translator	Educ. Planner	Toplam	(%)
State	12.958	6.970	17.373	11.915	5.758	2.795	33.723	18	14	91.524	86,81%
Foundation	1.416	665	2.159	2727	1.836	136	2.039	-	3	10.981	10,42%
Foundation Vocational	5	2	5	147	15	-	3	-	-	177	0,17%
Others	192	190	246	1.649	199	204	12	-	53	2.745	2,60%
Total	14.571	7.827	19.783	16.438	7.808	3.135	35.777	18	70	105.427	100%

The major source of public universities is the funds allocated through the annual state budget. In addition to the annual budget, each university has three more sources of income: Income from the services provided by the university, such as patient or research. Income from student tuitions towards highly subsidized services, research fund made up of a lump sum grant from the state-provided budget plus a portion of the income from the a floating capital fund and from earmarked projects given by the State Planning Organization. The ways of financing and funding of the Foundation Universities have three different sources of funding: Contribution of founding foundation, student tuitions, and government aids. The proportional shares of these sources of funding vary from university to university (Özcan, 2011).

2.2.3. The Current Development and Challenges in the Turkish Higher Education

Like all world, Turkish higher education is also in changing process with new trends and challenges. There is a clearly observable reality; demand of higher education is increasing. In the literature, this growing rate is named as expansion or massification.

In Turkey, privatization can be seen as the first challenge developing parallel with expansion of higher education. State university cannot be sufficient to deal with the rising application of higher education. Besides that, as much as possible, government wants to get rid of financial responsibilities of universities. To meet the issue of increasing demand and support the government by financial, higher education has to be supported by the private sector.

In Turkish higher education system, universities are found as Foundation University, which is non-profit organizations, not private university. After the Özal term with effecting neoliberal politics, the number of foundation universities has increased year by year. Although, there are only two foundation universities in 1990, now there are 70 foundation universities. Because of privatization of higher education, universities will substantially attain their autonomy. Therefore, they do not struggle with inadequate budgets, centralist bureaucratic tendencies and obstacles for the use of their budgets.

The second challenge is diversity, which develops parallel with expansion of higher education to meet different demand of a more diverse student populations. The term of diversity emphasizes to diversity of programs or services, different types of institutions, variety methods into teaching and research system, new curricula or may be new management structures that respond more effective to the new kinds of students maintaining higher education.

The need of rising number of international students is other important challenge in Turkish higher education. While it is possible to talk about the increasing demand to higher education in Turkey, the international level of demand is not possible to mention. Worldwide, there were about 3.3 million students in 2008. By 2025, almost 8 million students are projected to be studying outside their home country according to OECD Education at a Glance Statistics.

Unfortunately, with a number of about 24.500 foreign students the share of Turkey's share of global demand is very low. Turkish Higher education institutions host only 0.7% of all international students and this comprise about 0.8% of all higher education enrollments. As indicated following table, in 2008, six countries host more than 50% of international students worldwide.

Table 2.3 Numbers of International Students in 2010 (Özcan, 2011)

Country	#of Foreign Students	Share (%)	% of Total Student Population
US	624.000	18.9	3.0
UK	336.000	10.1	15.0
Germany	246.000	7.3	12.4
France	243.000	7.5	11.2
Australia	231.000	7.0	21.0
Japan	127.000	3.8	
Turkey*	24.551	0.7	0.8

As shown figure, more than 50% of international students in Turkey from Turkic Republics, Communities and Balkan Countries due to, mainly, the closer relations and bilateral agreements and availability of grants between the countries as well as convenience of the common language spoken. The number of students from other origins particularly from leading countries is low and needs to be increased.

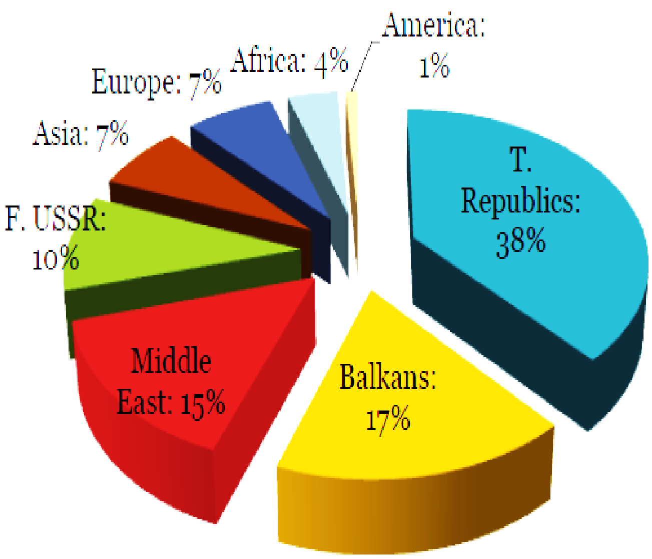

Figure 2.8 Rate of International Students' Country in Turkey (Özcan,2011)

In the world, internationalization has a deep influence on today's political, economic and cultural life of the countries. Like all these fields, in higher education also is highly sensitive to international developments. The international politics of higher education is increasingly significant for all countries. In Turkey, the internalization of higher education should be one of the priorities in creating educational policy. To recruit international students and to reap a larger share, Turkish higher education system must support English language programs, encourage international collaboration and mobility, increase the number of joint degree programs, promote quality education with international research activities and develop marketing strategies. To success them, as an internalization policy, Turkey is currently carrying out full membership negotiations with the EU and involved in European Processes. In this line, Turkey joined the Bologna Process in 2001 affirming its commitment the general principles of the process and since then actively involved in reforming the higher education in Turkey. Özcan (2011) states the current studies about this area: Development and Implementation of National (Turkish) Qualifications Framework for higher education; establishment of a fully functional national system of quality assurance; setting up national procedures for recognition of prior learning and promotion of lifelong learning. Especially, quality assurance has been important of many higher education institutions in Turkey by requirements of Bologna Process. Özcan (2011) also states that national & international quality assurance activities implemented in Turkish higher education system as follows:

- ABET (Accredit. Board for Engineering & Technology of the USA) since 1994
- MÜDEK (Assoc. for Evaluation & Accredit. for Eng. Programs) since 2002
- EUA's Institutional Evaluation Program since 2003
- YÖDEK (Academic Assessment & Quality Improvement Commission) since 2005
- Establishment of new program-specific quality assurance agencies was established in 2011.

In Turkish higher education area, the need of quality and autonomy are the other important issues. For Turkish higher education system, the increasing number of higher education institutions is a kind of difficulty to develop a quality assurance. Quality of education is certainly a broad concept and it is difficult to define (Giertz, 2000). However, the concept can be used in terms of acceptance and respectability in world education area. To be improve and create quality, to make revisions in the financing system that will ensure the diversity of sources such as tuition, sponsored research, corporate contracting, life-long learning activities, fundraising and gain institutional autonomy of higher education institutions in terms of both academic freedom and financial issues (Özcan, 2011). In higher autonomy environment, universities can be more innovative and can increase their performances. The following figure can provide an idea about the relationship between autonomy and the success of higher education.

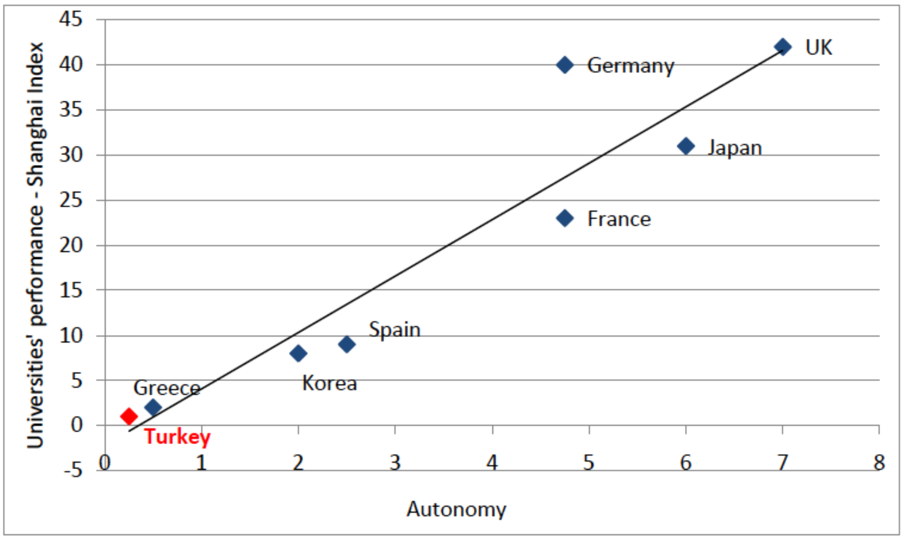

Figure 2.9 Graphic of Universities' Performance and their Autonomy (Özcan, 2011)

According to the OECD criteria about institutional university autonomy, autonomy level of Turkish higher education institutions, especially for the public ones, unfortunately is very low and even not exist in some areas of their functioning. Özcan (2011) proposed the reasons of that situation: existing Constitution and Higher Education Law 2547, existing financing and budgeting system, existing culture and habits prevails in higher education institutions, lack of transparent governance and management system of higher education institutions, lack of national accountability mechanisms providing a balance between meeting the demands for autonomy and increasing accountability.

In conclusion, the Turkish higher education system is in a structural transformation with new challenges and trends like privatization, diversification or internalization. Having only 19 public universities in the early 1980s, the higher education system today have turned into a broad system with 108 public and 70 foundation universities.

2.2.4. Foundation Universities in Turkish Higher Education

After the military coup, Turkey was in an economic crisis. One of the most important ways to overcome this crisis was seen as privatization that developed in the parallel line with neo-liberal politics in the world. In these years not only in Turkey but also in the entire world, the concept of privatization has gained importance day by day. The privatization was considered as a solution in educational area as well as the other economical and industrial areas. The common challenge in many countries is the need to widen access and increase enrolment to higher education in the face of increasing government budgetary constraints. To meet the increasing social demand for higher education, governments must seek alternative sources of funding such expansion. Due to these reasons, the private sector in many countries has grown dramatically over the past several decades. The result of these politics, the first Turkish private university was established with the foundation university status in 1984 according to the law 2547.

All universities in Turkey both state and non-profit foundations are subject to the same law and regulations. The law is described the legal base of foundation university in article 130 of the Constitution and Law no 2547 of 1981. According to law, universities cannot be founded by profit organizations and cannot be aimed profit. All processes of the foundation universities are undertaken by the Foundation Universities Coordination Unit founded under the Council of Higher Education.

To establish a foundation higher education institution, the process is rather confusing. The process of Foundation University as follows: To submit a proposal that contains the suggested study programs, academic units and expected date to start enrolling students; number of students; evidence of financial sufficiency with essential physical conditions and assets with certification about the academic and educational standards given by Council of Higher Education.

The higher education law establishes universities, faculties, graduate schools and four-year vocational schools while two-year vocational schools and departments are established by the approval of Council of Higher Education. Foundation universities have to obey many academic provisions and administrative rules established by the higher education law. Nevertheless, they are greatly independent in their management sphere. In addition, in any interruption to their activities, all rights and privileges are transferred to Council of Higher Education.

The first private university was established in 1984 by İhsan Doğramacı who was the administrator of Higher Education Council at that time. After the first private university, again in Doğramacı's period, in 1992, Koç family founded the second private university. İhsan Doğramacı was followed by Mehmet Sağlam, in this period, Başkent University was founded in 1994. Another important name in Turkish higher education system is Kemal Gürüz. He supported private higher education and thanks to his politics, the number of non-profit private universities increased. Six of universities were opened in 1996. These are Atılım, Işık, Fatih, Sabancı, İstanbul Bilgi, Yeditepe Universities. Eight universities were opened in 1997. These are Kadir Has, Atılım, İstanbul Kültür, Doğuş, Çankaya, Maltepe, Beykent, Çağ universities. Moreover, in the following years, foundation universities continued to be opened. In 1998, Bahçeşehir and Haliç; in 1999 Okan and Ufuk universities; in 2001 İstanbul Commerce and İzmir Ekonomi and Yaşar Universities; in 2003 TOBB Economy and Technology, 2003 and Anadolu Bil Vocational High School were opened. In Erdoğan Tezinç period, in 2006, İstanbul Bilim; in 2007, İstanbul Aydın, Acıbadem, İstanbul Arel, İzmir, Özyeğin universities were founded. The following duration, Yusuf Ziya Özcan period, in 2008, Gediz, Melikşah, Piri Reis; in 2009 Zirve, Yeni Yüzyıl, Toros, İstanbul Medipol, KTO Karatay, Mevlana, Nuh Naci Yazgan, Turgut Özal were added to Turkish higher education. İstanbul Şehir, Fatih Sultan Mehmet Vakıf, İstanbul 29 Mayıs, Süleyman Şah, İstanbul Sabahattin Zaim, Bezmialem Vakıf, Canik Başarı, Uluslararası Antalya, Şifa, Avrasya were established in 2010. At the last period, also, İstanbul Gelişim, Üsküdar, Gedik, Bursa Orhangazi, Alanya Hamdullah Emin Paşa, Türk Hava Kurumu, Ankara Bilge, Altın Koza, Bursa Teknik, Kemerburgaz, İzmir Katip Çelebi, TED, Murat Hüdavendigar universities were founded.

When we look at the numbers of universities, nearly 39% of students should be in foundation universities; 61% of students should be in public universities. According to The Council of Higher Education 2010 reports, the number of student enrollment is 3.529.334 in higher education in Turkey with all degree. All of 3.311.990 is in state universities, 178.264 of them are only in foundation universities. 3.565 of them are foundation-vocational universities and 35.515 are in others such as police academy, military schools. Based on these numbers, despite of the rising number of foundation universities, the student rate of state university is 93% and the student rate of foundation universities is still approximately 6%. Again, the same report is examined that the number of academics and teaching staff is different proportions when it is compared with the number of the students. 91.524 of academics and teaching staff are in state universities, 10.982 of academics are foundation universities, 177 of academics are foundation-vocational universities, and 2.745 are in others. While the rate of students in foundation universities is 6%, the rate of academics and teaching staff is 10 %. While the rate of students is 93 % in public university, academics and teaching staff rate is 86 %. According to this information, the following conclusions can be made:

- Since 1981, the number of state and foundation universities has been increased. In 1984 there is one foundation, there are 27 state universities; in 2013 there are 70 foundation, 108 state universities. View at these numbers, it can be clearly observed that the rate of rising foundation universities numbers is more rapid increasing than state universities. These numbers prove that Turkish governments support the establishing of foundation universities.
- The number of students' in state universities is more than the number of students' in foundation universities.
- When the student number and academics-teaching staff number are compared, the academics in state universities deal with more than students than the academics in foundation universities.

There are several reasons for increasing number of foundation universities in Turkey from day by day:

- The rising demand for higher education,
- There is an exam in Turkey to enter the university. Despite many students cannot have the enough scores to study a good state university, they have money to spend for their education and career. At this point, the foundation universities have been preferred to take an undergraduate degree. With their low scores if they go to state universities, these universities-departments will not good enough and sufficient for their career. These students cannot find many facilities that are offered by private universities. Therefore, the students who have money but not get enough scores prefer the foundation universities.
- High demand in enrolments and inability of government funds means that new ways of funding is necessary. Because of the growth private sector, the state support for higher education has dramatically decreased. Moreover, the growth of foundation universities is a proof that there is a growing demand by governments about universities should finance them.

In addition, all of these mentioned, as the government supports to the foundation universities, there is a raising rate of university graduates in the society. Sociologically, the rising number of university-graduated people causes the increasing of prosperity of the society. When the graduated number is examined in Turkey, the period of 1930-31, there were only 2,167 students and in 1942-1943, the number of higher education students increased 11,000. Between 1984-2011 years, there was a steady increase in the total number of students in higher education. While the total number of students in higher education in 1984 was 322,320, in 2011 the number of students in higher education reached to 3,817,086. That is to say, the total number of students in higher education has been an increase of about 50% (Günay, 2011).

As indicated Table 2.4, the number of students of foundation universities was 426 between in the 1986-1987. In 2006-2007 academic years, this number reached 109903. The annual increase rate of students in foundation universities during the twenty-year period has been 32%. The proportion of foundation university students among the overall number of university students was 0.09% in the 1986-1987 academic years, whereas this proportion rose to 4.85% in the 2006-2007 academic years and now it is about 6%. Although the number of students enrolled in the foundation universities has grown to 6 %, it is still far from reaching the numbers in some countries. According to the OECD data, the ratio of students enrolled in private higher education institutions constantly increase in all worlds. While the ratio of those enrolled in private higher education institutions in 1985 was 18% in the world in general, this ratio reached 30% in 2006 (Özdem, 2011;OECD, 2008; CoHE,2007).

Table 2.4 Numbers of Students in Foundation and State Universities (Özdem, 2011)

Academic Year	Number of Foundation University Students, *a*	Number of Public University Students	Total Number of Students, *b*	The Rate of *a/b* (%)
1986-1987	426	481174	481600	0.09
1987-1988	301	495101	495402	0.06
1988-1989	3088	548630	551718	0.56
1989-1990	4374	631455	635829	0.69
1990-1991	5846	689864	695710	0.84
1991-1992	6740	742110	748850	0.90
1992-1993	7486	841334	848820	0.88
1993-1994	8464	1033848	1072312	0.79
1994-1995	9063	1087007	1096070	0.83
1995-1996	9103	1141034	1150137	0.79
1996-1997	12646	12005519	1213165	1.04
1997-1998	19998	1302357	1322345	1.51
1998-1999	27367	1347090	1374457	1.99
1999-2000	36244	1376004	1412248	2.57
2000-2001	46022	1454209	1500231	3.07
2001-2002	49510	1510528	1560038	3.17
2002-2003	57213	1722518	1779731	3.21
2003-2004	68684	1752297	1820994	3.77
2004-2005	81794	1859253	19422995	4.21
2005-2006	95782	2055973	2155170	4.44
2006-2007	109903	2155033	2264936	4.85

With the developments of the past twenty years, higher education systems have undergone a transformation process in Turkey. This transformation brings with it a need for comparable, competitive and transparent higher education programs. The Turkish foundation universities need to equip themselves with the best knowledge and strategies. They must improve their education systems and strategies to capture high-quality educational standards not only in our country but also in the world. Turkish foundation universities must be mentioned for themselves providing better education at different levels.

2.3. HIGHER EDUCATION INSTITUTIONS AND COMPETITIVE ADVANTAGE THEORIES

In relevant literature, many studies have mentioned about the competition of higher education area. Such as, Dill, 2003; Jongbloed, 2003; Pringle and Huisman, 2011 have emphasized the increasing competitive environment of higher education. As Dill (2003) reports, colleges and universities compete for students, research support, faculty members, and financial contributions, and this competition is becoming both increasingly aggressive and global. De Boer et al. (2009) say that the marketed system of higher education causes as the number of providers grows, the competition increases and more competition leads to more efficiency, higher quality, more innovation, more differentiation and more choice for consumers. Pringle and Huisman (2011) assert that the policy-makers, the sector, and individual institutions would need to consider more seriously the impact of technology and globalization when seeking a competitive position for the higher education system. If the competition is an inevitable reality in higher education area, universities have to meet expectations of parents and students. They also should deal with new developments.

Porter Five Forces Model accepts an external view to explain how a firm shapes its strategy and performance. The Resource-Based View adopts an internal view to explain how a firm shapes its strategy and performance. The Porter Five Forces Model and the Resource-Based View have a complement property with each other in the development of strategies to obtain competitive advantage (Amit & Schoemaker, 1993; Conner, 1991; Foss, 1996; Hoskisson et al., 1999; Spanos and Lioukas, 2001; Huang, 2012). These two complementary views can be used to cope with the competitive environment. Like other industries, the institutions of higher education should develop some strategies by using analyze to their environment and resources. Because of this reason, two of theories are reviewed in relation to higher education area.

The aim of this part is to peruse the literature of Five Forces Theory and Resource-Based View related with higher education area. The relationship between higher education external environment and performance is conducted through the studies that are used Porter Five Forces Model. The relationship between internal resources of higher education and performance is explained through the studies that are used the Resource-Based View.

2.3.1. Porter Five Force Analyze in Higher Education

Especially in terms of profitability, the academics consider the possible application of Porter's analytical frameworks is not possible in higher education area. In the existing literature, Porter's five competitive forces theory is not well covered the higher education industry and it has not yet been explored in higher education industry (Loh Teck Hua, 2011; Pringle and Huisman, 2011). Although, many academics do not think of higher education as an industry, some of them think of higher education as a kind of industry. The studies which are regarded to the higher education as an industry have referred that higher education can be analyzed applying Michael Porter's Five Forces theory by the following forces: the threat of new entrants, supplier power, buyer power, the threat of substitutes, and industry rivalry.

1. Threat of Entry: New entrants to an industry result pressure on prices, costs, and the rate of investment. The new entrants result competition in an industry. They certainly affect the industry's profitability. If the barriers to entry remain high, the threat of new entrants is low. According to Porter (2008), economies of scale with supply-side economics perspective, economies of scale with demand-side economics perspective, customer switching cost, capital requirements, incumbency advantages independent of size, access to distribution channels and restrictive government policy are seven major sources of barriers for new entrants. As the item of customer switching cost cannot be related in higher education, it is excluded. Therefore, six major sources of barriers are evaluated in relation to higher education.

a) Supply-side economies of scale as a source of barriers in relation to new entrants of higher education: In the higher education sector, the rising demand for higher education brings together the increasing of supply. The increasing supply results a negative effect in terms of economic perspective for new entrants. The growing number of institutions leads to decrease the cost of per student. That is, the new entrants have a disadvantage about the cost of per student with reducing profit margins until they achieve to reach similar enrolments as their competitors. As Martinez and Wolverton (2009) explain:

> If a college offers, an entry-level math course in a lecture hall that seats one-hundred students but only enrolls fifty students the college has excess capacity that it can put to use by filling the remaining fifty seats with students. There is little additional cost associated with such an action, and the college will realize economies of scale by doing so (p. 49).

Supply-side scale economies will restrict new entrants, forcing them to enter the industry on a large scale, requiring they dislodge current higher education institutions or, alternatively, accept a cost disadvantage (Pringle and Huisman, 2011).

b) Demand-side benefits of scale as a source of barriers in relation to new entrants of higher education: Demand-side benefits increase in industries where a buyer's willingness to pay for a product increases with the number of other buyers. As Porter says that, the demand-side benefits of scale can be seen as a network effect. Nowadays the graduated from a university is a certain and first step of a good career in the labor market. The result of this necessity, there is an increasing demand for higher education. The high demand causes more competition among higher education institutions. Demand-side benefits of scale discourage entry by limiting the willingness of customers to buy from a newcomer and by reducing the price, the newcomer can command until it builds up a large base of customers (Pringle and Huisman, 2011). This situation causes an advantage the better-established institutions that have a good reputation and prestige. Many students are keen on attending prestigious institutions, and many employers are keen to recruit from such institutions (Roger Brown, 2008). The demand-side benefit certainly exists in higher education area. For example, considerable fee differences for universities' fee. The fees of them are significantly related to the prestige or offering degree of the institution.

c) Capital requirements as a source of barriers in relation to new entrants of higher education: Capital requirements may cause a threat of entry to higher education. High capital for infrastructure or technology investment as a requirement for entering an industry will reduce the threat of new entrants (Pringle and Huisman, 2011). To enter the higher education sector, the high capital requirements is a strong barrier for new entrants. Such high levels of capital investment mean that new organizations are less likely to enter the traditional higher education market (Martinez and Wolverton, 2009).

d) Incumbency advantages independent of size as a source of barriers in relation to new entrants of higher education: Established higher education institutions have a clear incumbency advantage that is not available to potential new entrants to this industry (Pringle and Huisman, 2011). They have a reputation and quality with their research, academics and employability rate, the management style, political and economic cooperation. That is to say, the "time" concept may cause a threat of entry to higher education. The history of university is an important effect for their prestige and therefore the new entrants have to deal with such time-honored institutions. These universities have always an advantage in the market and this power results a restriction for new entrants into their market. A well-established university from the past has a brand identity and it may cause a threat of entry to higher education. Well-established with time-honored universities have raised the entry barriers to new entrants. The students choose reputable institutions (Maringe, 2006; Pampaloni, 2010; Kim & Gasman, 2011). Therefore, the unknown new entrants will be at a major disadvantage.

e) Access to distribution channels as a source of barriers in relation to new entrants of higher education: The place of university may cause a threat of entry to higher education. The good transportation infrastructure and well- connected metropolitan universities have an advantage and the new entrant universities should determine their location according to these criteria to compete its rivals. If we remove online education from the equation, the location of higher education is largely affected selecting university. Presumably, institutions that are located along well-established public transit routes have a competitive advantage over those with poor transit links (Pringle and Huisman, 2011).

f) The government policy as a source of barriers in relation to new entrants of higher education: The government policy may cause a threat of entry to higher education. Restrictive government policy is clearly a strong barrier to entry for higher education institutions in the higher education sector, as the provincial government ultimately controls the number of higher education institutions (Pringle and Huisman, 2011). Overall, while a high entry barrier will cause fewer providers and less competition, a low entry barrier will lead to more providers and of course more competition in higher education industry.

2. The Power of Suppliers: Suppliers can use their bargaining powers by threatening to increase prices or decrease the quality of purchased goods and services. In industry analysis, suppliers are defined as those organizations or individuals who provide the materials, information, or knowledge that allow an organization to produce its products and services (Martinez & Wolverton, 2009).

In the context of supplier power, the higher education sector is more complex. The major suppliers of higher education can be seen as academics that provide knowledge and information to the institutions of higher education. The government and foundation can be seen as financial suppliers of higher education. As teachers and managers of high schools can able to effect the students' university choice decisions, they can be accepted as a kind of supplier. In addition, the support services for universities like bookstores, health clinics, and food services also can be identified as a portion of the supplier power. However, they are not main suppliers of education; the biggest suppliers of higher education can be defined as following items:

a) Power of government and foundation: Based on the supplier definition of Martinez and Wolverton, the government is a kind of supplier who provides subsidies to the higher education institutions. Public institutions receive their annual budgets from the government, whereas government subsidies to private institutions are limited. They provide their budgets from tuition and financial support of their related foundations. Moreover, government can be seen as supplier because of its political authority.

b) Power of high schools teachers: The interviewees and surveys show that the students who are in high school greatly influenced by their teachers to select their faculty and university. Many studies talk about the effect of teachers on university choice process in relevant literature. For example, Pimpa & Suwannapirom (2008) say that teachers from secondary school can exert a strong influence on students' decision-making. Raposo and Alves (2007) underline that school teacher's recommendations have a strong influence in the choice process of selecting a university. Therefore, the high school teachers can be accepted as kind of effective suppliers for higher education institutions.

d) Power of academics: Porter (1980) states that we usually think of suppliers as other organizations, but labor must be recognized as a supplier as well. The highly skilled labor is an important supplier for organizations. Academics and non-academics represent the labor of higher educations. Many interviewees and researches remark to the power of academics as suppliers of knowledge. Their effect has increased steadily in recent years because of the growing recognition of the value of knowledge. As Martinez and Wolverton (2009) said that, the academics are one of the important suppliers in terms of the production and the delivery academic knowledge, ideas and researches.

3. The Power of Buyers: Porter (2008) proposes that powerful customers could capture more value by forcing down prices, demanding better quality or more service, and generally playing competitors off against one another. It is clear that in this competitive area, the buyer power is arguably stronger than in the past. As Huang (2012) says that, the students, parents, employers and educational requirements of industry who want to have some special knowledge about their area are the primary customers of the higher education institutions.

a) Power of students and their parents: The students are the main customer of higher education. Many studies showing the students and their parents are the buyers of higher education. Such as, Robinson and Long (1987) said that the students as primary customers of higher education industry. The first and foremost clientele served by higher education are the students (Downey, Frase and Peters, 1994; Michael, Sower and Motwani, 1997). Other parties that benefit from quality education, such as parents, industry and society fit the definition of beneficiary (Scrabec, 2000). Lomas (1997) talked about the students' effect on the universities. He said that students are becoming increasingly more concerned about their job prospects and are interested in the educational programs that will best contribute to future employment opportunities. Martinez & Wolverton (2009) said that students and their parents are customers in the sense that they purchase an education from an institution. Duczmal (2006) stated that power of students' increases with the number of options they have to choose. The student body is the primary customer of higher education institutions (Asaad, 2011). Also, many studies have indicated that parent' educational expectations for their children strongly influence students' aspirations toward higher education (Hossler, Braxton, & Coopersmith, 1989; Stage & Hossler, 1989; Kim, 2002).

In the transformational education environment, the students' and their parents' satisfaction are a major goal of higher education institutions. A student's decision about which institution he or she wants to attend is likely to affect the institution's competitive position in the market (Huang, 2012). That is, the students and their parents have an important power on higher education institutions.

b) Power of employers: The purpose of higher education is to prepare students for future. Therefore, employers are also considered as a customer of higher education. They can be seen the last consumer of universities. Michael et al. (1997) indicated that one of the important customers of a higher education institution is the future employer as a consumer of the student product.

c) Power of industry: Nowadays, all industries must develop themselves. To catch knowledge society, they need always information and technology. They have always needed to the universities obtaining requirement knowledge. That is why, the industry can be thought as the potential customers of higher education institutions (Huang, 2012).

4. The Power of Competitive Rivalry: According to Porter (2008), rivalry among existing competitors takes many forms, including price discounting, new product introduction, advertising campaigns, and service improvements. In the higher education industry, the intensity of rivalry depends on the object of the competition: students, faculty, donors, or government-based funding and research money (Pringle and Huisman, 2011).

Because of the increasing number of educational institutions, the competition among higher education institutions has more increased. This competition has created an incentive for improvement. Therefore, to deal with this competitive environment, the universities should behave more responsive to the student needs and concerns. This is a positive effect of competition. Nevertheless, intensive competitive environment also has caused some difficulties for higher education institutions. For example, the competitive environment can decrease the probability of industry by requiring more public relation and advertisement expenditure.

As indicated by Martinez and Wolverton (2009), this competition can be identified further by examining two structural factors: the profile of existing players and the industry context.

a) Profile of existing players: The number and type of institutions within the industry has described the profile of existing players. The profile of them has determined to the degree of competition.

b) The influence of industry context: The feature of industry can be determined by political, economic, social, and technological variables. Such as, the funding of higher education is dependent with economic situations or the establishment of universities is regulated by politic rules. The social variables are also prominent effect on higher education. For instance, the decreasing of birth rate can create a substantial threat on the education sector. In contrast, the growth of population can cause the growing number of students. That is to say, the political, economic, social and technological conditions are related with the higher education area.

All of industry variables have an effect on competition of higher education. Higher education institutions must use technology and follow all changing in industrial context improving their strategy in such competitive area. Moreover, the opportunities-threats and strengths-weaknesses should be determined by looking the industry context. Higher education institutions are able to benefit the industry context creating strategy against the rivals. To cope with rising competition, higher education institutions should care of these structural factors.

5. The Power of Threat of Substitutes: Porter says that (2008) a substitute performs the same or a similar function by a different means. While recent decision, consumers always evaluate whether the substitute provides an acceptable level of service compared to the service that present suppliers provide. Martinez and Wolverton (2009) emphasizes that identifying substitutes, or potential substitutes, for existing higher education services is a matter of examining the learning experience in terms of three parameters: time, convenience, and application. Competitors that offer substitutes often combine convenience, time, and application, largely because of expanded delivery options made possible by technology. The students want to attain the alternatives that reduce the completion period to get graduated degree. In addition, the concept of time is also most important for adults who are willing to continue their education. They do not want to more time for complete master’s degree. Most of them want to take master degree to improve their career not academic reasons. These demands certainly expose to the importance of time. Not only education period but also convenience is much responsible to driving education for adult. For these reasons, distance-online learning, the diversification of programs as delivery methods of evening, weekend, and modularized programs are gaining importance. Higher education institutions must seek methods to respond to this kind of demands by offering convenience and reducing time. If the universities do not research new ways, the substitutes will have advantages.

Technology offers the students more options with greater flexibility in relation to when and what they want to learn. Online programs provide many alternatives to the traditional education institutions. The implementation of long distance learning breaks down the traditional geographic barriers and extends curriculum offerings that might not be accessible to students (Chen, 1998). Therefore, distance learning is a major substitute for higher education. Many international educational institutions can be accessed through distance learning by which students can earn a degree and it represents a potential threat to existing higher education institutions (Huang, 2012). In addition, with the effect of globalization, international education in developed countries is also another substantial substitute for universities.

In sum, distance learning, online programs, non-formal certificated programs that can be caused obtaining a job in a short period, international education opportunities especially the universities of development countries and state university can be seen as the substitute threat against the foundation universities. If a university has a strong background with a good reputation, it can be able to decrease the threat of substitution. Certainly, a large number of substitutes result in more options for customer. More options have negatively affected to the profitability of firms.

2.3.2. Resource-Based View in Higher Education

One of the most important theories is "Resource-Based View" for explaining sources of competitive advantage. This theory is interested in internal sources of a firm. As many academics do not think of higher education such a kind of industry, Resourced-Based View theory is not well covered with the higher education. The Resourced-Based View has been used to determine the resources of competitive advantages in many industries such as electronics, telecommunications, pharmaceuticals, plastic, automotive, textile, but it has seldom been applied in the education area. Lynch and Baines (2004) say that in-depth exploration and application of the Resource-Based View to higher education institutions, though not yet considered within the strategy literature.

Based on the literature, three underlying issues of Resourced-Based View are examined in relation to higher education: The competitive market assumption, the profit-maximizing assumption, competitive resource bundles.

a. Competitive Market Assumption: An important underlying assumption of the RBV is that businesses compete against each other (Wernerfelt, 1984; Barney, 1991). Higher education institutions also compete against each other like business area. For instance, they compete to each other for funds, researches, quality staff and students (Pettigrew & Whipp, 1991; Davies & Glaister, 1996; Thomas, 2001; Harley, 2002; Kogan, 2003; Martinez & Wolverton, 2009).
b. Profit-Maximizing Assumption: The mission statements of many higher education institutions do not contain the profit-maximizing target. This does not mean that such they do not need profit. Universities strategic plans can include the assumption of profit maximizing. The principle of funds surplus to costs is valid for higher education institutions for their financial healthy. It should be emphasized that the profit-maximizing assumption oversimplifies the goals of higher education institutions (Patterson, 2001). That is to say, the profit is certainly necessary for a higher education institution but it cannot be a main goal of a higher education.
c. Competitive Resource Bundles: According to the theory, underpinning the RBV, the main purpose of strategy development is to identify and enhance those “bundles of resources” that will deliver superior performance compared with rivals (Barney & Arikan, 2001).

To understand the application of Resource-Based View on higher education, firstly, the internal resources of a higher education institution must be evaluated. In the literature followings researches talk about the resources of higher education institutions. As Cheung & Cheng (1996) said that the schools can be analyzed their internal environment in terms of such factors as human resources, financial resources, physical resources, student intake, school climate, and its various education. Bellamy, Morley and Watty (2003) have researched why one key university resource - its staff - remained in the university sector. Lynch and Baines (2004) say that the bundles of competitive resources of higher education might include the reputation of certain departments, the grouping together of areas of specialist expertise, and the development of technical patents and so on. Finkelstein and Hambrick

(1996) show the main resource of higher education is generally about people resource. A basic definition of the competitive resources of a university identifies tangible, intangible and organizational assets (Grant, 1996). Lynch and Baines (2004) state that the tangible resources might include campus location, building capacity, conference facilities and medical research facilities; intangible resources generally include such items as patents, teaching and research performance, service levels, using technology, the geographical location, eminent professors, renowned authors and distinguished teachers.

Resource-Based View also include following concepts:

a. Reputation, architecture and innovative capability (Kay, 2000)
b. Core competencies (Prahalad & Hamel, 1990)
c. Knowledge-based advantages (Lynch and Baines, 2004)

When we apply these concepts to the higher education based on the relevant literature:

a. Reputation is very important for long-term competitive advantage of a university. The students select courses on the perceived expertise and reputation of teaching staff. Many students are keen on attending prestigious institutions, and many employers are keen to recruit from such institutions (Roger Brown, 2008). Architecture means that the network of university like that its alliances or collaborations. It contains the relationship with other national or international higher education institutions, contact of government or other funding bodies or can be included the licensing agreements. Innovative capability is another resource of competitive advantage such as new courses, research patents with knowledge-based.
    - Core competencies of a higher education institution comprise teaching, learning and research purposes. In addition, fund-raising, alumni relations or social responsibility is important to make these core competences.
    - Knowledge-based advantages includes frameworks and methodologies in consultancy, copyrighted material, advantages high-value courses and training competences, and intellectual property arising from research (Lynch and Baines, 2004).

There can never be a set of guidelines that will be allowed all higher education institutions to be equally successful (Lynch and Baines, 2004). Different student demands are fulfilled with different university strategies. Current literature outlines the possible internal sources of higher education as follows; relationships/partnerships (architecture), innovation (teaching, research and third-core funding), reputation, their knowledge base (research and teaching technologies, particularly distance and e-learning) or a particular core competence (Lynch and Baines, 2004).

The competitive advantage is the result of a thorough understanding of the external and internal forces that strongly affect an organization (Lindelöf and Löfsten, 2004). Overall, a university should be used the Resource-Based View beside the Porter Five Forces in order to identify the factors which provide competitive advantage to higher education institutions.

2.4. NEW TRENDS AND CHALLENGES WITH COMPETITIVE ADVANTAGE FACTORS IN HIGHER EDUCATION

In Turkey, like in all Worlds, higher education systems and institutions are facing a new paradigm, which is transformed from traditional views to new ones. In parallel of transformation, there are some new trends and challenges in higher education area. The one of most important debate is about higher education is a business or not. Moreover, expansion, internationalization, globalization, Europeanization, privatization, diversity, management of higher education institutions, life-long learning and technological development can be evaluated as substantial challenges of higher education area. Besides that the challenges of higher education, the competitive advantage factors are also assessed in this part of literature review. As the higher education environment has become much more competitive, the factors providing competitive advantage have gained more importance. In the study, based on the literature, the eleven items are emphasized in relation to challenges in higher education and; the eight competitive advantage factors are emphasized in relation to higher education with details.

2.4.1. New Trends and Challenges in Higher Education

2.4.1.1 The Business Approach to Higher Education

In this part, the literature is examined to clarify one of most important debate, which is about higher education is a business or not. There are two views at this point. One of them is traditional views, which consider higher education is a kind of a public good within bureaucratic system and is managed-financed by government. In contrast with this view is a business approach that is emerged after the 1980s and is supported by many academic studies. A key driver that supports the idea of business approach to higher education is the increasing competition within the higher education institutions.

Following definitions must be considered understanding if higher education is a kind of business or not. A business is an organization involved in the trade of goods, services, or both to consumers (WEB_1, 2014). An organization is a social entity that has a collective goal and is linked to an external environment. Trade is the transfer of ownership of goods and services from one person or entity to another by getting something in exchange from the buyer. A good is a thing that satisfies human wants and provides utility, for example, to a consumer making a purchase (WEB_2, 2014). A common alternative usage distinguishes between "goods" that are tangible/physical (also called goods) and services, which are non-physical (WEB_3, 2014). Service is an intangible commodity. According to classical definition, a commodity is a marketable item produced to satisfy wants or needs. Economic commodities comprise goods and services (WEB_4, 2014). A consumer is a person or group of people who are the final users of products and or services generated within a social system (WEB_5, 2014).

When higher education is considered as a business, it should be evaluated according to the business definition mentioned above. Many studies agree with higher education is a kind of organization, there is no problem in this point but what about the good, service and consumer concepts in business definition.

According to classical view of higher education, it is a main human right, it must be charge free, and so higher education cannot be seen as a business. Alternative model emerged in contrast with the classical view of higher education. It supports that higher education is a kind of business. Nowadays, many higher education institutions started to adopt a more business-like approach in order to compete and survive in the changing education industry (Dahan and Şenol, 2012). This strategic change in academia is now creating its own ambiguity to the institutions (Gioia and Thomas, 1996). Tilak (2009) says that the idea of the university as a place of scholarship and as a community of scholars and students drawn from all corners of society, seeking truth and engaging in the task of pursuing scientific research etc., and not as a confederacy of self-seekers, is treated as an old-fashioned idea. These neo-liberals view higher education institutions as centers neither of learning nor as important social institutions. They threat universities as knowledge factories. For them investment in higher education is not human capital, but venture capital; and equity in higher education means not socioeconomic equity, but "equity" in share markets relating to investment in universities. Although it seems hard to imagine an alternative other than the common business like approaches or to make a return to the traditional model of the past, many academics are disturbed even from the idea of managing higher education institutions in a market-oriented manner (Weymnas, 2010). In this situation, the reluctance of the academics on business approach is substantial impact on development of this idea about higher education. Therefore, it will examined in both cases with positive-negative perspective.

a) Customer concept in higher education: One of the most important debates is the understanding customer concept. Customer is an inevitable concept for a conventional company. Customers are defined as the ones who receive the benefit of the product or service and they are the ones who put their hands in their pockets to pay for it (Lindsay and Rodgers, 1998) in marketing theory. In one aspect, if this definition applies to the higher education, universities can be assessed providing educational service and students benefit from these services paying for the education they receive. Thus, students are perceived as the main customer of the higher education institutions (Naude and Ivy, 1999; Guolla, 1999; Elliot and Healy, 2001). That is why, to tag students, as a customer is normal and not a sin. There are many studies which are accepted the students as a customer. Robinson and Long (1987) talk about a classification of primary, secondary and tertiary customers of education. They saw the students as primary customers, secondary customers as the paymasters such as employers and tertiary customers such as employers and parents. Franz (1998) argues that society itself is the primary customer and that the purpose of education is to help students become good citizens. In other aspect, if the students are thought as customers, it can be contrast with the core of the education in academically. Moreover, to tag the students as a customers is not normal and perhaps even a sin. Much of the resistance seems to stem from a perception that a customer focus is potentially damaging to the learning process (Albanese, 1999; Bay & Daniel, 2001; Cloutier & Richards, 1994; Franz, 1998). Nevertheless, as of today, customers are thought as a partnership with the company and they are in many ways partly accountable for their own satisfaction (Hill, 1995; Kotze & du Plessis, 2003; Lengnick-Hall, 1996). In this perspective, the students are as a customer, they can share responsibilities of higher education institutions and learning process will not be damaged. Student-designed curricula, teaching guarantees and increased student opinions in determining education policy are only some examples of the learning experience about more partnership with students. Another threating, students as a customer is kind of transfer power to students and prompts them to blame the institution for their own personal shortcomings (Bay & Daniel, 2001; Motwani & Kumar, 1997; Scott, 1999). The other reason is that it is difficult to conceptualize students as customers is that they rarely pay the full cost of their education, which is often subsidized by outside entities such as taxpayers and donors (Bay and Daniel, 2001). In sum, higher education institutions can be seen the students as their customers within an academic mission.

b) Second important point is to make a comparison between the responsibilities of a business entity and a higher education institution. A business entity is a kind of institution that is formed to engage in business activities for selling a product or a service to make profit. However, the purpose of education institutions cannot be regarded such simplistic; it is a much more complex process than business. According to the World Education Report (1991) which is prepared by the UNESCO, the responsibility of the higher education institutions can be summarized as transferring the knowledge to the new generations by teaching, training and doing research; determining a balance between basic and applied research and between professional training and general education; meeting the priority needs of their respective societies. Also, higher education are expected to function as social institutions actively for the development of individual learning and human capital, the socialization and cultivation of citizens and political loyalties, the preservation of knowledge, and the fostering of other legitimate pursuits for the nation-state (Gumport 2000). As can be seen in these statements, the higher education institutions aim directly society through their alumni and processing. The goal is to educate people to work effectively in an increasingly technological world that is, to provide the technical skills needed for a growing number of jobs and professions that require sophisticated knowledge and an education that instills the ability to think critically. In many countries, general education is also considered a key university goal. Since beginning, teaching and research missions with personal development of individuals for a better quality of life have been the main role of higher education. Nowadays, as higher education institutions should aim at serving all these functions, they may face some major changes in their values and norms while adapting the business approach, even if that is not a desirable result.

c) Another discussion is about that higher education is regarded as a public good or not. The idea that higher education is regarded as a public good has many supporters in the academy. Higher education can be thought as a public good because it is freely available and consumption by one person does not impair the interest of others (Cemmell, 2002). For UNESCO, higher education is a human right and access to higher education should be based on merit and not on affordability. Nevertheless, because of deficiency of public funds, the impact of neo-liberal policies, higher education is increasingly considered as a private good. With the current decrease in the public funds, higher education institutions are entailed to do more things with fewer funds. Studies on higher education in different countries elicit a common policy on issues relating to resource allocation, revenue generation, and realignment to accommodate new demands, and reorganization for lower costs, increased efficiency, increased productivity, and improved teaching quality (Rhoades, 1995). Therefore, the restructuring of higher education has shaped on the privatization of universities, corporatization of public universities, cost-sharing policies and strategic partnerships with public and private sectors. With this restructuring, higher education system is in a transformation with new forms such as entrepreneurial universities or commercial institutions from public good to private goods. Higher education is increasingly being viewed as a private commodity that is saleable and tradable. Huisman and Currie (2004) say that the increasing accountability has shifted the perception of the higher education industry from being considered a "public" or "quasi-public" good to its being considered a "private good". In addition to these ideas, Johnstone and Bain (2002) propose that it is becoming increasingly difficult to say what it is that makes a university "private" as opposed to "public". Undoubtedly, higher education institutions naturally serve both public and private interests. It interested in students and their families by providing them with economic, social, cultural, and political benefits. Meanwhile, it is interested in public by creating common public values, join in the democratic processes, and engage in social, economic, and political activities that contribute to national development (Levin, 1999).

Overall, the role of higher education must be redefined and reinterpreted. The line of new challenges and trends in higher education area, the academic world reveals the need to new approaches in such transformation process.

2.4.1.2. Expansion or Massification

Higher education enrolment has expanded considerably over the past century. These two term (expansion or massification) can be used each other in relevant literature. In 1960, entry rates in higher education in the OECD member countries were only about 10% around; between 1995 and 2009, entry rates in tertiary programs increased by nearly 25 percentage points, on average across OECD countries. Based on current patterns of entry, it is estimated that an average of 59% of today's young adults in OECD countries will enter tertiary-type A (largely theory-based) programs and 19% will enter tertiary-type B (shorter, and largely vocational) programs over their lifetimes.

The increasing rate must be assessed in both cases with positive and negative perspectives. Ulrich Teichler (2003) says that looking at higher education itself; first, one could ask about the interrelationships between these issues of expansion to other issues in the forefront of the debate of higher education. For example, to what extent and in which way reform of curricula – as well as teaching and learning and also reforms of steering, governance and funding of higher education – are driven by "pressures" of the growth of student numbers. Second, we have to explore the consequences for the world of work and other spheres of life, if the majority of the population is higher education-trained. What will be the characteristics of a highly educated society around 2020?

This growing rate of higher education demand is creating great pressure with some changing aspect on higher education systems and institutions. Such as expanding number of places offered for university; to adapt programs and teaching methods to meet the changing needs of students; the increasing number of universities and academics need; encourage to private education; some debate about education quality and differentiate of the relation between labor market and society. Overall, the expansion is an important challenge for higher education in both cases with positive and negative.

2.4.1.3 Diversification

The expansion of higher education has often been associated with the need for increasing diversification, namely at the program level, based on the pressures to adapt more general programs to a more diverse student population and multiple regional, social, and economic needs (Teixeira et al., 2012). This means that Ulrich Teichler (2003) says that in the continuous process of expansion, higher education aims to respond to the growing diversity of students in terms of motives, talents and job perspectives. In many other parts of the world, the term "diversity" has been emphasized with regard to variety among the programs or services provided by academic institutions, and differences among the types of institutions themselves (Meek et al. 1996). The entire world, the diversification requires a new set of demands on higher education institutions and systems. Such as new approaches into teaching and research, as well as new curricula and administrative structures that respond more appropriately and effectively to the unique identities of the new kinds of students pursuing higher education (Altbach et al., 2009).

To meet the increasing demand of tertiary education and to deal with intensive competitive area, the higher education institutions must avoid "institutional isomorphism" (DiMaggio and Powell 1983). In order to prevent institutional isomorphism each university must have own diversification politics. In other words, whilst avoiding the word "categorization" stresses diversification and individualization, and calls for 'functional differentiation' of universities based on their own initiatives (Kitagawa and Oba, 2010). That is to say, higher education institutions are to respond to the differentiating demand for higher education by offering different dimensions with course programs, level of degrees, substantive profiles of institutions and programs of the same type, ranks of reputation and quality of the institutions and programs of the same type.

That is, the expansion of higher education requires the need for increasing diversification to adapt the pressure of different students' demands. Diversity has a great impact to find an optimal balance between the competitive and changing education area requirements and the system of higher education and it is used different dimensions of education. Diversification can be examined by composition of students' body, funding of university, functional categories, ordered hierarchically, hierarchic system and structurally.

- Diversification by composition of the student body (Hurtado and Dey, 1997) like University of California has a very diverse campus. For instance, the undergraduate student body was nearly 40% white, 35% Asian American, 16% Latino, 6% African American, and just over 1% Native American.
- Diversification by funding of university is regarded as public and private higher education institutions. They have certainly different academic cultures and have a different effect on the structure of higher education systems (Guri-Rosenblit, 2006).
- Diversification by functional categories is about purpose of higher education institutions such as engineering faculties, nursing faculties, teaching faculties, medical faculties. Such tasks or functions may for instance be the education of people to specific occupations (engineers, doctors, nurses, teachers, etc.) that society needs (Bleiklie, 2006).
- Diversification by ordered hierarchically (Kitagawa and Oba, 2010) from 2-year colleges and bachelor degree institutions to graduate degree institutions with master and PhD degree.
- Diversification by hierarchic system such as in the US the higher education system consists of private top research universities like Harvard, MIT or Stanford, state

systems such as California, New York that are considered as top research universities, less exclusive state universities, and open access vocationally oriented community colleges (Balderston, 1995; Bleiklie, 2005).

- Diversification by structurally express that higher education can diversify according to types of institutions and programs, levels of degrees, substantive profiles of institutions and programs of the same type (horizontal diversification), and ranks of reputation and quality of the institutions and programs of the same type (vertical diversification) (Teichler, 2003).

Diversification is a close relationship between technological developments and flexibility patterns of higher education systems. Diversification does not sufficient for providing equality of opportunity in higher education. Higher education must be also flexible to obtain a very oriented or even universal access policy (Guri-Rosenblit, 2006). The impact of the new technologies on higher education has another important element that is shaped to diversification. The digital technologies enhanced the establishment of very new virtual universities, and pushed forward the creation of consortia between universities and other partners from outside the academic world, as well as convinced many campus universities to mobilize them for a wide spectrum of uses for both providing distance education and for their students at campus (Rosenblit, Sebkova & Teichler, 2007). As such new technologies have contributed to the diversification of many higher education systems (Guri-Rosenblit, 2001, 2006; Guri-Rosenblit & Sebkova, 2004).

The issue of diversification of higher education will continue to be among the major issues in future debates about the development of higher education systems (Teichler, 2003). Higher education institutions cannot escape the fact that they need to diversification to meet the different demands of students and to apply diversification policies lead to competitive advantage for universities. It seems that higher education will become even more diverse in the future through the establishment of new higher education providers and the creation of various consortia and partnerships between universities for research and teaching purposes (Rosenblit, Sebkova & Teichler, 2007).

2.4.1.4 Different Management Approaches

The new challenges of management of higher education have an important impact on the success of higher education institutions. The competitive environment of education area, universities need reengineering to respond this newly created requirements. As Jongbloed (2004) states that competition where possible, regulation where necessary. Management of institutions is one of the major parts of this regulation process. Based on the literature autonomy, transparency, accountability, visionary is the most substantial tendencies for university managements. As the Magna Charta Observatory principles say that to meet the needs of the world around it, its research and teaching must be morally and intellectually independent of all political and economic power. University organization and management in the future calls for devolution of decision-making powers from government institutions to increasingly autonomous universities (Pasternack et al., 2007). This means that autonomy of higher education institutions in terms of both academic freedom and financial issues is the most crucial requirement for their success. Reducing procedural controls by government both financially and academically, growing evaluation mechanisms and ensuring transparency and accountability are very important features in university management system. These are necessary for the visionary and strong management university system. In addition, it can be emphasized that university administration neither follows a standard model, nor will it develop towards a common international model. Cultural specifics and traditions in the different national contexts stand in the way of such a model (Pasternack et al., 2007).

The followings items are the most important changings about management of higher education area (Teichler, 2003).

- Reducing procedural controls by government
- Increased resource allocation powers within higher education institutions
- Increased managerial powers and a growth of the number of professionals in higher education combined with a reduction of the role of the academic profession
- A growing role of mechanisms of evaluation and reporting of quality or performance

In summary, reducing procedural, autonomy, transparency, accountability and visionary are the most substantial tendencies for university managements. These new inclinations of higher education management area have certainly major effects providing success for a higher education institution.

2.4.1.5. Internationalizations

Internationalization has become a major issue in debates on higher education area during the 1990s, and it is likely to remain high on the agenda in the near future (Teichler, 2003). Stensaker et al. (2008) says that internationalization in higher education institutions is a case of a match between the inherently international character of academic activities and external demands and changing environments. Deardorff, Pysarchik and Yun (2009) state that with globalization driving the demand for global-ready graduates, it becomes crucial for administrators to assess these outcomes of internationalization to determine exactly what our students are learning through these efforts and how effective our programs are in achieving the stated learning outcomes. De Wit (2002) says that as the international dimension of higher education gains more attention and recognition, people tend to use it in the way that best suits their purpose. Internationalization strategies are designed to develop international mobility and convey intercultural skills. They intend the compatibility of degrees/certifications, transferability of educational achievements (ECTS). Knight (2008) proposes that a process of integrating an international and cultural dimension into the teaching, research and service functions of the institution and the international dimension of higher education has been steadily increasing in importance, scope, and complexity. Teichler (2009) explaines the term of internationalization with these themes:

a) Physical mobility, notably of students, but also of academic staff and occasionally administrative staff as well, is obviously the most visible international activity, and it is in the forefront of programs aiming to promote internationalization.
b) Recognition across borders of study achievements is a second major theme, which is clearly linked to the first one. As the results of learning in one country accepted as equivalent to that, which is expected to be learned in another country, if persons are mobile at the beginning of their study, during the course of study, upon graduation or in later stages of learning and work.
c) Other modes of transfer of knowledge across borders have been less the focus of recent public debates, but certainly have altogether a stronger weight than physical mobility of students and scholars: e.g. international knowledge transfer through media.
d) International orientations and attitudes, or, in contrast, national orientations and attitudes of the actors, the students and possibly the academics are a major issue of

internationalization such as growing global understanding or a growing empathy with other cultures.

e) The similarity or heterogeneity of national systems of higher education plays an ambivalent role in this respect. On the one hand, a variety of national higher education systems, for example, are considered beneficial in order to provide mobile students the opportunity to learn from contrasts and thus to develop a more reflective mind and a better understanding of diversity. Nevertheless, the Bologna Declaration called for a structural convergence of higher education systems in Europe, among other reasons, as a means of facilitating intra-European student mobility.

The internationalization as a significant challenge of higher education area brings together many advantages for universities. Such as rapid knowledge transfer, increasing international competencies, quality improvement of reflective thinking, growing international understanding, understand of the extent of homogeneity or diversity in higher education area. Therefore, the international education has grown into a substantial worldwide industry (Mazzarol et al., 1998). As shown in figure, international student numbers have increased five-times since 1975.

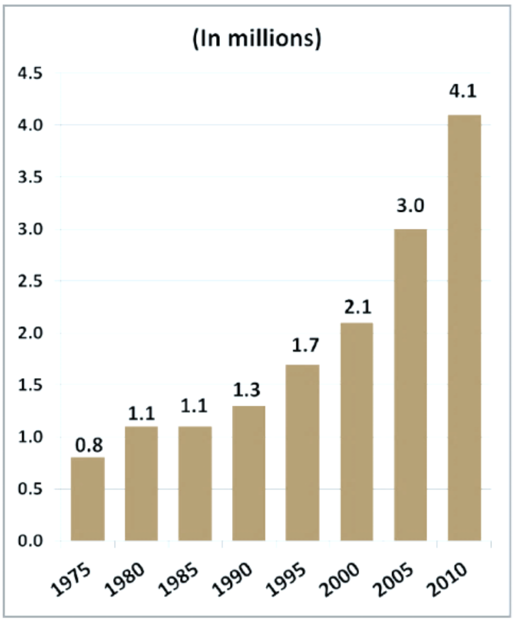

Figure 2.10 Growths in Internationalization of Tertiary Education (OECD, 2012)

Blight (1995) says that the estimates of the growth in international education suggested that by 2025 there would be 4.9 million international students studying outside their country of origin. Nevertheless, when we look at the real number of international students, in 2011, if there are 4.3 million students, in 2025, there will be more than 4.9 million students. This means that it represents an increase of more than expected.

Internationalization of higher education initiatives is certainly substantial almost all countries. However, the developed countries especially English-speaking provides most services. These countries earn the financial benefits and control the education industry. Political realities and national security, government policies and the cost of study, use of English, the internationalization of the curriculum, e-learning, private higher education, quality assurance and control, support of European higher education space are major factors which affect the international student numbers (Altbach and Knight, 2007). In the world, especially, USA, UK, Australia, Germany, France, Canada, Russia and Japan have a large number of international students according to 2010 statistics.

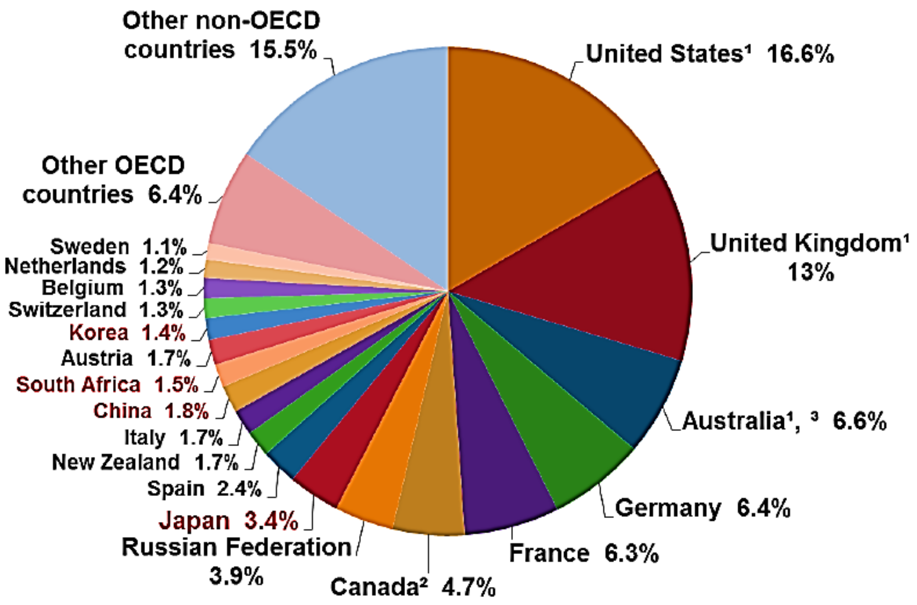

Figure 2.11 Rates of International Students (OECD, 2012)

According to 2010 OECD statistics data, Turkey higher education has only 0.8% of international students with a number of about 26.000 and more than 50% of them come from Turkic Republics, Communities and Balkan Countries. The rate of foreign students of Turkey's share in global demand is very low. The first step of increasing international students' rate for getting more shares the pie of international higher education area is to understand the evident trends in all dimensions.

2.4.1.6. Europeanization

Europeanization in the context of globalization will lead to a more market-geared control and to growing intercontinental competition, including changes in the international division of labor, which all call for specific national and even regional responses (Pasternack et al., 2007). Europeanization is the regional version of either internationalization or globalization; it is frequently addressed when reference is made to cooperation and mobility, but beyond that to integration, convergence of contexts, structures and substances as well as to segmentation between regions of the world (Teichler, 2003).

2.4.1.7. Globalization

Recent years, globalization is a substantial term using many areas such as economic, social or cultural. New information technologies, communication tools, social networks result in important cultural and demographic changes in many area of the world. Higher education is certainly one of the region affecting global inclinations. Globalization means to the broad economic, technological, and scientific trends that directly affect higher education and are largely inevitable in the contemporary world (Altbach, 2006).

In addition, it should be mentioned that internationalization, globalization, Europeanization differs from each other in some respects. Internationalization leans for increasing of cross-border activities and internationalization concept usually is interested in relation to physical mobility, academic collaboration and knowledge transfer; for globalization concept, borders and national systems get blurred or maybe disappear and it is often associated with competition and market-steering, trans-national education, and finally with commercial knowledge-transfer (Middlehurst, 2000; Sadlak, 2001). Internationalization in higher education is the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of higher education (Knight, 2004). With the emergence of the term ‘globalization’ which was rejected at first and seen as a solely economic notion by higher education institutions, internationalization was interpreted as the reaction of higher education to phenomena of globalization (Kehm, 2011). Europeanization is the regionally oriented kind of either internationalization or globalization and frequently addressed with reference to cooperation and mobility in a certain area (Race, 1997). In recent years, the term "globalization" surpassed the term "internationalization" in the frequency employed in economically advanced countries to characterize cross-national changes of both contexts of higher education and higher education systems themselves (Enders, 2004). The term "globalization" suggests that increasing cross border activities in higher education indicates a "blurring" of borders, while "internationalization" is based on the assumption that national systems continue to play a role in the process of increasing cross-border activities. Moreover, the term "globalization" is often put forward when claims are made that higher education is bound to be more strongly affected by worldwide economic developments, as well as by suggestions that the individual higher education institutions, notably those wishing to place themselves in the first league of reputable hierarchy, have to compete globally (Teichler, 2005).

All of main studies in current literature, ten following dimensions can be identified understanding the challenges of internationalization, Europeanization and globalization.

- Mobility of students and academic staff,
- Rapid knowledge transfer,
- Collaboration and competition,
- Higher education systems are affected to the each other. This international mutual effect causes the increase pressures for structural convergence.
- The extent of homogeneity or diversity of higher education within or among the countries results in the improvement of career opportunities.
- These concepts cause a worldwide higher education market, which is shaped the almost same major force in determining the character of research, teaching and learning in higher education.
- Internationalization, globalization and Europeanization trends might become more complex to higher education area due to many cultural dimensions.
- Growing international competencies,
- The worldwide higher education system need a measure of quality the individual scholars, departments and higher education institutions.
- Need of compare elements to the worldwide higher education system, such as institutions profiles and programs or the competences of students and graduates.

2.4.1.8. Privatization

The rising demand of higher education comes together with the privatization concept. In all worlds, there is a powerful global tendency that limits the financial role of the government. The states look for alternative financial resources to ensure economic survival because of their financial insufficiencies. The privatization of higher education is regarded as an alternative source. Because of privatization to the higher education, the institutions have to seek alternative and different funds with several commercial or entrepreneurial activities. So that government is getting rid of the financial responsibility of higher education. This concept has been discussed in both cases with positive-negative perspectives in higher education area. As Altunay (2010) says that, the privatization of education has been a topic that provokes considerable debate in the field of higher education. These debates can be summarized as follows:

a) **Academic capitalism:** Some people think that higher education is steered by only government. If education is leaded by private financial sources, it can be a part of capitalist system. It means that some people think that the privatization of higher education results the "academic capitalism" and this concept brings many negative and threatening elements. These elements are:

- In the Universal Declaration of Human Rights, "higher education shall be equally accessible to all on the basis of merit". Moreover, in the International Covenant on Economic, Social and Cultural Rights, these words can be found "higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education." That is to say, education is a main human right. Because of the privatization of higher education, if people have not enough money, they cannot access the higher education. This situation unfortunately causes "inequalities in accessing the higher education." To prevent human rights to access equal opportunities for a quality higher education, public not the private sources should support it.
- These disparities of higher education bring also another problem that can be called "social stratification". Social stratification is the inevitable consequence of unequal opportunities for higher education (Apple, 2001). There is a widespread public debate over the social stratification created by the privatization of education. Public sector advocates have opposed the expansion of private sector in that they believe that it causes fractures in social cohesion. According to these advocates, the goal of privatization was an increase in the role of parents in the financing of education, which could increase inequalities in access to education and break social cohesion (Altunay, 2010). Private education also can cause irreparable socioeconomic inequities between the poor and rich (Tilak, 1989).

b) **Institutional isomorphism:** The private higher education sector is commonly looked upon as being flexible and responsive to the rapidly changing demands of students and the labor market, and thus as offering a diversity of educational programs and in a position to broaden social participation in higher education. However, a closer look at the types of educational programs being offered by private higher education institutions seems to show less diversity than expected. This is partly the result of "institutional isomorphism". It means that the range of education programs offered in private institutions is quite similar to those offered in public institutions. In general, private higher education institutions tend to offer courses that do not require high capital cost such as business management, computer science, and electrical engineering. In some cases, significant differences exist between public and private higher education institutions that cater to differentiated demands.

c) **The lack of quality education:** Another negative and threatening element is quality of education. The people, who support the idea of the foundation universities is a part of academic capitalism, think that this kind of universities do not have the criteria of quality higher education. However, some studies suggest that this argument may not hold by showing that the private sector may turn out to be highly inefficient and even economically corrupt, as in the case of India (Tilak, 1989). In the case of Thailand, competition has led in some cases to shoddy goods and services in the private higher education sector (Savatsomboon, 2006). They are degrading what it is meant to be a university as they have a limited number of faculties many of which are driven by market ideologies (Altunay, 2010). With neo-liberal education policies, the mission of universities as to raise individuals who have classical formation, social responsibility and ethical values has almost disappeared (İnal, 2001). In this point, the quality of education is depending on not only the universities opportunities, academics-teaching staff quality or other universities features. It is also is about universities' admission policies. To full the capacity of university, the students who have very low scores, can be accepted the foundation universities. Videlicet, the student quality also is an important reason of education quality problem in Foundation University. This image also affects the employability rate of foundation universities. The researches show that unemployment rate is higher in foundation university graduates.

In contrast to the idea of "academic capitalism", some people think that private higher education brings many positive effects in society and it is a necessity of global world. These views are:

a) The restructuring of higher education brings along with it a recurrent debate on the pros and cons of the private sector in comparison with the public sector. The arguments in favor of private higher education usually are based on three issues: efficiency, equity, and diversity and choice (Woodhall, 1997). It is commonly argued that private higher education institutions are inherently more efficient than public ones because of strong incentives to minimize costs and use resources efficiently. The private sector is held to be more responsive to the changing demands of customers and markets. Competition brings down costs and improves the quality of service.

b) The World Bank and OECD are advocating privatization policies for developing countries to address their educational problems. Belfield and Levin (2002) explain that privatization in education eases the pressure on governments to meet increasing demand and relieves them of excessive cost. Privatization can help to solve many educational problems if government regulates it in ways that make private schooling accessible to students at different income levels (Cinoglu, 2006). Education is a very expensive investment in both developed and developing countries and government sources alone are inadequate to provide all students with quality education. Privatization eases some of these stresses. The private sector can be involved in educational investment to build and run schools, as long as they are supported by good regulations (Altunay, 2010).

c) The defenders of privatization of higher education think that quality of education is better than the state university. Because, the foundation universities have the more and independent financial sources and they can use these sources more freely than state universities. For these reasons, they may offer more opportunities to their students. In addition, when it is examined the number of teaching staff and academicians numbers the foundation universities have more academics than state universities. In foundation universities, the number of students for per academic much less than the state universities and this factor facilitates and helps to improve the quality of education. Moreover, that thanks to Foundation University there is a competitive environment and because of this competitiveness, each foundation university should develop new projects continually not only university management but also universities' academics also feel compelled to produce new and quality resources to cope with this competitive environment.

The privatization of higher education should be assessed with negative and positive perspectives as mentioned above. However, it must be emphasized that this concept is one of the most important trend in higher education area.

2.4.1.9. Lifelong Learning

Lifelong learning is the voluntary, ongoing and self-motivated activities for either private or professional motives. Lifelong learning refers more qualifications with enhancing personal developments. In education area, the notion of lifelong learning is to enable and widen participation regardless of age, status, or gender. The concept of lifelong learning is regarded as a “second chance” to those who did not benefit from educational opportunities available during childhood and youth and it is no longer refers simply to recurrent or adult education but encompasses all learning endeavors over the lifespan.

The major international organization such as OECD, UNESCO, and the Council of Europe support the spreading of lifelong learning in all society. This approach defends that education opportunities are not limited largely to the early phase of life and dominated by formal education. Nowadays, there are many socio-economic reasons affecting the improvement of lifelong learning approach like globalization, technological change, and growth of knowledge society, the changing needs of labor market and the increasing of ageing populations. In Education Policy Analysis 2001, the OECD highlighted the consensus around the importance of lifelong learning for all but acknowledged that it is far from easy to achieve it in practice. The Report describes lifelong learning as having five systemic features:

- All learning should be recognized not just formal courses.
- Lifelong learning requires good foundation skills between both the young and adults.
- Equitable access to learning requires a lifecycle perspective from preschool to adults.
- Countries must evaluate resources according to lifecycle needs and deploy them effectively.
- The scope of lifelong learning goes beyond a single ministry.

The European Commission’s Communication report (2008) outlines that the education, training and employment policies of the Member States must focus on increasing and adapting skills and providing better learning opportunities at all levels, to develop a workforce that is highly skilled and responsive to the needs of the economy. The European University Association (2008) states some important points about the improvement and applying of lifelong learning strategies for universities. The report highlights the following items:

- Universities must understand lifelong learning in all aspects, and they must use it in their mission. Therefore, lifelong learning will be as an important part of the culture of universities. The integrating lifelong learning to the mission is also necessary to enhance the creativity profiles of institutions.
- Universities embrace to lifelong learning in their strategic planning.
- Thanks to mobility of students in life learning approach, different types of learners can be together in a different environment. This diversity causes with many different perspective to enhance and improve of university culture.
- Universities should provide suitable guidance with relevant academic or professional guidance to support all different learners who come from varied social and cultural backgrounds or are different ages.
- Providing relevant lifelong learning context, universities need partnerships with a range of other educational institutions, employers, trade unions
- Universities must behave as role models in society by offering lifelong learning opportunities for their own employees whether academic, administrative or staff.

The Bucharest report was issued in 2012, approves the role of lifelong learning as one of the main factors in meeting the needs of a changing labor market, and emphasized the key role of higher education institutions in knowledge transfer, and social, and economic growth with reinforcement of knowledge alliances. Moreover, report says that the two most important factor effecting improvement of countries must integrated with each other. The Bologna Process includes the following main point about lifelong learning: Regarding lifelong learning, almost all the universities have continuous education centers. These centers offer seminars, conferences, and refresher courses to those persons who wish to be kept up-to-date in their profession, or to those persons who would like to obtain additional skills and/or knowledge in a different field. Europe's strategy for 2020 puts a major emphasis on high quality education and training as a means of ensuring greater innovation and productivity throughout the lifespan with the intent to increase individual citizen's income levels, health and wellbeing (Kelly, 2011).

Taylor (2001) says that lifelong learning is used social, cultural and economic development of individuals and groups through education and learning throughout their lives. In addition, he emphasizes that lifelong learning being seen as the development of a range of specific skills training to meet the urgent need for new and varied abilities in the workforce with increasing technological change, and the development of knowledge-based society to ensure economic competitiveness. Kelly (2011) proposes that lifelong learning supports the individuals own personal development and self-fulfillment but it also directly contributes to their present and future employability. As a conclusion of all these, lifelong learning can be seen by universities as a kind of efficient tool to catch the developed world.

2.4.1.10. Effective Use of Information Technologies

In all societies and all business enterprises need to use and update knowledge to perform well in their activities and functions and it can be said that knowledge is a necessity for all human activities. The higher education institutions are very significant to have and up-dated this necessary knowledge. At the present time and of course in the future, modern information technologies are the most substantial part of knowledge society. Portable computers and mobile phones with internet are main way to obtain knowledge. The increasing capabilities of the internet offer unprecedented opportunity to wide and access to the quality educational resources in higher education. Välimaa (2011) says, “Higher education institutions may act as important nodes of knowledge networks because of their intellectual and material resources. The traditional hierarchical models of knowledge production have been replaced by network-based peer-production of knowledge. Open access is an example of this new form of knowledge production both in public and private sectors of societies.”

It is clear that our contemporary society is called as networked knowledge society with information technologies. As an important part of society, higher education institutions cannot be considered without the effective use of information technology. As Mazzarol et al., (1998) say that information technology in its various forms is well placed to assist education institutions to become more competitive within international markets. Not only international markets but also nationally competitive area, the effective use of information technology is a significant tool to become more competitive.

2.4.1.11. University-Government-Industry Collaborations

The roles of universities have changed due to increasing competitive environment. In the past, universities had responsibility only research and teaching but now they always need the improvements because of new challenges. The partnership of university-government-industry is very important part of new trends for improvements.

A global challenge for higher education institutions is to respond an increasing variety of societal needs by using less public money and by becoming more efficient in their internal functions (Valimaa, 2011). To deal with different social needs and wants, the universities must behave as more innovative and active. This situation is true not only universities but also industries. The industrial companies were dealing with only producing a new product but nowadays it is not enough. The universities and government support are necessary for industrial companies to struggle their rivals in an increasing competitive environment. The government supports to the university and industry with financial and politic contribution.

Many studies talk about the partnership of university-government-industry. For example, Gibbons et al. (1994), Etzkowitz et al. (2000) and Nowotny et al. (2001) state that governments have promoted national prosperity by supporting new lucrative technologies together with the universities which become “engines” of their regions. Massay et al. (1995) propose an approach to industry-university quality partnerships for engineering education. According to Urry (1998), higher education institutions had to be restructured in order to be productive and competitive, and should have organizational networks to fulfill the need for specialized labor and to provide linkages with industry. Carayannis et al. (2000) indicate that the linkage between theory on knowledge management and strategic management provides a framework for understanding the imperative for collaborative research partnerships, particularly those involving government, university and industry actors.

In this context, the theory of “Triple Helix” can be mentioned. This view states that the university can play a major role on changing and improving in increasingly knowledge-based societies. Etzkowitz and Leydesdorff (2000) defend that the previously isolated institutional social spheres of university, government and industry have become increasingly intertwined. Leydesdorf (2003) mentiones the triple helix dynamics. In the analysis, he introduced the relations between the institutions and government sectors, which could be measured as variables and probabilistic entropy while using dynamic fluxes basing on infrastructure support. Leydesdorff and Meyer (2006) emphasize on three selection environments in the triple helix model namely wealth generation (industry), novelty production (academia), and public control (government). Worasinchai et al. (2009) study the role of knowledge flow in the triple helix model. The triple helix model was a spiral model. It underlines the importance of contributing to the interactions between academic, industry, and government. This kind of study results have emerged the academy-industry relationship is unavoidable.

Dinçer and Rosen (2001) say that there is a strong need to concentrate the efforts in developing right policies and strategies to assess the impact of science and technology on national development; to develop mechanisms in bringing government, industry and university together for research and development and innovation; and to accelerate commercialization.

Based on the literature, it is certain that the universities are not only teaching institutions, but also support to the technological developments and projects for sustainable economic growth of a country. It is expected that higher education institutions should be engaged with innovation and entrepreneurship activities through collaboration industry and government. Consequently, the higher education system should represent a link between research, industry and academia.

2.4.2. The Competitive Advantage Factors in Higher Education

2.4.2.1. Corporate Identity and Philanthropy

Universities faced with competition, they have realized the role of corporate identity as a powerful source of competitive advantage (Melewar and Akel, 2005; Atakan and Eker, 2007). Many universities have started to develop and implement corporate identity programs as part of their strategic growth and expansion (Baker and Balmer, 1997). Even, a well-managed corporate identity program has become more crucial in recent years, the current literature on the corporate identity of higher education still is not enough. According to Olins (1995), the corporate identity can help the universities for developing a competitive edge over competitors. Gioia and Thomas (1996) reveal the perception of identity and image is important for the higher education strategic change process. Simoes et al. (2005) define the corporate identity as a mix of the visual identity and communication of an organization with its philosophy, mission and its values. The creating a corporate identity is the expression of an organization's philosophy, which is formally expressed in the mission statement (Collins and Porras, 1998).

The concept of philanthropy also other significant factor must be emphasized in creating corporate identity. The philanthropy means in general framework that is an altruistic concern for human welfare and improvement. McAlister and Ferrell (2002) say that philanthropic endeavors as the ability to link employees, customers, suppliers and societal needs with the organizations' key assets, making the corporation a good corporate citizen. Carroll (1991) and Sanchez (2000) note that corporate philanthropy is expected to result in strategic benefits for the corporation, such as increased power and legitimacy and gaining competitive advantage. The benefits of these philanthropic activities for the corporations include greater employee morale, strengthened employee commitment and productivity, enhanced corporate image and reputation, increased sales and profitability, and customer loyalty (McAlister and Ferrell, 2002).

Porter and Kramer (2002) also mention the corporate philanthropy to obtain competitive advantage. They say:

"Using philanthropy to enhance context brings social and economic goals into alignment and improves a company's long-term business prospects. A handful of companies have begun to use context-focused philanthropy to achieve both social and economic gains. Corporations need to rethink both where they focus their philanthropy and how they go about their giving. In the long run, then, social and economic goals are not inherently conflicting but integrally connected. Benefit both society and companies. Corporate philanthropy has an important influence on a company's competitive context. It is here that philanthropy is truly strategic".

Higher education institutions must integrate teaching-research activities with their social responsibilities. The university managers should have realized the role of corporate identity with the concept of philanthropy as a strong source of competitive advantage.

2.4.2.2 Service Quality

In today's intensive competition, delivering high quality service has become more important concept in many industries. Gronroos (1984) said that service is an activity or series of activities of an intangible nature than normal, taking place in the interaction between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems. Quinn et al. (1996), Zeithaml and Bitner (2000), think that services as all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced and provides added value in forms (such as convenience, amusement, timeliness or comfort) that are essentially intangible concerns of its first purchaser. Gronroos (2000) says that service quality is commonly attributed with two dimensions. One of them is technical quality. It refers to what the customer buys and whether the service fulfills its technical specifications and standards. The other is functional quality. It describes how the service product was delivered and the quality of customer relationship with the company. Service quality can be defined as the difference between customers' expectations for service performance prior to the service encounter and their perceptions of the service received (Arokiasamy, 2012). Service quality (Oliver, 1980) describe that customers will judge that quality is low if performance does not meet their expectations and quality increases as performance exceeds expectations. Parasuraman et al. (1988) state a procedure for measuring customer perceptions of service quality called “SERVQUAL”. There are ten dimensions in this measurement. These are tangible, reliability, responsiveness, competence, courtesy, credibility, security, access, communication, understanding the customer.

- Tangibles express appearance of physical facilities, equipment, personnel and communications materials.
- Reliability means ability to perform the promised service dependably and accurately.
- Responsiveness addresses willingness to help customers and provide prompt service.
- Competence denotes possession of the required skills and knowledge to perform the service.
- Courtesy states politeness, respect, consideration and friendliness of contact personnel.
- Credibility means trustworthiness, believability, honesty of the service provider.
- Security demonstrates freedom from danger, risk and doubt.
- Access indicates approachability and ease of contact.
- Communication identifies keeping customers informed in language they can understand and listening to them.
- Understanding the customer expresses making the effort to know customers and their needs.

Parasuraman, Zeithaml and Berry (1990) decrease ten dimensions to five that include tangible, reliability, responsiveness, assurance and empathy. The first three are the same dimension. Other two dimensions are different but not completely. They are inclusive of private model’s dimensions.

- Tangibles explain appearance of physical facilities, equipment, personnel and communications materials.
- Reliability means ability to perform the promised service dependably and accurately.
- Responsiveness expresses willingness to help customers and provide prompt service.
- Assurance indicates knowledge and courtesy of staff and their ability to convey trust and confidence.
- Empathy states caring and individualized attention to the customer.

Like all other industries, service quality has a major impact on higher education area. The quality of service effects university choice decision of candidates. The higher education the institutions serve students and can be considered as service organizations similar in characteristic to other service industries. As Mazzarol (1998) implies, one of the most important service industries that emerged in the last decade is international higher education. Higher education institutions are increasingly attracting more attention to service quality initiatives mainly due to the social requirement for quality evaluation in education and the competitiveness in the higher education market place (Arokiasamy, 2012). Therefore, they can be seen a kind of services-oriented market. According to marketing theory, customers are defined as the ones who receive the benefit of the product or service and they are the ones who put their hands in their pockets to pay for it (Lindsay and Rodgers, 1998). This expression can be applied to higher education institutions and the students. Actually, students directly benefit from the educational services, which universities provide, and they are paying for the education they receive for the best contribute of future employment opportunities. In this context, the students are perceived as customer of higher education services.

Owlia and Aspinwall (1996) based on a review of service quality dimensions; present a comprehensive list with their interpretations for higher education in following items:

- Performance indicates primary knowledge/ skills required for graduates.
- Features denote secondary/ supplementary knowledge and skills.
- Reliability means the extent to which knowledge/ skills learned is correct, accurate and up to date.
- Conformance states the degree to which institutional program/courses meets established standards, plans and promises.
- Durability expresses depth of learning.
- Serviceability explains how well an institution handles customers’ complaints.

The quality service has become a major aim for many higher education institutions (Alves, 2006). Universities and faculties effort to provide high quality services because they need to compete (Faganel and Macur, 2005) and have become increasingly interested in establishing quality management systems in response to the demands imposed by a complex, uncertain environment. In such competitive area, universities must provide services that can meet or even exceed expectations of students. With a quality service, they can attract and retain the students (Danjuma and Rasli, 2012). Because of positive relationship with service quality and students’ satisfaction and commitment (Helgessen and Nasset, 2007; Rasli et al., 2011; Arokiasamy, 2012; Danjuma and Rasli, 2012) service quality provides a competitive advantage for universities.

2.4.2.3 Employability

Employability is regarded as a kind of mechanisms by which students can develop their abilities, skills and opportunities to enhance their own academic learning to find a good job. Harvey (2001) mentions that employability relates to the ability of the student to get a job after graduation and it is concerned with enhancing the students' attributes such as skills, knowledge, attitudes and abilities. Yorke and Knight (2003) define the employability as a set of achievements – skills, understandings and personal attributes– that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy.

Higher education professional roles are often measure by indicators related to the number of enrollments, number of diplomas, employment of graduates, and research performance of academic staff (Teichler, 2009). Little (2001) suggests that one of the measures of output from higher education is the quality of graduates, and from this has come the notion of graduate employability. British-Dutch Dialogue report (2012) emphasizes that higher education institutions will be expected to produce increasing numbers of highly skilled graduates with a clear understanding of the working world. Therefore, higher education institutions have to strive to providing an excellent teaching offer in order to compete with rival institutions, provide "fit for purpose" education, which meets the exacting expectations of employers, and improve employability rates. Employability is one of the strategic objectives of European Union education and training policies. The official Bologna Seminar on Employability in the context of the Bologna process (2004), some recommendations and assessments were made to universities about employability. These advices and evaluations are as follows:

- Society, the labor market and individuals demand from higher education to make a significant contribution in order to help achieving sustainable employability, including continuous self-development.
- Bridging of academic studies and professional activities and making firm links between them is beneficial for achieving an enhanced employability.
- High quality education is a key to achieving employability. The main responsibility for the assurance of high quality education lies with institutions. Involvement of employers (public and private), trade unions and professional associations contributes to achieving the goal of employability.

- Universities must be responsible the development of personal qualities including the one of the autonomous learner, the capacity to approach new issues, communication skills, transferable skills and higher level cognitive and communication abilities.
- Further efforts should be also made towards wider and more effective use of recognition tools in the promotion of mobility and employability on the national, European and global level. All stakeholders are encouraged to take advantage of the common goals and purposes of recognition tools in various modes of academic and professional mobility and to promote the benefit of mobility both in personal as well as societal and economic growth.

The process of a university choice decision, the student wants to maximize their utility and minimize their risks. The increasing job prospect can be seen the most important factor to maximize their utility. Kaynama and Smith (1996) found the impact of job availability factor influencing a student's decision. Strasser, Ozgur and Schroeder (2002), said that job availability, employment opportunity and job requirements are very important for students. A similar situation was proposed in Australia (Soutar & Turner, 2002) and in Turkey (Tatar & Oktay, 2006). Raffan and Deaney (2006) discovered that according to post-16 year old students the most popular reasons for wanting to enroll in university are demand for a degree for a career, better job, new subject areas and the enjoyment of student life. Maringe (2006) surveyed 387 students about 35 university choice factors. The most important factors are about job prospects. Băcilă et al. (2008) found that the most important factors when students select their faculty are job opportunities.

It is clear from the above that, universities with innovative, flexible offered study programs should respond to the expectations of the labor market and to the needs of the society. The employability should be considered is a kind of strategic objectives as a way of attracting students. Higher education managers must appear to be more aware of the facts of employability when design and delivery of their programs.

2.4.2.4. Public Relations

The notion of public relations is one of the significant publicity tools for the business entities to provide positive relations on the public and so it causes a good impact on the business activities of a firm. Wilcox et al. (2001) say that public relations is a process involving many subtle and far reaching aspects and it includes research and analysis, policy formation, programming, communication, and feedback from numerous publics. Grunig and

Repper (1992) assert that public relations practitioners seek to communicate with publics that enhance or threaten their organization's mission. Cutlip, Center and Broom (1985) say that public relations for an organization is defined as a management function whose primary role is to identify, establish and maintain mutually beneficial relationships with key stakeholders critical to the success or failure of an organization. Center and Jackson (1995) identify three dimensions of public relations. The dimensions of public relation are as follows:

- It is common to all individuals and corporate entities operating in a human environment,
- It is a systematic function that evaluates public attitudes and behaviors which seek to foster the improvement of public relationships through specific activities and policies that will garner public understanding and acceptance,
- It is the cornerstone of democratic society.

Hutton, Goodman, Alexander, and Genest (2001) propose that the eight themes that are described the public relations: reputation management, image management, advocacy of the company and its policies, providing information to the organization's publics, generating publicity, managing relationships with noncustomer publics, managing relationships with all publics, and supporting the marketing and sales objectives of the organization.

Like all other organization, higher education institutions also need public relations. It is a management function that focuses on telling the story of the university—its mission, purpose, history, traditions and requirements—to a diverse group of publics and stakeholders important to the success of the university (Wilson, 2009). Therefore, it has a substantial function in helping university management achieve the objectives. Public relations began playing an important and significant role in communicating the aims, objectives and needs of higher education in the late 19th century (Bonfiglio, 1990; Cutlip, Center, & Broom, 1985).

The public relations is based on expanding, strengthening, and improving the relations of the individual institution with its environment through the creation, strengthening, and development of the confidence of that environment in the school and a favorable atmosphere for its operation (Kolasinski et al., 2003). The public relations task of higher education is to reach each individual citizen, convince him of the significance and importance of education to him in terms of his own self-interest, and thus persuade him to protect and to pay for education. Therefore, many universities managers are being gauged by their public relations talents as well as by their scholarship and business acumen.

The need for effective public relations for higher education is more often acknowledged than met. Bonfiglio (1990) proposes that a number of factors contributed to the expansion of public relations on college and university campuses including: competition among institutions, the growth of the mass media, the increase in administrative units and changes in the role and responsibilities of university presidents. Strydom et al. (2000) say the public relations as management through communication or perception, and the strategic relationship between an organization and its internal and external public. Institutions of higher education have both internal and external publics. Kotler and Fox (1985) display the sixteen internal and external publics associated with universities. Internal publics contain: (1) current students, (2) administration and staff, (3) parents of students, (4) governing board members, (5) faculty, and (6) alumni. External publics contain: (1) mass media, (2) government agencies, (3) the public, (4) individual donors and foundations, (5) the business community, (6) prospective students, (7) suppliers, (8) competitors, (9) accreditation organizations, and (10) the local community. Kolasinski et al. (2003) state the reasons of requiring the application of public relations instruments by universities as follows items:

- The increasing public interest in the activities of higher education institutions as recipients of public trust,
- The increasing need for such institutions to present themselves as being able to make unique and original offers,
- The increasing expectations of employees in terms of the humanization of work and of communication,
- The increasing role of the institutional image and of the quality of the services provided, the need to react to the large amount of information being provided on the economy by the press and circulating in society.

In addition, they emphasize that a university public relations should be focus on the feeling of security resulting from an investment in the future and the numerous links between a higher education institution and economic practice, guaranteeing employment.

The goal of public relation of universities should not be only to increase recruitment rates. It must focus on also the improvement of relations to publics with a rising confidence. To focus on only increasing the number of students is a kind of short-term benefits. Giving confidence through emphasized on -positive image, prestige of its diploma, good reputation of the institution among employers and alumni, the position of institution in the world ranking lists or award of accreditation and certification- provides the long term benefits to the higher education institutions.

The private higher education institutions have spent more money for students than public higher education institutions. In the process of recruiting students, they more often use advertisements in the press, radio, and even on television. In addition, these institutions have a distinctly different approach to students. In this respect, private institutions are flexible. They usually offer the higher quality services than their public counterparts. However, it is very clear that public higher education institutions are beginning to take note of that difference and are taking measures to reduce the disproportion. Beyond doubt, the public relations have continued to play an important role on the management of the higher education institutions. Most academics agree that the management of public relations is one of the most important functions within higher education organizations.

2.4.2.5. Effective Use of Information Technologies

Although, information technology is regarded as one of the new challenges of higher education in the previous section, it is also regarded as a competitive advantage in this part**.** The information and knowledge are the critical factors in the competitive-global area. Porter & Millar (1985) postulated that information technology has the ability positively enhance the value chain within many enterprises. Castells (1994) described the information society as a kind of social structure in which the sources of economic productivity, cultural economy and political military power depend, fundamentally, on the capacity to retrieve, store, process and generate information and knowledge. The information society is one that researches, develops, and uses information technologies and in such a society, information becomes real capital as well as the primary source of wealth (Yalcintan and Thornley, 2007).

The effective use of information technology is also very substantial source of competitive advantage in education market. To have a competitive position in education industry, higher education institutions should invest, apply and use the new technology. In this competitive area, the effective use of information technology is useful to the universities in lots of areas. Higher Education Funding Council for England (HEFCE, 2009) strategy report says that enhancing flexibility for learners, efficiency of institutional processes, the technical infrastructure and the information environment, supporting diverse learners' needs and ensuring effective information and communication technologies investments and effective use of these technologies resources has a major role for a higher education institution. Mazzarol et al. (1998) underlines that the applications of information technology can provide competitive advantage by lowering costs, enhancing differentiation and creating new opportunities to broaden economies of scale and it assists international education suppliers to overcome temporary capacity problems. In Mazzarol PhD thesis (1994-1996), highlights the twenty-one items relating to the success of a higher education institution. In the study, the effective use of information technology was rated in equal third place along with such other factors as breadth of course offerings, customer orientation, and strength of financial resources and encouragement of innovation. Porter & Millar (1985), Parsons (1983) and Gerstein & Reisman (1982) highlighted the importance of information technology as a source of competitive advantage for universities.

The use of information technology to offer education programs over long distances is becoming an increasing necessity as government policy in traditional markets changes (Hamer, 1993). One potentially dramatic influence of globalization on higher education is the technological revolution that made the "virtual university" concept possible and throughout the world, there are now virtual classrooms based on home learning (Yalcintan and Thornley, 2007). That is, virtual learning is an inevitable reality of education industry. In developing effective long-distance or offshore education systems, institutions will need to make effective use of information technology in the area of service delivery and promotion (Mazzarol et al., 1998). Thanks to information technology, the extensive access to educational resources is leading to an alternative and practice model for delivering quality educational opportunities. Nowadays, all of higher education institutions should have an infrastructure for open-access education. Open is becoming a means of facilitating access to educational opportunity, promoting a culture of sharing and social responsibility, and enabling unintended and remarkable outcomes (Kumar, 2011). If the university uses it effectively, this open-access information technology will maintain an inevitable competitive advantage to the university such as MIT. MIT' s engagement with technology enabled open education illuminate some of the opportunities for innovative education, ranging from simple experiments that address pressing "instructional" problems to sweeping institutional commitments with global scope (Kumar, 2011). He also gives some examples about MIT:

"MIT Open Courseware materials have reached 100 million individuals around the world. It has unleashed a powerful open movement in education to democratize educational opportunity. iLab project and platform is dedicated to the proposition that online laboratories -real laboratories accessed through the internet- can enrich science and engineering education by greatly expanding the range of experiments that students are exposed to in the course of their education. Unlike conventional laboratories, labs can be shared across a university or across the world. The other is Spoken Media Browser. It is an exploring the development and use of rich media notebooks for teaching and learning...”

In the parallel of technological development, open educational resources have gained more attention. Through open educational resources, the education exceeds geographic educational boundaries to support life-long and personalized learning. As a result, the use of information technology provides many advantages and it is an inevitable source of competitive advantage for universities.

2.4.2.6. Research Performance

Zainab (1999) considers research productivity to be reporting and publishing research findings in (inter)national journals, conference presentations, patent registration, impact factors and reviews. The University of Utah defines research productivity as cited publication of library or field journal papers and book chapters (Ransdell, 2001).

Research publication performance in the university is a major or most significant indicator of academic staff productivity. The research publication in any field of specialization provides current information for growth, progress, development and an improvement of society (Usang et al., 2007). University research performance efficiently produces high quality knowledge has become an important indicator of national competence and they are key components of the economy, because they create knowledge and disseminate it to industry and wider society (Liu&Chang, 2012). That is, researches cause the production of knowledge, the transfer of knowledge to economic performance and academic reputation for universities. Therefore, the research output of universities has gained more attention both industries that need innovation and candidates who are in university selection process. Briggs (2006) identifies the research reputation is a kind of important factor that influences student university choice decision.

In the competitive higher education area, throughout the world there are ranking systems to assess the performance of universities. One of the most important criteria used to evaluate universities is the research performance of academics. The Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT), The Academic Ranking of World Universities (ARWU), commonly known as The Shanghai Ranking, The World University Ranking are the some important global ranking systems of universities. All of ranking systems use the research performance as a kind of criteria. It is nearly 20-30% of overall score.

Because research performance brings together more funding to higher education intuitions, researches are one of the sources of financing to universities. Besides that financial support from government or industrial organizations, more researches lead increasing of academic reputation of institutions. The students can be enthusiastic to pay a lot of money to increase their future utility using the university's academic reputation. In result, promoting and enhancing of research performance provide a certain academic reputation, which inspires increasing demands of students.

2.4.2.7. Location

A good location can be defined as having industry around or settled in a metropolitan area. In many studies about higher education, location is a kind of strategic resource and it is one important determinant of competitive advantage for universities. The sources of competitive advantages are thought to be the reputation of the institution, the curriculum and educational standards, cost, location and student activities (Blustain et al., 1998). According to Soutar and Turner (2002), there are mainly three market segments in the Australian university market. These segments are high school graduates, elderly students, and international students that have been influenced by several factors while selecting the best university for them. One of these factors is identified as the location. Davies, S. W., & Glaister and McNicholas (2004) says that the reputation, nature of the courses, location and address, financial considerations, facilities, social climate of the department, program structure and accreditation factors influence student choice of institution and course for post graduate studies. Yamamoto (2006) researched the factors, which are effected university evaluation-selection. She says that in the large city like Istanbul with more than 10 million people live, proximity to home, easy transportation are critical factors in selecting a university. The proximity to home and easy transportation are critical factors in selecting a university (Yamamoto, 2006). Persson (2007) proposes that the location is one of the most important physical-internal resources of a university. Lindong (2007) says that if the location of the college is close to a housing area, it will be a big advantage for them. In study of Hacıfazlıoğlu and Özdemir (2010) about the expectations of students in foundation universities, the half of the participants' shows the location, which is affected to their selecting university decision. In a thesis about MIT's success, at the end of the study campus location is one of the MIT's success sources besides that faculty-student quality, endowment and reputation. Sezgin and Binatlı (2011) examine the factors of determinants the university choice in Turkey. Their study shows that the location, social life on campus, proximity of campus to the city center, exchange programs, the curricula (novelty, flexibility etc.), faculty, scholarships, educational infrastructure, languages medium of instruction and second foreign language requirement, friends, promotional activities are the most significant factors. The location has 94% rate, the proximity of campus to the city center has 84% rate. Teker and Özer (2012) state that most of Turkish foundation universities have been clustered mostly in İstanbul and Ankara. Those provinces can be taught as the strategic provinces for Turkey. Moreover, they say that the selection of university location is very substantial effect to become a competitive university integrating with the world (Teker and Özer, 2012). Huang (2012) states the right location attracts more students and ensures the revenues of the institution. Because of job opportunities in metropolitan areas, the students are able to get a part-time job and earn extra money for their tuition (Huang, 2012). A good location attracts not only more students but also excellent teaching staff.

It is clear from the above that the location has a substantial impact on higher education institutions to provide a competitive advantage for attracting students.

2.4.2.8. Education Quality

Defining quality in higher education is more difficult than business area. Giertz (2000) underlines that the difficulty of defining the concept of quality. Quality is often characterized as a slippery concept (Harvey & Green, 1993).

Garvin (1984) defined the five approaches to quality: the transcendental approach; the product-oriented approach; the customer- oriented approach; the manufacturing-oriented approach; and the value for money approach. Harvey and Green (1993) defined five interrelated concepts of education quality:

- Quality as exceptional means that it is considered in terms of excellence.
- Quality as perfection or consistency express that the quality is goaled to be perfectly met students' demands.
- Quality as fitness for purpose denotes meeting students' requirements.
- Quality as value for money states that it is related to cost of education.
- Quality as transformation indicates that the concept of quality must encourage innovation and changing.

Shrikanthan and Dalrymple (2003) presented a correspondence between the four stakeholders of quality in Harvey and Green's dimensions as follows:

- Providers such as funding bodies and community at large: Quality is interpreted as value for money.

- Users of products such as current and prospective students: Quality is interpreted in terms of excellence
- Users of outputs such as employers: Quality is interpreted as fitness for purpose
- The employees of the sector such as academics and administrators: Quality is interpreted as consistency.

Zineldin (2000) expanded the traditional technical–functional quality models into a framework of five quality dimensions. The attributes and corresponding factors with quality concept are revised (Zineldin et al., 2011) as follows:

- Quality of object is regarded as the technical quality. It is interested in why the student is studying at the university. It measures how you feel in the university campus; ability of the university to threat you the way you expected; university concern for your particular needs; performance of services on time.
- Quality of processes is regarded as functional quality. It is interested in how higher education institutions provide the core service. The factors for measuring are waiting time for registration, waiting time for exam results, speed and ease of admissions, time between admission and being registered.
- Quality of infrastructure measures the basic resources, which are needed to perform the education services such as Physical appearance of classroom, cleanliness of classrooms, ease and speed of usage of computer labs, pleasantness and appeal of classroom, physical appearance of classroom.
- Quality of interaction measures the quality of information exchange like examination results, financial and social exchange. It can be measured with the factors like waiting time for refund and instructions about billing procedures.
- Quality of atmosphere is about the relationship and interaction with the responsiveness of assistants to your needs, ability of information about your study performance, politeness and responsiveness of professors or assistants to your needs and questions, availability of accommodation on campus.

Different people may use different indicators to assess education quality and different strategies to achieve education quality (Cheng & Tam, 1997). Everyone agrees about the importance of providing a quality education but disagreement begins when we try to explain the meaning of quality (Kalayci , Watty & Hayırsever, 2012). Vazzana et al. (2000) identify three main areas of quality improvement in higher education: curriculum, non-academic functions and academic administration. Hill et al. (2003) have evaluated the quality of the academicians and student support systems as being the best factors in educational marketing and educational quality. Many in higher education ascribe to the view that quality education is based on concern for the growth of the student (Harvey, 1998, 2002). Lagrosen et al. (2004) examining the dimensions of quality in higher education identified characteristics like course offered, teaching practices, campus facilities, computer facilities, corporate collaboration, information and responsiveness. Kemenade et al. (2008) defined the concept of quality using four constituents: object, standard, subject, and values. In addition, the quality of education is an inevitable concept in students' university choice process. Price, Matzdorf, Smith, and Agahi (2003) found that quality of education is one of the important determinants of choice of university. Hawkins et al. (1998) also shows the quality as a major factor of determinants criteria of effecting students' decisions. Student survey, student feedback and measurement are also important elements in quality improvement for quality management applications and student satisfaction (Houston, et al., 2008; Williams & Cappuccini-Ansfield, 2007).

Like any businesses, undoubtedly, higher education needs quality (Ho and Wearn, 1996). In order to achieve education quality, universities can use the different models. Regardless of which way, higher education management should find the methods of providing quality education to gain competitive advantage.

2.5. PERFORMANCE MEASUREMENT OF HIGHER EDUCATION

As foundation universities are non-profit organization, the aim of obtaining competitive advantage of them cannot be make profit. The competitive advantage of higher education is regarded as performance in the study. Therefore, the concept of performance measurement is examined in relation to the higher education in this part. Firstly, the concept of performance measurement will be explained.

Gaining competitive advantage became one of the major targets for the organizations recently. Therefore, all companies have attempted to obtain competitive advantage in their industry. One way of gaining competitive advantage is the optimization of an organization's performance within its market and rethinking of performance management systems through effective performance measurement (Kagioglou et al., 2001). Interest on performance measurement and management has become more important subject over the last 20 years. Companies have understood that for competing in continuously changing environments, it is necessary to monitor and understand firm performances (Taticchi et al., 2008). Traditionally, businesses have measured the performance in financial terms such as profit, revenue or turnover. Nevertheless, these financial measures of performance cannot to be sufficient to deal with occurring current changes and intensity competition in business area. This means that it is important to note the evolution of focusing performance from a financial view to non-financial view. It has also been observed that exclusive reliance on these financial indicators or measures in management systems promoted only short-term behavior. This short-term focus was causing organizations to disregard long-term viability issues (Kaplan and Norton, 2000). Therefore, it has been suggested that business performance measurement should look beyond traditional financial measures and embrace essential business drivers that determine and influence a company’s future business (Love and Holt, 2000). There are many academic researches about performance measurements or indicators. Some definitions are presented as follows:

- Performance measurement is the process of determining how successful organizations or individuals have been in attaining their objectives and strategies (Evangelidizs, 1983).
- Performance indicators are defined as measurable characteristics of products, services, processes and operations that an organization uses to track performance (Bititci et al., 1997).
- A performance measurement system is an information system, which is at the heart of the performance management process, and it is of critical importance to the effective and efficient functioning of the performance management system (Bititci et al., 1997).
- Advancements on performance measurement mainly rely on seven reasons that were mentioned by Neely (1999). The changing nature of work, increasing competition, specific improvement initiatives, national and international quality awards, changing organizational roles, changing external demands, and the power of information technology can be listed as the main reasons responding to why performance measurement is so significant on the management area.
- Performance measurement can also be defined as the process of quantifying the efficiency and effectiveness of an action (Amaratunga et al., 2000).
- An effective performance management system will greatly depend on the performance indicators used to define the performance of the organization from a number of perspectives. Therefore, it is very important to design those indicators so

that they relate directly to the various perspectives that an organization decides to adopt (Samson and Lema, 2002).

Secondly, the concept of performance measurement will be explained in relation to higher education. There are some university reports and information sources are found exclusively useful for understanding the performance measurements of higher education institutions.

One of them is the report of Committee of University Chairs focuses on ten high-level key performance indicators. According to report, the key performance indicators are institutional sustainability, academic profile and market position, student experiences, teaching/learning/research, knowledge transfer and relationships, financial health, estates and infrastructure, staff and human resource development, governance, leadership-management and institutional projects.

Other report is about university performance measurement, which is prepared by Australian government, discusses on the strength of performance outcome indicators in higher education. The indicators of this report are progress rate, attrition/retention rates, graduate full-time employment, graduate full-time study, graduate salary, overall satisfaction, good teaching and general skills.

University of Edinburgh uses the approach of scorecard performance measurement helping senior managers to achieve the aims in their university's strategic plan. In their strategic plan, they have determined four performance perspectives that are named, organizational development perspective, financial perspective, stakeholder perspective and internal business perspective.

University of British Columbia and University of Alberta (1997) offered some indicators for explaining university performance. One of them is the participation/access indicator. It means that providing a measure of the total number of students that is the number of registrations. The other is the completion/retention indicator. It means that the number of graduate students in some optimal period. The financial indicators reflect the extent to which institutions rely on different sources of funding and presumably on how successful they are in diminishing their reliance on government funding. They are expenditure-related indicators, revenue-related indicators, cost-per student or graduate and faculty workload. The space utilization indicator is meant to be a measure of how effectively conventional institutions use their costly physical plants. The student satisfaction indicator is data about student satisfaction, which is collected by survey methodology. The employment indicator is also determined through survey. The issue generally is whether they have found employment after graduating, whether the employment they find is related to their university work, and how well their university education serves them in the world of work. Research is the other important indicators, which measures university performance. This indicator can be evaluated by the intensity of publications; grants council's success rates; research impact and distance education.

URAP (WEB_6, 2014) is a kind of organization in turkey, which based on the six academic performance indicators. A detailed description of each indicator is provided as below:

- Number of Articles is the measure of current scientific productivity, which includes articles published in 2010 and indexed by Web of Science. The weight of this indicator on the overall ranking is %21.
- Citation is the measure of research impact and scored according to the total number of citations received in 2010 for the articles published in 2006-2010 and indexed by ISI. Self-citations are excluded. The effect of citation on the overall ranking is %21.
- Total Document is the measure of sustainability and continuity of scientific productivity and presented by total document count, which covers all scholarly literature including conference papers, reviews, letters, discussions, scripts in addition to journal articles published in 2010. Data is obtained from Web of Science and the contribution of this indicator to the overall ranking is %10.
- Journal Impact Total is a measure of scientific impact, which is derived by aggregating the impact factors of journals in which a university published articles between 2006 and 2010. The source is Journal Impact Factors of ISI. The weight of this indicator is %18.
- Journal Citation Impact Total is the measure of received citation quality that is based on the impact factors of journals where the citing articles are published. The source is Journal Impact Factors of ISI while the contribution of this indicator to the overall ranking is %15.
- International Collaboration is a measure of global acceptance of a university. International collaboration data, which is based on the total number of publications made in collaboration with foreign universities, is obtained from the ISI database for the years 2006-2010. The weight of this indicator is %15 in the overall ranking.

Ryerson Performance Indicators (WEB_7, 2014) determines the performance indicators by primary category are such that strategic dırection, financial capacity, effective management and university profile.

In literature, there are also many academic studies which are explained the concept of performance measurement in relation to higher education. Some papers have talked about journal rankings and research assessments as performance measurement. Some of studies have discussed the number of publications in academic journals as a performance measurement. Moreover, the effect of governance and resource allocations are another important point in the existing literature on university performance measurement. In many countries, the government funding of universities has become increasingly contingent on their performance in research and teaching. In the literature, generally, teaching performance relates to the numbers of students, the degrees awarded and the quality of the education. In the study, education quality generally relates to the student experiences, their perceptions and teaching-research performance of universities. Especially, teaching-research performance seems to play an increasingly important role in the performance management of most universities (Dill and Soo, 2005). Measuring performance studies are presented in chronological order as follows:

- Cutt et al. (1993) say that the universities might argue that performance can be usefully captured along two dimensions: a longitudinal dimension that reflects the teaching process; and a cross-sectional dimension that reflects the characteristics and purposes-the attributes- of teaching. The longitudinal dimension reflects the traditional model and requires information on inputs, processes, output and outcomes. The attributes dimension of the negotiated performance framework should include the set of performance attributes of interest to the various constituencies.
- In study of Tomkins and Green (1988), the average fulltime staff, the salaries of staff and the other expenditure are used as input; the average of undergraduates and post-graduates, income and the number of publication are used as output.
- In study of Beasley (1995), research income and the expenditure of staff and operation are used as input; the number of under graduated and master students and the number of publications.

- Shale and Gomes (1998) identify the performance measurements for evaluating the distance education. They asses the performance as participation, completion/persistence, transfer, financial indicators, space utilization, student satisfaction, employment indicators, employer satisfaction, access, research and community service-economic impact are the performance dimensions of their study.
- In study of Abbott & Doucouliagos (2003), the number of academic and non-academic staff, non-labor expenditure, the value of non-current assets are used as input; the number of students, the number of graduated and the amount of research are used as output of performance.
- In study of Flegg et al. (2004), the number of undergraduate and graduate students, academic staff expenditures and other expenditures are used as input; the number of undergraduate degrees, the number of postgraduate degrees and the amount of income from research grants are used as output.
- In study of Warning (2004), the expenditure of staff and other expenditure are used as input; the number of publication and the number of students are used as output.
- In study of Kutlar and Kartal (2004), the number of academic and non-academic staff, the expenditures of university and the size of campus area are used as input; the number of students, the amount of students' fee, the research project and the number of postgraduate students are used as output.
- In study of Baysal et al. (2005), the expenditures of university and the number of academics are used as input; the number of undergraduate, graduated, PhD students, and the number of publications are used as output.
- In study of Johnes (2006), the number of undergraduate students, the number of postgraduate students, the number of academic staff, the expenditure on administration, the expenditure on library, total depreciation and interest are used as input; the number of first degree graduates, the number of higher degree graduates, the grant for research are used as output.
- In study of Babacan et al. (2007), the expenditures of university and the number of academics and non-academics are as input; the amount of income, the number of undergraduate and master/PhD students, the number of undergraduate and master/PhD graduated students, the number of publication

- In study of Ustasüleyman (2007), the number of undergraduate and graduate students and the number of staff are used as input; the number of bachelor, master and PhD graduated students and the rate staff to publication.
- Kutlar and Babacan (2008) use again the same variables of Babacan's previous study.
- In study of Johnes and Yu (2008), the ratio of staff to student, the number of professor to academic staff ratio, the number of postgraduate students, research expenditure, index of library books, index of building areas are used as input; the impact of research, the total number of research, index of publication per academic staff
- In study of Worthington (2008), Number of academic staff, the number of nonacademic staff, the non-labor expenditure, the number of undergraduate students, the number of postgraduate students are used as input; the undergraduate completions, the postgraduate completions, Ph.D. completions, national grants, industry grants, the publications are used as output.
- In study of Oruç (2009), the expenditure of university, the size of closed campus area and the number of academics are used as input; the number of undergraduate and graduate students, the number of publication and the number of research project.
- The study of Wang (2010) proposes that the performance can be mainly divided into academic and management performance. The academic performance dimension can be further divided into research and educational dimensions. Education and research are two traditional activities in most universities.
- In study of Ulucan (2011), the budget and the number of staff are used as input; the number of bachelor, master and PhD students, the number of publication, the number of research, the amount of supported project, and the score of exam are used as output.
- In study of Ulutaş (2011), three input variables are defined as number of academic staff, number of assistant staff and number of students; four output variables are defined percent of the graduates at the undergraduate level, average grade point average (GPA) of the undergraduate students, number of successful students (3.0< GPA <3.49), number of honor students.

- Bogt et al. (2012) say that research performance is usually measured by the number of publications in academic journals, with the international rankings of these journals being used as an indicator of quality. Teaching performance relates to the numbers of students, the degrees awarded and the quality of the education provided.
- In study of Çınar (2013), the performance outputs are classifies into two groups as educational and research. The general expenditure and investment expenditure are used input; the number of publication, the supported project by TUBITAK and the number of undergraduate, master and PhD students are used as output.

Undoubtedly, higher education is very important for the development of a country. To measure the performance of universities is a certain need for increasing improvement and effectiveness of higher education institutions. All of studies are presented clarifying the performance measurement and its application to the higher education. In our study, the performance indicators are considered as competitive advantage. Based on the literature, two main dimensions with twelve sub-categories are identified to evaluate the performance of universities.

CHAPTER 3

RESEARCH METHOD

Two different research methods are applied in the study. One of them is to reveal the perception of academics about the effect of five competitive forces on performance and the relationship between internal resources and performance. The other is to reveal the relationship between internal resources and performance. Therefore, after the conceptual framework of study is presented, the research method of study will be examined in two ways.

This chapter is composed of three sections. First section is the conceptual framework of study. Second section is the first part of research method, which includes the external environment dimensions, research frameworks, survey of study, survey design, scaling, pre-test and item modification, sampling, and analysis of data. Last section is the second part of research method, which includes variables of study, hypotheses of research, proposed models of research, research framework, sampling, and analysis of data.

3.1. THE CONCEPTUAL FRAMEWORK OF STUDY

The aim of study is to determine and analyze factors providing competitive advantage to the Turkish foundation universities. To obtain these factors, the study attempts to:

- Emerge the external environment conditions of higher education.
- Emerge the internal resources of higher education.
- Emerge the performance indicators of higher education.
- Emerge the relationship between competitive forces and university performance.
- Emerge the relationship between internal resources and university performance.
- Obtain models providing competitive advantage to the Turkish foundation universities.

In this line, the dissertation tries to explore the following research questions:

a. What do academics think about the effect of external competitive forces on higher education performance?
b. What do academics think about the relationship between internal resources and higher education performance?
c. What is relationship between internal resources and performance indicators of Turkish foundation universities?

In parallel of study purposes, the conceptual framework is constructed in eight stages by of following citations:

1. **The external environment conditions are analyzed with five competitive forces.**
    - The firm performance is dependent on the industry structure. (Bain, 1959; Mason, 1939; Porter, 1985)
    - A principal model of this school has been Michael Porter's (1985) "five competitive forces" for analyzing industry structures.
    - The formulation of a firm's competitive strategy is dependent on how it aligns with the external environment characterized by the relative strengths of the five competitive forces (Porter, 1980).
    - Porter (2008) says that the awareness of the five forces can help a company understand the structure of its industry and stake out a position that is more profitable and less vulnerable to attack.
2. **The internal resources of a firm are the important factors which provide competitive advantage.**
    - The resources are inherent in a firm are the sources of competitive advantage (Barney, 1991; Grant, 1991; Amit & Schoemaker, 1993). The Resource-Based View as a basis for the competitive advantage of a firm lies primarily in the application of a bundle of valuable tangible or intangible resources at the firm's disposal. In resource-based view, to gets above average profits, using and developing resources is main tool (Wernerfelt, 1984; Rumelt, 1984; Penrose, 1959).
    - Wheelen and Hunger (2008) say that the internal environment of a corporation consists of variables (Strengths and Weaknesses) that are within the organization itself and are not usually within the short-run control of top management. These variables from the context in which work is done, they include the corporation's structure, culture, and resources. The corporation can use them to gain competitive advantage.
    - The internal analysis provides important information about an organization's specific resources and capability. An organization's resources are its assets-financial, physical, human, and intangible that it uses to develop, manufacture, and deliver product to its customers. The major value-creating capabilities of the organization are known as its core competencies. Both

resources and core competencies determine the organization's competitive weapons (Robbins et al., 2013).

- The idea that competitive advantage can be derived from internal skills, resources or assets (distinctive competencies) is widely referred to as the "Resource-Based View" of the firm (Collis and Montgomery, 1995).
- The RBV theory views each firm as a collection of unique resources that provide the basic foundation for strategy formulation and implementation, which in turn lead to differences in firm performance (Wernerfelt, 1984; Hitt, Ireland & Hoskisson, 2001).

3. **Five competitive forces and internal resources help determining factors providing competitive advantage. Both of them should combine to obtain a proper analyze, that is, the theory of Porter Five Force and Resource-Based View can be used as complementary.**
    - Mahoney and Pandian (1992) call for an integration of the approaches taken by the resource-based and "industry analysis" (environmental selection) schools.
    - Teece et al. (1997) say that industrial organization theory sees the industry as the starting point of analysis but Resource-Based View sees the firm.
    - Spanos and Lioukas (2001) say that the two perspectives are complementary in explaining the firm's performance, both theory try to explain the origin of a firm's competitive advantage and for these two theory, the firm is the main criteria of analysis.
    - The RBV emerged as a complement or dual to Porter's theory of competitive advantage (Barney & Arikan, 2001).
    - Grundy (2006) says that Porter's model, matched to the traditional SWOT (strength, weakness, opportunities, threats) analysis, assures to managers a complete tool to analyze the external environment encountered by the firm. This model assesses the threats of new entrants and substitutes, emphasizes the power of buyers and suppliers, and identifies how competitive rivalry is a function of the other competitive forces. This means that five forces theory emphasizes the opportunities and threats. The Resource-Based View emphasized that the firms should position themselves strategically based on their valuable, rare, inimitable and non-substitutable resources

and capabilities. This means that, the combination of these two theories shows strength and weakness of a firm. When a firm do SWOT analyze, the five forces of industry shows the "opportunities-threats" part of the SWOT analyze; the Resource-Based View shows the "strengths-weaknesses" part. With this focus, they have also a complementary contribution.

- The resource-based theory has one weakness: it neglects the environment (Verdin & Williamson, 1994). This approach neglects the external factors such as the needs of market constituents like customers and competitors, which is related to the industry five-force factors of Michael Porter (Stonehouse & Snowdon, 2007).

4. **To obtain competitive advantage, the six internal resources are identified by using Resourced Based View.**
    - Rumelt (1984) says that a firm's competitive position is defined by a bundle of unique resources and relationships.
    - Verona (1999) refers to RBV theory as the combination of technological capabilities, marketing capabilities, and internal and external integrative capabilities.
    - Prahalad and Hamel (1990) suggest that a firm should not stay at a level of single resources, and that core competencies are the most crucial in developing competitive advantage.
    - Snow and Hrebiniak (1980) classify the internal resources into ten functional areas: general management; financial management; marketing and selling; market research; product research and development (R&D); engineering; production; distribution; legal affairs; and personnel.
    - Barney (1991) categorizes of firm resources into three groups: Physical capital resources, organizational capital resources, human capital resources.
    - Hofer and Schendel (1978) suggest six major categories of resources, as follows: financial resources, physical resources, human resources, technological resources, reputation and organizational resources.

- According to Hamel and Prahalad (1994), the firm will perform well if it is able to develop distinctive competencies, which allow it to outperform its competitors.
- Kay (2000) says that Resource-Based View based on the application-based concepts, reputation, architecture and innovative capability.
- Porter and Millar (1985) emphasize the importance of information technology to the achievement of competitive advantage.
- Clemons (1986) states the effective use of information technology can be a source of sustainable competitive advantage, particularly when information is a critically important asset.
- Wright et al. (2001) say that the Resource-Based View (RBV) of the firm has influenced the field of strategic human resource management (SHRM) in a number of ways.

5. **Porter Five Force Theory is related with higher education as following items:** The new entrants in higher education, the rivalry in higher education, suppliers in higher education, these are represented as the power of government, foundation, high schools teachers and academics. The buyers in higher education, these are defined as the power of students, parents and employers. The substitutes in higher education, these are represented as the state universities, online programs and international educational opportunities.
   - Hua (2011) shows an adaptation of Porter's five competitive forces framework to the education industry in Malaysia is presented. The elements indicated have been selected from Porter's extensive listing based on relevance to Malaysia.
   - Collis (1999) says that the structure of the higher education industry in the recent past has made it an attractive business in which to compete. A great virtue of Porter's framework is that it provides a check list of all the things you need to consider that may affect an industry's development, and a framework to interpret their effects.
   - In the study of Pringle and Huisman (2011), the university sector in Ontario's higher education industry is analyzed by applying Michael Porter's five forces framework defined by the following forces: the threat

of new entrants, supplier power, buyer power, the threat of substitutes, and industry rivalry.

- Martinez and Wolverton (2009) propose the industry analysis using Porter’s five forces model can aid colleges and universities as they define the parameters within which new rules, participants, and markets continue to emerge. By dissecting the marketplace in which a college, university, or program operates into strategically significant groups, such as existing rivals, potential entrants, substitutes, suppliers, and buyers, an organization begins to see more clearly where its opportunities and threats lie.
- Dobni and Dobni (1996) use the Porter's "five forces model" to assess the state of competition in the Canadian university-based business school industry.
- The competitiveness of Batangas State University College of Engineering was determined based on Porter’s Five Competitive Forces Model and was defined by Ronquillo (2012) as the following items: the threat of new entrants, rivalry among existing firms within an industry, the threat of substitute products or services, the bargaining power of suppliers, and the bargaining power of buyers.
- The independent variable was determined Porter's Five Forces Model as following items by Farahat (2011): Level of rivalry among the existing universities, the potential entry of new competitors, the bargaining power of suppliers’ inputs, the bargaining power of students and the universities advantages.
- Huang (2012) says that the relationship between the external industry structure within which higher education institutions operate and the types of strategy they formulate to achieve competitive advantage will be understood through the application of IO theory, specifically using Porter’s (1980) five-force model of competition.
- Lindong (2007) says that the analysis of the data using Porter’s (1980) “Five Forces” framework was performed by applying the five competitive forces as they relate to the higher education industry.
- Sahney et al. (2004) believe that global changes and competition are making education more like a product with students as its customers.

- Quinn et al. (2009) say that the education is a service and the students are customers who wish to improve their level of education. The customers of higher education are the future employers of the students. An alternative is the service/process model that assumes education is a service and the students are customers who wish to improve their level of education.

6. **The internal resources of higher education are determined in six dimensions and twenty-five variables.**
   - Robbins et al. (2009) say that the internal analysis provides important information about an organization's specific resources and capability.
   - Fiol (2001) states the resources and core competencies determine the organization's competitive weapons. Much of the research on competitive advantage focused on core competencies as a major source of that advantage, core competencies include the particular set of skills and resources affirm possesses as well as the way those resources are used to produce outcomes. In the contemporary period, the teaching mission of the university is a central responsibility. Teaching has been the core role since the beginning.
   - Altbach (2011) asserts that the research is a core function of universities.
   - Lynch and Baines (2004) say that the core competencies mean that the processes underpinning teaching, learning and assessment strategies; application of theory to practical problems that enable an (vocation) either for the development of teaching or consultancy products or for research purposes; student placement or final destination placement; fund-raising particular benefit and/or alumni relations.
   - Yalcintan and Thornley (2006) stress the teaching and research functions of higher education institutions.
   - Fahy et al. (2009) show the variables of research function of higher education institutions. They says that the research variable (R) can be measured through three variables, namely, RAE (Research Assessment Exercise) scores for 2008 (a measure of research quality), percentage of full-time staff submitted to the RAE 2008 (a measure of research intensity) and doctoral student completions per number of staff 2006/07 (a measure of the vitality of the research environment).

- Wang (2010) suggests that the number of degree programs is regarded as a measurement providing the university managers with effective and reliable guidelines in appropriate investment of resources in degree programs. In addition, he says that the PhD students are also important measurement as they carry out most research activities.
- According to the study of Abramo et al. (2012), the measurement of research performance can be formulated by two indicators, with differences in calculation according to the level of analysis: individual researchers or entire universities.
- Wang (2010) says that the number of people with membership in research councils and editorship of journals may signal a general research reputation and research strength of a university.
- Yarbrough et al. (2006) state that the Resource-Based View of the firm suggests that organizations differentiate between strategic alliances and acquisition strategies based on a firm's internal resources and the types of resources a potential partner organization possesses.
- Lynch and Baines (2004) say that the network of relationship, contracts, and government is a kind of competitive advantage for higher education. This parameter includes relationships developed with other higher and further education institutions, local and government, funding bodies, research councils, companies and partners (commercial or charitable) for recruitment of students onto courses (teaching), research (e.g. funding councils) and outreach/commercialization (e.g. licensing agreements).
- Mazzarol and Soutar (1999) propose that the importance of possessing international strategic alliances or coalitions has featured in the literature as a source of competitive advantage for higher education.
- The partnership of these three main players as university, government and industry is very important for developing of a country. Gibbons et al. (1994), Nowotny et al. (2001) and Etzkowitz et al. (2000) state that governments have promoted national prosperity by supporting new lucrative technologies together with the universities which become “engines” of their regions.

- According to Urry (1998), higher education institutions had to be restructured in order to be productive and competitive, and should have organizational networks to fulfill the need for specialized labor and to provide linkages with industry.
- Dinçer and Rosen (2001) present that there is a strong need to concentrate the efforts in developing right policies and strategies to assess the impact of science and technology on national development; to develop mechanisms in bringing government, industry and university together for research and development and innovation; and to accelerate commercialization.
- Huang (2012) says that the partnership with other higher education is accepted as an internal source of a higher education institution.
- The degree to which an enterprise encourages innovation has been viewed as important to developing competitive advantage (Quinn, 1985; Takeuchi and Nonaka, 1986).
- Irwin & Klenow (1994) say that the research development capability enables a firm to achieve superior performance relative to its competition.
- Hall and Bagchi-Sen (2002) indicate that the firms with higher levels of research development capability are successful in obtaining superior performance.
- Innovative capability is particularly important for the long-term success of a university through the development, for example, of new courses and research (Kay, 1993; Taylor, 2002).
- Lynch and Baines (2004) identify the competitive resources of higher education institutions. One of the competitive resources is the innovation capability of universities. The others are teaching such as e-learning, research such as patents and outreach/commercialization such as new commercial products and services.
- Lindong (2007) says that internal resources of a higher education comprise staff, buildings and facilities, programs and finance.
- Wang (2010) indicates that the tuition fees are one of the main sources of financial resources to universities.

- Huang (2012) says that the tuition fee is particularly important for private higher education institutions and it is the major financial resources.
- In the study of Mazzarol (1998), the effective use of information technology is considered as a potential source of competitive advantage.
- According to study of Hamer (1993), the use of information technology to offer education programs over long distances is becoming an increasing necessity as government policy in traditional markets changes.
- Virtual learning is a reality for universities (Mazzarol et al., 2006).
- In 1986, Smart says that the distance learning offers international students a lower cost of education service.
- According to HEFCE in 2012, the effective use of technology is vital if we are to maintain the excellent provision of UK higher education. More approaches that are flexible offered by distance learning and open educational resources will give international learners access to better course information, and assist with the recruitment and retention of these learners.
- Carballeira and Galand (1980) note that the investment of physical resources not only contributes to the large amount of output, but also increases the market value of their products, which in turn achieves high performance.
- Russo and Fouts (1997) examine the relationship between physical resources and organizational performance. The results suggested that the available quantity of physical resources would facilitate the distribution system and improve the power of operation systems, thus allowing a further increase of productivity.
- The role of physical facilities and infrastructure in supporting institutional performance and competitive advantage has been widely acknowledged (Beynon, 1997; Flemining &Storr, 1999; Price et al., 2003).
- Joseph & Joseph (2000) say that the courses, career information, physical aspects and facilities are critical issues that must be kept in mind when educational institutes are trying to create sustainable competitive advantages in marketing strategies.

- Huang (2012), the physical resources provide competitive advantage to the higher education institutions.
- Price, Matzdorf, Smith and Agahi (2003) who claime that the quality of campus facilities is perceived as having an important influence on students' choice of institution.
- According to Huang (2012), campus facilities and location can be accepted as an internal source of a university.
- Cutt et al. (1993) emphasize the human, financial, technological and material resources of a higher education institution as performance input.
- Huang (2012) displays internal resources of a higher education with six items. These are organizational resources, human resources, financial resources, physical resources, marketing capabilities, and R&D capabilities.
- Mazzarol and Soutar (1999) determine the variables, which explain and strengthen the competitive advantage of an education institution within an international market, are: The institution's quality of image; the institution's market profile; coalition formation; the degree of forward integration into the export channel; the organizational expertise and quality of staff; the possession of a client oriented/innovative culture; and the effective use of information technology
- Basheka (2008) indicates the varieties of resources are useful in a higher education context. They are summarized in four categories. These are: Physical resources are defined as classrooms, land, plant and machinery, buildings, laboratories, library, computer laboratories and office space. Human resources are described as academic staff resources, administrative staff resources, support staff resources, professional staff resources, and specific competencies. Financial resources are regarded as tuition fees collections, user fees collections, government subventions, donations, investments, facilities hire, consultancy fees. Material resources are identified as stores, vehicles, stationery, equipment, material handling equipment, training materials and office consumables.
- Çınar (2013) says that the academics are the human resource of higher education.

7. **As foundation universities are non-profit organization in Turkey, the aim of obtaining competitive advantage of them cannot be make profit. Therefore, the competitive advantage of Turkish foundation universities is regarded as performance.**
    - Porter (1980) says, “Competitive advantage is at the heart of a firm’s performance in competitive markets”. Porter (1985) referred to competitive advantage as the strategy used for accomplishment over competitors.
    - To build a theoretical model of the hotel competitive advantage to measure hotel performance based on the industry forces and resource-based approaches (Tavitiyaman, 2009).
    - Jones (2007) says that the competitive advantage is the ability of one company to outperform another because its managers are able to create more value from the resources at their proposal.
    - Resources are a source of performance, which may increase the firm’s capability to charge higher prices and contribute to performance by helping the firm to appropriate the value linked to competitive advantage (Bridoux, 1997).
    - Bridoux (1997) views financial performance as “profit in excess of the cost of capital, depends upon the attractiveness of the industry in which the firm operates (industry-effect on performance) and the firm’s competitive advantage.
    - Technology enhances service quality performance creates a competitive advantage (Porter, 1985, 2001).
    - Industrial Organization theory and Resource-Based View have been used extensively to analyze the factors of competitive advantage that allow a firm to achieve superior performance (Huang, 2012).

8. **As competitive advantage of higher education is regarded as performance, performance measurements of higher education are determined. They are assessed in two dimensions and twelve variables.**
    - The followings studies, which are explained with details in previous chapter, refer the relation of performance measurement and higher education. Tomkins and Green (1988), Cutt et al. (1993), Beasley (1995), Shale and Gomes (1998), Abbott & Doucouliagos (2003), Warning (2004), Kutlar & Kartal (2004), Baysal et al. (2005), Johnes (2006), Babacan et al. (2007), Ustasüleyman (2007), Kutlar and Babacan (2008), Johnes (2008), Worthington (2008), Oruç (2009), Wang (2010), Ulucan (2011), Ulutaş (2011), Bogt et al. (2012), Çınar (2013).

3.2. FIRST PART OF RESEARCH METHOD

The first part of research is done to reveal the academics' perception about the effect of five competitive forces on higher education performance. This part includes the external environment dimensions, research framework, survey of study, survey design, scaling, pre-test and item modification, sampling, and analysis of data.

3.2.1. External Environment Dimensions

The external environment that surrounds foundation universities is analyzed by using Porter's Five Forces model. Within the conceptual framework, external environment forces are examined as following items: the threat of new entrants, the intensity of competitive rivalry, the bargaining power of suppliers, the bargaining power of buyers, and the threat of substitutes. Besides those main items, their identified sub-dimensions are determined in the context of the literature. To reveal the perception of academics about the effect of five competitive forces on performance, the identified sub-dimensions are given in Table 3.1.

Table 3.1 Determined External Environment Dimensions

EXTERNAL ENVIRONMENT DIMENSIONS	SOURCES
The threat of new entrants	Porter, 1980; 2008
The effect of the threat of new entrants to higher education area	Porter Theory is adopted to higher education by studies of Dobni and Dobni (1996); Collis (1999); Lindong (2007); Martinez and Wolverton (2009); Farahat (2011); Hoa (2011); Pringle and Huisman (2011); Ronquillo (2012); Huang (2012)
The intensity of competitive rivalry	Porter, 1980; 2008
The effect of the competitive intensity between higher education institutions	Porter Theory is adopted to higher education by studies of Dobni and Dobni (1996); Collis (1999); Lindong (2007); Martinez and Wolverton (2009); Farahat (2011); Hoa (2011); Pringle and Huisman (2011); Ronquillo (2012); Huang (2012)
The bargaining power of suppliers	Porter, 1980; 2008
The power of state	Porter Theory is adopted to higher education by studies of Dobni and Dobni (1996); Collis (1999); Lindong (2007); Martinez and Wolverton (2009); Farahat (2011); Hoa (2011); Pringle and Huisman (2011); Ronquillo (2012); Huang (2012)
The power of foundation	
The power of high schools teachers	
The power of academics	
The bargaining power of buyers	Porter, 1980; 2008
The power of students	Porter Theory is adopted to higher education by studies of Dobni and Dobni (1996); Collis (1999); Lindong (2007); Martinez and Wolverton (2009); Farahat (2011); Hoa (2011); Pringle and Huisman (2011); Ronquillo (2012); Huang (2012)
The power of employers	
The threat of substitutes	Porter, 1980; 2008
The number of online programs	Porter Theory is adopted to higher education by studies of Dobni and Dobni (1996); Collis (1999); Lindong (2007); Martinez and Wolverton (2009); Farahat (2011); Hoa (2011); Pringle and Huisman (2011); Ronquillo (2012); Huang (2012)
The number of international educational opportunities	
The number of state universities	

3.2.2. Research Framework

The research is applied quantitative research method. The effect of external environment on performance is examined by using perception of academics. The relationship between internal sources and performance of universities is also examined by using perception of academics. The determined dimensions of internal research are given in the last part.

To evaluate perception of academics, a survey is prepared and applied to the academics in foundation universities. The questionnaire captured the external industry forces, internal resources and performance indicators. Descriptive analysis was done assessing the perception of academics on relationship between external environment forces with performance and internal resources with performance. The results of descriptive analysis also help and enrich to the interpretation of the study hypotheses. Research framework of this part is given in Figure 3.1.

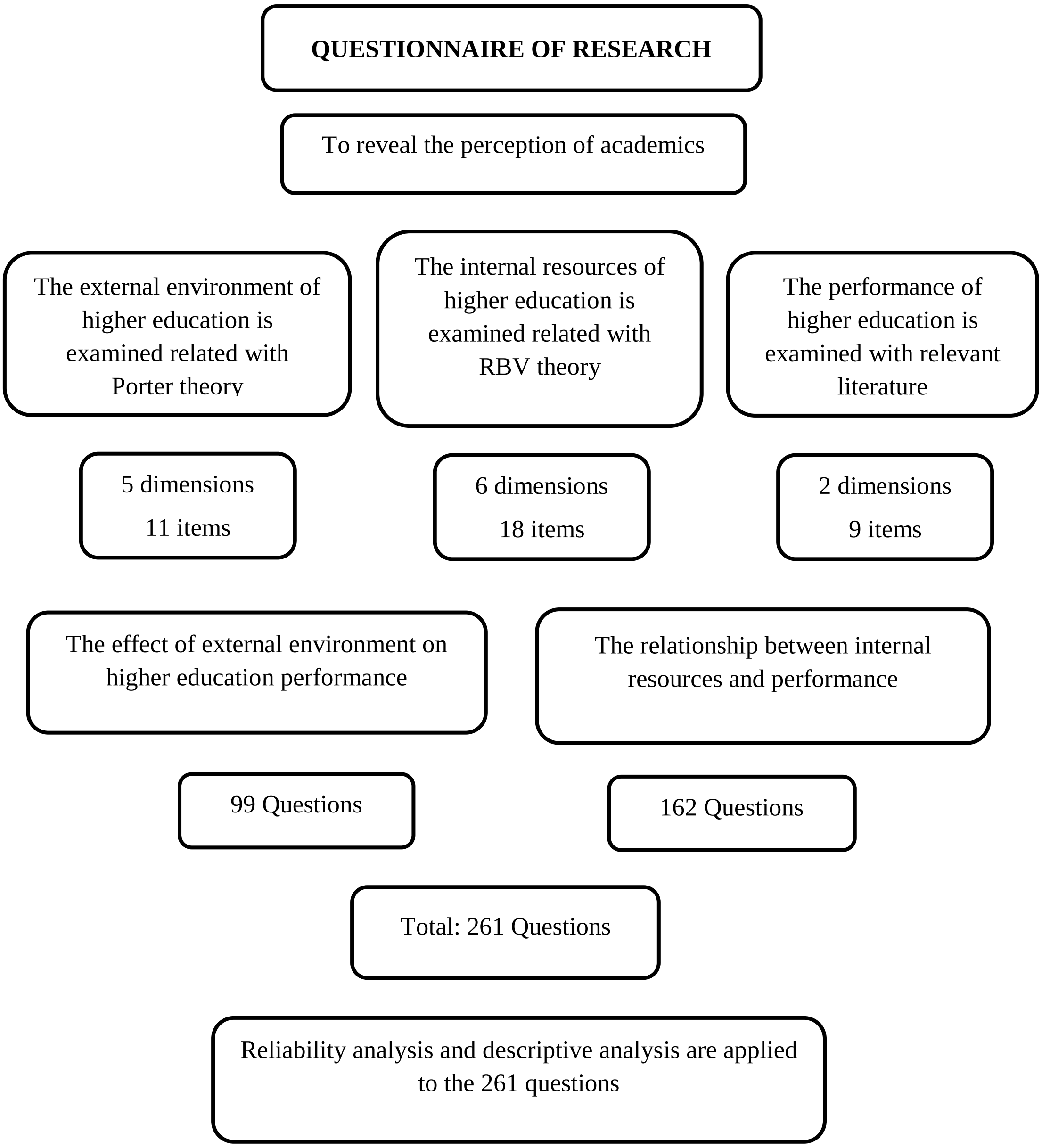

Figure 3.1 Research Framework 1

3.2.3. Survey of Study

As there was no any previously developed survey to handle the content of the study, a self-administered questionnaire is developed based on the relevant literature. This approach is regarded as suitable, efficient and economical by means of collecting the required data. All questionnaire items were prepared in English language and after translated into Turkish, which reflects to primary language of study population. Accurate translation of the questionnaire is very important to obtain true results. For this reason, a back translation procedure is also implemented as follows. Firstly, the original questionnaire was prepared in English and then translated into Turkish and after again back translated into English by two independent translators to check for equivalence. The questionnaire was also given to a number of language experts to ensure that the translation was of equivalent meaning in both versions.

3.2.4. Survey Design

A questionnaire is developed based on the review of literature. The survey of research consisted of two parts. The first part of questionnaire is prepared to explore the demographic profiles of academics. This part consists of three questions. The second part consists of two sections. The first section of questionnaire is about external environment of universities. Porter Five Forces theory and its application on higher education are used to prepare to the first section of questionnaire. The impact of the Five Forces theory on performance of higher education institutions is examined in this part. It has 99 questions that are related with perception of academics. The second section is prepared to reveal the views of academics about the relationship between internal sources and university performance. This section of survey includes 162 questions.

3.2.5. Scaling

Scaling techniques provide researchers with a method of collapsing answers from a whole series into one indicator on how respondents really think about an issue (Salant &Dillman, 1994). In this study, questions were proposed in the form of statements using a five-point Likert scale, asking respondents to rate the level of their agreement assigned to (1) strongly disagree, (2) disagree, (3) slightly agree, (4) agree, and (5) strongly agree.

The Likert scale is an ordered scale from which respondents choose one option that best aligns with their view. It is often used to measure respondents' attitudes by asking the extent to which they agree or disagree with a particular question or statement. A typical scale might be “Strongly disagree, Disagree, Neutral, Agree, Strongly agree.” Likert scales may meet your needs when you have attitude, belief, or behavior items. For example, you would not use a Likert scale to assess attributes, such as age, race, and income. A five-point Likert scale is the most common scale, developed by Dr. Rensis Likert for behavioral sciences research (Kinnear & Taylor, 1996). It is widely accepted because it offers a range of choices to fit the needs of most situations.

3.2.6. Pre-test and Item Modification

A pre-test was conducted to assess the questionnaire’s strength sand weaknesses. As Kinnear and Taylor (1996) suggest that all aspects of the questionnaire should be tested before, the questionnaire can be regarded as ready for administration. Pre-testing should be conducted with similar respondents to those who would be included in the actual survey (de Vaus, 2002). Since part of the items were developed specifically for the purposes of this study. Evaluating the questionnaire was considered necessary to verify its clarity before it was used on the sample population. The results of the pre-test were used to modify the questions.

The pre-test was conducted to the 20 university colleagues. The respondents were asked to evaluate the questionnaire for clarity, style, meaningfulness, ease or difficulty of questions. By incorporating suggestions provided by the pre-test, some questions were altered to sound more natural in Turkish without detracting from the meaning of the original sentences and revisions were made based on this feedback to ensure consistency and quality of the questionnaires. Therefore, the questionnaire was more clearly and well understood than the first form.

3.2.7. Sampling

The descriptive part of the study, within nine different foundation universities in Turkey, 150 academics as a volunteer participated to the survey. 31 respondents of survey are from Aydın University, 19 of them are Okan University, 25 of them Bilgi University, 10 of them are Kemerburgaz University, 2 of them are Bilkent University, 13 of them are İTO University, 27 of them are Yeditepe University, 3 of them Çağ University, 20 of them are Gelişim University. Some of surveys are applied by using mail; some of them are collected by hand.

3.2.8. Analysis of Data

In the first part of study results, the quantitative data were obtained via the survey; the data were checked for missing values, inconsistencies and any other response errors. The data is analyzed with Statistical Package for Social Science (SPSS). Reliability and validity analysis and descriptive analysis are applied. The purpose of the reliability assessment is to check the validity and to improve the quality of the measure.

Cronbach'salpha (Cronbach, 1951) is the most common method accepted by researchers in assessing the reliability of multi-item measures. A low Cronbach's alpha indicates that the sample of items does not capture the factor and is not shared in the common core of the construct. Such items should be eliminated in order to increase Cronbach's alpha. There is no set standard regarding the minimum acceptable threshold value of Cronbach's alpha, but Nunnally (1978) suggested that 0.70 is an acceptable reliability coefficient. Hair et al. (1998) noted that the generally agreed upon lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. In the case of this study, Cronbach'salpha is calculated for the questionnaire.

After reliability analysis, the descriptive analysis techniques like that frequencies, percentages, means and standard deviation are used to describe the variables. Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way. Descriptive statistics do not allow us to make conclusions beyond the data we have analyzed or reach conclusions regarding any hypotheses we might have made. They are simply a way to describe our data. Typically, two general types of statistic are used to describe data:

- Measures of central tendency: These are ways of describing the central position of a frequency distribution for a group of data. We can describe this central position using a number of statistics, including the mode, median, and mean.
- Measures of spread: Measures of spread help us to summarize how spreads out these scores are. To describe this spread, a number of statistics are available to us, including the range, quartiles, absolute deviation, variance and standard deviation (WEB_8, 2014).

3.3. SECOND PART OF RESEARCH METHOD

Second part of research is done to reveal the perception of academics about the relationship between internal resources and performance of universities. The second part of research method includes the variables of study, hypotheses of research, proposed models of research, research framework, sampling, and analysis of data.

3.3.1. Variables of Research

The independent and dependent variables of study are determined to reveal the relationship between internal resources and performance of universities. The independent variables are about internal sources of higher education. The dimensions of internal resources are adopted by studies of Resource-Based View and its applications on higher education. Based on the literature, the independent variables of study are given in Table 3.2.

Table 3.2 Independent Variables of Study

INDEPENDENT VARIABLES OF STUDY	**SOURCES**
Core competences	Prahalad and Hamel (1990); Fiol (2001); Robbins et al.(2009)
Research and teaching	Lynch and Baines (2004);Yalcintan and Thornley (2006); Lindong (2007); Fahy et al. (2009); Wang (2010); Abramo et al. (2012); Altbach (2011); Huang (2012)
The number of panelist researcher	
The number of PhD enrolments	
The number of degree programs	
Doctoral student-total students' ratio	
Relationship and innovation	Rumelt (1984); Verona (1999); Yarbrough et al. (2006); Snow and Hrebiniak (1980); Quinn (1985); Takeuchi and Nonaka (1986); Kay (2000)
The number of industry partnership	Gibbons et al. (1994); Urry (1998); Mazzarol and Soutar (1999); Carayannis et al. (2000); Etzkowitz et al. (2000); Dinçer and Rosen (2001); Nowotny et al. (2001); Lynch and Baines (2004); Huang (2012)
The number of university partnership	
The number of exchange academics	
The number of proposed research-development project	Kay (1993); Irwin & Klenow (1994); Clarke (1997); Dinçer and Rosen (2001); Taylor, (2002); Hall and Bagchi-Sen (2002); Lynch and Baines (2004); Huang (2012)
Financial resources	Hofer and Schendel (1978); Snow and Hrebiniak (1980); Cutt et. al. (1993); Robbins et al. (2009)
The amount of students' fee	Lindong (2007); Basheka (2008); Wang (2010); Huang (2012)
The effective use of information technology	Hofer and Schendel (1978); Porter and Millar (1985); Clemons (1986); Verona (1999)
The number of on-line academic journals	Smart (1986); Hamer (1993); Cutt et al. (1993); Mazzarol (1998); Mazzarol and Soutar (1999); Lynch and Baines (2004); Mazzarol et.al. (2006); HEFCE (2012)
The number of distance learning programs	
The number of on-line database	
Physical resources	Hofer and Schendel (1978); Carballeira and Galand (1980); Barney (1991); Beynon (1997); Russo and Fouts (1997); Flemining & Storr (1999); Robbins et al., (2009)
The distance of campus location to city center	Joseph & Joseph (2000); Price, Matzdorf, Smith and Agahi (2003); Lindong (2007); Basheka (2008); Huang (2012)
The size of campus area	
The number of social club	
The number of book	
The number of laboratory	
Human resources	Hofer and Schendel (1978); Barney (1991); Wright et al. (2001); Robbins et al., (2009)
The number of staff	Cutt et. al. (1993); Mazzarol and Soutar (1999); Lindong (2007); Basheka (2008); Huang (2012); Çınar (2013)

The dependent variables of study are determined providing the competitive advantage to the higher education institutions. The aim of competitive advantage is to make profit for a firm. However, the aim of competitive advantage cannot be described to make profit for a higher education institution in Turkey. Because of this reason, the dependent variables of study are determined to explain the performance of higher education. The performance criteria are selected in relevant literature. These identified performance measurement of higher education are defined as dependent variables of the study. They are shown in Table 3.3.

Table 3.3 Dependent Variables of Study

DEPENDENT VARIABLES OF STUDY	**SOURCES**
Research dimensions	Tomkins and Green (1988); Cutt et al. (1993); Beasley (1995); Shale and Gomes (1998); Abbott & Doucouliagos (2003); Flegg et al. (2004); Warning (2004); Kutlar & Kartal (2004); Baysal et al. (2005); Johnes (2006); Babacan et al. (2007); Ustasüleyman (2007); Kutlar & Babacan (2008); Worthington (2008); Johnes (2008); Oruç (2009); Wang (2010); Ulucan (2011); Ulutaş (2011); Bogt et al. (2012); Çınar (2013); Ryerson Performance Indicators (2013); URAP (2014)
The number of exchange students	
The publication score	
The citation score	
The number of supported research-development project	
The number of patent	
The number of PhD graduated	
The amount of research grant	
Educational dimensions	
The number of bachelor enrolments	
The number of bachelor graduated	
The number of master enrolments	
The number of master graduated	
The number of international enrolments	

According to Turkish higher education environment, the selected variables of study have some restrictions to obtain information that is more accurate. The restrictions of variables are determined as follows:

- The number of panelist researcher of a university is restricted by through TUBITAK and ARDEB.
- The number of industry partnership of a university is restricted through ERASMUS.
- The number of university partnership of a university is restricted through SANTEZ and TEKNOGIRISIM.

- The number of exchange academics of a university is restricted through ERASMUS.
- The number of proposed and supported research-development project of a university is restricted by TUBITAK and until 2012.
- The amount of research grant of a university is restricted through TUBITAK.
- The financial resources of a university are restricted through students’ fee.
- The number of patent of a university is restricted through TPE.

3.3.2. Hypotheses of Research

After determining variables of study within the framework of literature, the hypotheses are shaped. The hypotheses of study are established to emerge the relationship between internal sources and performance. Main hypotheses and related sub-hypotheses of study will be shown in the tables.

As independent variables of study are grouped into six dimensions and dependent variables of study are grouped into two dimensions, the study has twelve main hypotheses. They are shown in Table 3.4.

Table 3.4 Main Hypotheses of Study

1	There is a relationship between research-teaching and research performance.
2	There is a relationship between research-teaching and educational performance.
3	There is a relationship between relationship-innovation and research performance.
4	There is a relationship between relationship-innovation and educational performance.
5	There is a relationship between financial resources and research performance.
6	There is a relationship between financial resources and educational performance.
7	There is a relationship between the effective use of information technology and research performance.
8	There is a relationship between the effective use of information technology and educational performance.
9	There is a relationship between physical resources and research performance.
10	There is a relationship between physical resources and educational performance.
11	There is a relationship between human resources and research performance.
12	There is a relationship between human resources and educational performance.

As teaching-research dimension has six independent variables and research dimension has seven dependent variables, forty-two sub-hypotheses are established for H1. They are shown in Table 3.5.

Table 3.5 Sub-Hypotheses of H1

1	There is a relationship between the number of panelist researcher and the number of exchange students
2	There is a relationship between the number of PhD enrolments and the number of exchange students
3	There is a relationship between the number of BA degree programs and the number of exchange students
4	There is a relationship between the number of MA degree programs and the number of exchange students
5	There is a relationship between the number of PhD degree programs and the number of exchange students
6	There is a relationship between doctoral student-total students' ratio and the number of exchange students
7	There is a relationship between the number of panelist researcher and the publication score
8	There is a relationship between the number of PhD enrolments and the publication score
9	There is a relationship between the number of BA degree programs and the publication score
10	There is a relationship between the number of MA degree programs and the publication score
11	There is a relationship between the number of PhD degree programs and the publication score
12	There is a relationship between doctoral student-total students' ratio and the publication score
13	There is a relationship between the number of panelist researcher and the citation score
14	There is a relationship between the number of PhD enrolments and the citation score
15	There is a relationship between the number of BA degree programs and the citation score
16	There is a relationship between the number of MA degree programs and the citation score
17	There is a relationship between the number of PhD degree programs and the citation score
18	There is a relationship between doctoral student-total students' ratio and the citation score
19	There is a relationship between the number of panelist researcher and the number of supported R&D project
20	There is a relationship between the number of PhD enrolments and the number of supported R&D project
21	There is a relationship between the number of BA degree programs and the number of supported R&D project
22	There is a relationship between the number of MA degree programs and the number of supported R&D project
23	There is a relationship between the number of PhD degree programs and the number of supported R&D project
24	There is a relationship between doctoral student-total students' ratio and the number of supported R&D project
25	There is a relationship between the number of panelist researcher and the amount of research grant
26	There is a relationship between the number of PhD enrolments and the amount of research grant
27	There is a relationship between the number of BA degree programs and the amount of research grant
28	There is a relationship between the number of MA degree programs and the amount of research grant
29	There is a relationship between the number of PhD degree programs and the amount of research grant
30	There is a relationship between doctoral student-total students' ratio and the amount of research grant
31	There is a relationship between the number of panelist researcher and the number of PhD graduated
32	There is a relationship between the number of PhD enrolments and the number of PhD graduated
33	There is a relationship between the number of BA degree programs and the number of PhD graduated
34	There is a relationship between the number of MA degree programs and the number of PhD graduated
35	There is a relationship between the number of PhD degree programs and the number of PhD graduated
36	There is a relationship between doctoral student-total students' ratio and the number of PhD graduated
37	There is a relationship between the number of panelist researcher and the number of patent

Table 3.5 (Continued)

38	There is a relationship between the number of PhD enrolments and the number of patent
39	There is a relationship between the number of BA degree programs and the number of patent
40	There is a relationship between the number of MA degree programs and the number of patent
41	There is a relationship between the number of PhD degree programs and the number of patent
42	There is a relationship between doctoral student-total students' ratio and the number of patent

As teaching-research dimension has six independent variables and educational dimension has five dependent variables, thirty sub-hypotheses are established for H2. They are illustrated in Table 3.6.

Table 3.6 Sub-Hypotheses of H2

1	There is a relationship between the number of panelist researcher and the number of bachelor enrolments
2	There is a relationship between the number of PhD enrolments and the number of bachelor enrolments
3	There is a relationship between the number of BA degree programs and the number of bachelor enrolments
4	There is a relationship between the number of MA degree programs and the number of bachelor enrolments
5	There is a relationship between the number of PhD degree programs and the number of bachelor enrolments
6	There is a relationship between the number of exchange students and the number of bachelor enrolments
7	There is a relationship between the number of panelist researcher and the number of bachelor graduated
8	There is a relationship between the number of PhD enrolments and the number of bachelor graduated
9	There is a relationship between the number of BA degree programs and the number of bachelor graduated
10	There is a relationship between the number of MA degree programs and the number of bachelor graduated
11	There is a relationship between the number of PhD degree programs and the number of bachelor graduated
12	There is a relationship between doctoral student-total students' ratio and the number of bachelor graduated
13	There is a relationship between the number of panelist researcher and the number of master enrolments
14	There is a relationship between the number of PhD enrolments and the number of master enrolments
15	There is a relationship between the number of BA degree programs and the number of master enrolments
16	There is a relationship between the number of MA degree programs and the number of master enrolments
17	There is a relationship between the number of PhD degree programs and the number of master enrolments
18	There is a relationship between doctoral student-total students' ratio and the number of master enrolments
19	There is a relationship between the number of panelist researcher and the number of master graduated
20	There is a relationship between the number of PhD enrolments and the number of master graduated
21	There is a relationship between the number of BA degree programs and the number of master graduated
22	There is a relationship between the number of MA degree programs and the number of master graduated
23	There is a relationship between the number of PhD degree programs and the number of master graduated
24	There is a relationship between doctoral student-total students' ratio and the number of master graduated
25	There is a relationship between the number of panelist researcher and the number of international enrolments
26	There is a relationship between the number of PhD enrolments and the number of international enrolments
27	There is a relationship between the number of BA degree programs and the number of international enrolments
28	There is a relationship between the number of MA degree programs and the number of international enrolments
29	There is a relationship between the number of PhD degree programs and the number of international enrolments
30	There is a relationship between doctoral student-total students' ratio and the number of international enrolments

As relationship/partnership-innovation dimension has four independent variables and research dimension has seven dependent variables, twenty-eight sub-hypotheses are established for H3. They are illustrated in Table 3.7.

Table 3.7 Sub-Hypotheses of H3

1	There is a relationship between the number of industry partnership and the number of exchange students
2	There is a relationship between the number of university partnership and the number of exchange students
3	There is a relationship between the number of exchange academics and the number of exchange students
4	There is a relationship between the number of proposed R&D project and the number of exchange students
5	There is a relationship between the number of industry partnership and the publication score
6	There is a relationship between the number of university partnership and the publication score
7	There is a relationship between the number of exchange academics and the publication score
8	There is a relationship between the number of proposed R&D project and the publication score
9	There is a relationship between the number of industry partnership and the citation score
10	There is a relationship between the number of university partnership and the citation score
11	There is a relationship between the number of exchange academics and the citation score
12	There is a relationship between the number of proposed R&D project and the citation score
13	There is a relationship between the number of industry partnership and the number of supported R&D project
14	There is a relationship between the number of university partnership and the number of supported R&D project
15	There is a relationship between the number of exchange academics and the number of supported R&D project
16	There is a relationship between the number of proposed R&D project and the number of supported R&D project
17	There is a relationship between the number of industry partnership and the amount of research grant
18	There is a relationship between the number of university partnership and the amount of research grant
19	There is a relationship between the number of exchange academics and the amount of research grant
20	There is a relationship between the number of proposed R&D project and the amount of research grant
21	There is a relationship between the number of industry partnership and the number of PhD graduated
22	There is a relationship between the number of university partnership and the number of PhD graduated
23	There is a relationship between the number of exchange academics and the number of PhD graduated
24	There is a relationship between the number of proposed R&D project and the number of PhD graduated
25	There is a relationship between the number of industry partnership and the number of patent
26	There is a relationship between the number of university partnership and the number of patent
27	There is a relationship between the number of exchange academics and the number of patent
28	There is a relationship between the number of proposed R&D project and the number of patent

As relationship/partnership-innovation dimension has four independent variables and educational dimension has five dependent variables, twenty sub-hypotheses are established for H4. They are illustrated in Table 3.8.

Table 3.8 Sub-Hypotheses of H4

1	There is a relationship between the number of industry partnership and the number of bachelor enrolments
2	There is a relationship between the number of university partnership and the number of bachelor enrolments
3	There is a relationship between the number of exchange academics and the number of bachelor enrolments
4	There is a relationship between the number of proposed R&D project and the number of bachelor enrolments
5	There is a relationship between the number of industry partnership and the number of bachelor graduated
6	There is a relationship between the number of university partnership and the number of bachelor graduated
7	There is a relationship between the number of exchange academics and the number of bachelor graduated
8	There is a relationship between the number of proposed R&D project and the number of bachelor graduated
9	There is a relationship between the number of industry partnership and the number of master enrollments
10	There is a relationship between the number of university partnership and the number of master enrollments
11	There is a relationship between the number of exchange academics and the number of master enrollments
12	There is a relationship between the number of proposed R&D project and the number of master enrollments
13	There is a relationship between the number of industry partnership and the number of master graduated
14	There is a relationship between the number of university partnership and the number of master graduated
15	There is a relationship between the number of exchange academics and the number of master graduated
16	There is a relationship between the number of proposed R&D project and the number of master graduated
17	There is a relationship between the number of industry partnership and the number of international enrolments
18	There is a relationship between the number of university partnership and the number of international enrolments
19	There is a relationship between the number of exchange academics and the number of international enrolments
20	There is a relationship between the number of proposed R&D project and the number of international enrolments

As financial dimension has one independent variable and research dimension has the seven dependent variables, seven sub-hypotheses are established for H5. They are given in Table 3.9.

Table 3.9 Sub-Hypotheses of H5

1	There is a relationship between the amount of students' fee and the number of exchange students
2	There is a relationship between the amount of students' fee and the publication score
3	There is a relationship between the amount of students' fee and the citation score
4	There is a relationship between the amount of students' fee and the number of supported R&D project
5	There is a relationship between and the amount of students' fee and the amount of research grant
6	There is a relationship between the amount of students' fee and the number of PhD graduated
7	There is a relationship between the amount of students' fee and the number of patent

As financial dimension has one independent variable and educational dimension has five dependent variables, five sub-hypotheses are established for H6. They are shown in Table 3.10.

Table 3.10 Sub-Hypotheses of H6

1	There is a relationship between the amount of students' fee and the number of bachelor enrolments
2	There is a relationship between the amount of students' fee and the number of bachelor graduated
3	There is a relationship between the amount of students' fee and the number of master enrollments
4	There is a relationship between the amount of students' fee and the number of master graduated
5	There is a relationship between and the amount of students' fee and the number of international enrolments

As technological dimension has three independent variables and research dimension has seven dependent variables, twenty-one sub-hypotheses are established for H7. They are given in Table 3.11.

Table 3.11 Sub-Hypotheses of H7

1	There is a relationship between the number of on-line academic journals and the number of exchange students
2	There is a relationship between the number of distance learning programs and the number of exchange students
3	There is a relationship between the number of on-line database and the number of exchange students
4	There is a relationship between the number of on-line academic journals and the publication score
5	There is a relationship between the number of distance learning programs and the publication score
6	There is a relationship between the number of on-line database and the publication score
7	There is a relationship between the number of on-line academic journals and the citation score
8	There is a relationship between the number of distance learning programs and the citation score
9	There is a relationship between the number of on-line database and the citation score
10	There is a relationship between the number of on-line academic journals and the number of supported R&D project
11	There is a relationship between the number of distance learning programs and the number of supported R&D project
12	There is a relationship between the number of on-line database and the number of supported R&D project
13	There is a relationship between the number of on-line academic journals and the amount of research grant
14	There is a relationship between the number of distance learning programs and the amount of research grant
15	There is a relationship between the number of on-line database and the amount of research grant
16	There is a relationship between the number of on-line academic journals and the number of PhD graduated
17	There is a relationship between the number of distance learning programs and the number of PhD graduated
18	There is a relationship between the number of on-line database and the number of PhD graduated
19	There is a relationship between the number of on-line academic journals and the number of patent
20	There is a relationship between the number of distance learning programs and the number of patent
21	There is a relationship between the number of on-line database and the number of patent

As technological dimension has three independent variables and educational dimension has five dependent variables**,** fifteen sub-hypotheses are established for H8. They are shown in Table 3.12.

Table 3.12 Sub-Hypotheses of H8

1	There is a relationship between the number of on-line academic journals and the number of bachelor enrolments
2	There is a relationship between the number of distance learning programs and the number of bachelor enrolments
3	There is a relationship between the number of on-line database and the number of bachelor enrolments
4	There is a relationship between the number of on-line academic journals and the number of bachelor graduated
5	There is a relationship between the number of distance learning programs and the number of bachelor graduated
6	There is a relationship between the number of on-line database and the number of bachelor graduated
7	There is a relationship between the number of on-line academic journals and the number of master enrollments
8	There is a relationship between the number of distance learning programs and the number of master enrollments
9	There is a relationship between the number of on-line database and the number of master enrollments
10	There is a relationship between the number of on-line academic journals and the number of master graduated
11	There is a relationship between the number of distance learning programs and the number of master graduated
12	There is a relationship between the number of on-line database and the number of master graduated
13	There is a relationship between the number of on-line academic journals and the number of international enrolments
14	There is a relationship between the number of distance learning programs and the number of international enrolments
15	There is a relationship between the number of on-line database and the number of international enrolments

As physical dimension has five independent variables and research has seven dependent variables, thirty-five sub-hypotheses are established for H9. They are shown in Table 3.13.

Table 3.13 Sub-Hypotheses of H9

1	There is a relationship between the number of social club and the number of exchange students
2	There is a relationship between the distance of campus location to city center and the number of exchange students
3	There is a relationship between the size of campus area and the number of exchange students
4	There is a relationship between the number of book and the number of exchange students
5	There is a relationship between the number of laboratory and the number of exchange students
6	There is a relationship between the number of social club and the publication score
7	There is a relationship between the distance of campus location to city center and the publication score
8	There is a relationship between the size of campus area and the publication score
9	There is a relationship between the number of book and the publication score
10	There is a relationship between the number of laboratory and the publication score

Table 3.13 (Continued)

11	There is a relationship between the number of social club and the citation score
12	There is a relationship between the distance of campus location to city center and the citation score
13	There is a relationship between the size of campus area and the citation score
14	There is a relationship between the number of book and the citation score
15	There is a relationship between the number of laboratory and the citation score
16	There is a relationship between the number of social club and the number of supported R&D project
17	There is a relationship between the distance of campus location to city center and the number of supported R&D project
18	There is a relationship between the size of campus area and the number of supported R&D project
19	There is a relationship between the number of book and the number of supported R&D project
20	There is a relationship between the number of laboratory and the number of supported R&D project
21	There is a relationship between the number of social club and the amount of research grant
22	There is a relationship between the distance of campus location to city center and the amount of research grant
23	There is a relationship between the size of campus area and the amount of research grant
24	There is a relationship between the number of book and the amount of research grant
25	There is a relationship between the number of laboratory and the amount of research grant
26	There is a relationship between the number of social club and the number of PhD graduated
27	There is a relationship between the distance of campus location to city center and the number of PhD graduated
28	There is a relationship between the size of campus area and the number of PhD graduated
29	There is a relationship between the number of book and the number of PhD graduated
30	There is a relationship between the number of laboratory and the number of PhD graduated
31	There is a relationship between the number of social club and the number of patent
32	There is a relationship between the distance of campus location to city center and the number of patent
33	There is a relationship between the size of campus area and the number of patent
34	There is a relationship between the number of book and the number of patent
35	There is a relationship between the number of laboratory and the number of patent

As physical dimension has five independent variables and educational dimension has the five dependent variables, twenty-five sub-hypotheses are established for H10. They are given in Table 3.14.

Table 3.14 Sub-Hypotheses of H10

1	There is a relationship between the number of social club and the number of bachelor enrolments
2	There is a relationship between the distance of campus location to city center and the number of bachelor enrolments
3	There is a relationship between the size of campus area and the number of bachelor enrolments
4	There is a relationship between the number of book and the number of bachelor enrolments
5	There is a relationship between the number of laboratory and the number of bachelor enrolments
6	There is a relationship between the number of social club and the number of bachelor graduated
7	There is a relationship between the distance of campus location to city center and the number of bachelor graduated
8	There is a relationship between the size of campus area and the number of bachelor graduated
9	There is a relationship between the number of book and the number of bachelor graduated
10	There is a relationship between the number of laboratory and the number of bachelor graduated
11	There is a relationship between the number of social club and the number of master enrollments
12	There is a relationship between the distance of campus location to city center and the number of master enrollments
13	There is a relationship between the size of campus area and the number of master enrollments
14	There is a relationship between the number of book and the number of master enrollments
15	There is a relationship between the number of laboratory and the number of master enrollments
16	There is a relationship between the number of social club and the number of master graduated
17	There is a relationship between the distance of campus location to city center and the number of master graduated
18	There is a relationship between the number of supported research-development project and the number of master graduated
19	There is a relationship between the number of book and the number of master graduated
20	There is a relationship between the number of laboratory and the number of master graduated
21	There is a relationship between the number of social club and the number of international enrolments
22	There is a relationship between the distance of campus location to city center and the number of international enrolments
23	There is a relationship between the size of campus area and the number of international enrolments
24	There is a relationship between the number of book and the number of international enrolments
25	There is a relationship between the number of laboratory and the number of international enrolments

As human resources dimension has six independent variables and research dimension has seven dependent variables, fourth-two sub-hypotheses are established for H11. They are illustrated in Table 3.15.

Table 3.15 Sub-Hypotheses of H11

1	There is a relationship between the number of professor and the number of exchange students
2	There is a relationship between the number of associate professor and the number of exchange students
3	There is a relationship between the number of assistant professor and the number of exchange students
4	There is a relationship between the number of instructor and the number of exchange students
5	There is a relationship between the number of language instructor and the number of exchange students
6	There is a relationship between the number of research assistant and the number of exchange students
7	There is a relationship between the number of professor and the publication score
8	There is a relationship between the number of associate professor and the publication score
9	There is a relationship between the number of assistant professor and the publication score
10	There is a relationship between the number of instructor and the publication score
11	There is a relationship between the number of language instructor and the publication score
12	There is a relationship between the number of research assistant and the publication score
13	There is a relationship between the number of professor and the citation score
14	There is a relationship between the number of associate professor and the citation score
15	There is a relationship between the number of assistant professor and the citation score
16	There is a relationship between the number of instructor and the citation score
17	There is a relationship between the number of language instructor and the citation score
18	There is a relationship between the number of research assistant and the citation score
19	There is a relationship between the number of professor and the number of supported R&D project
20	There is a relationship between the number of associate professor and the number of supported R&D project
21	There is a relationship between the number of assistant professor and the number of supported R&D project
22	There is a relationship between the number of instructor and the number of supported R&D project
23	There is a relationship between the number of language instructor and the number of supported R&D project
24	There is a relationship between the number of research assistant and the number of supported R&D project
25	There is a relationship between the number of professor and the amount of research grant
26	There is a relationship between the number of associate professor and the amount of research grant
27	There is a relationship between the number of assistant professor and the amount of research grant
28	There is a relationship between the number of instructor and the amount of research grant
29	There is a relationship between the number of language instructor and the amount of research grant
30	There is a relationship between the number of research assistant and the amount of research grant
31	There is a relationship between the number of professor and the number of PhD graduated
32	There is a relationship between the number of associate professor and the number of PhD graduated
33	There is a relationship between the number of assistant professor and the number of PhD graduated
34	There is a relationship between the number of instructor and the number of PhD graduated
35	There is a relationship between the number of language instructor and the number of PhD graduated
36	There is a relationship between the number of research assistant and the number of PhD graduated
37	There is a relationship between the number of professor and the number of patent
38	There is a relationship between the number of associate professor and the number of patent
39	There is a relationship between the number of assistant professor and the number of patent
40	There is a relationship between the number of instructor and the number of patent
41	There is a relationship between the number of language instructor and the number of patent
42	There is a relationship between the number of research assistant and the number of patent

As human resources dimension has six independent variables and educational dimension has five sub-dimensions of dependent variables, thirty sub-hypotheses are established for H12. They are given in Table 3.16.

Table 3.16 Sub-Hypotheses of H12

1	There is a relationship between the number of professor and the number of bachelor enrolments
2	There is a relationship between the number of associate professor and the number of bachelor enrolments
3	There is a relationship between the number of assistant professor and the number of bachelor enrolments
4	There is a relationship between the number of instructor and the number of bachelor enrolments
5	There is a relationship between the number of language instructor and the number of bachelor enrolments
6	There is a relationship between the number of research assistant and the number of bachelor enrolments
7	There is a relationship between the number of professor and the number of bachelor graduated
8	There is a relationship between the number of associate professor and the number of bachelor graduated
9	There is a relationship between the number of assistant professor and the number of bachelor graduated
10	There is a relationship between the number of instructor and the number of bachelor graduated
11	There is a relationship between the number of language instructor and the number of bachelor graduated
12	There is a relationship between the number of research assistant and the number of bachelor graduated
13	There is a relationship between the number of professor and the number of master enrollments
14	There is a relationship between the number of associate professor and the number of master enrollments
15	There is a relationship between the number of assistant professor and the number of master enrollments
16	There is a relationship between the number of instructor and the number of master enrollments
17	There is a relationship between the number of language instructor and the number of master enrollments
18	There is a relationship between the number of research assistant and the number of master enrollments
19	There is a relationship between the number of professor and the number of master graduated
20	There is a relationship between the number of associate professor and the number of master graduated
21	There is a relationship between the number of assistant professor and the number of master graduated
22	There is a relationship between the number of instructor and the number of master graduated
23	There is a relationship between the number of language instructor and the number of master graduated
24	There is a relationship between the number of research assistant and the number of master graduated
25	There is a relationship between the number of professor and the number of international enrolments
26	There is a relationship between the number of associate professor and the number of international enrolments
27	There is a relationship between the number of assistant professor and the number of international enrolments
28	There is a relationship between the number of instructor and the number of international enrolments
29	There is a relationship between the number of language instructor and the number of international enrolments
30	There is a relationship between the number of research assistant and the number of international enrolments

In summary, twelve main hypotheses and three-hundred sub-hypotheses are established to reveal the relationship between internal sources and higher education performance. The summary of hypotheses is illustrated in Table 3.17.

Table 3.17 Summary of Hypotheses

Main Hypotheses		**Sub Hypotheses**
1	There is a relationship between research-teaching and research performance.	$H1_1$-$H1_{42}$
2	There is a relationship between research-teaching and educational performance.	$H2_1$-$H2_{30}$
3	There is a relationship between relationship-innovation and research performance.	$H3_1$-$H3_{28}$
4	There is a relationship between relationship-innovation and educational performance.	$H4_1$-$H4_{20}$
5	There is a relationship between financial resources and research performance.	$H5_1$-$H5_7$
6	There is a relationship between financial resources and educational performance.	$H6_1$-$H6_5$
7	There is a relationship between effective use of information technology and research performance.	$H7_1$-$H7_{21}$
8	There is a relationship between the effective use of information technology and educational performance.	$H8_1$-$H8_{15}$
9	There is a relationship between physical resources and research performance.	$H9_1$-$H9_{35}$
10	There is a relationship between physical resources and educational performance.	$H10_1$-$H10_{25}$
11	There is a relationship between human resources and research performance.	$H11_1$-$H13_{42}$
12	There is a relationship between human resources and educational performance.	$H12_1$-$H12_{30}$
TOTAL: 12 MAIN HYPOTHESES and 300 SUB-HYPOTHESES		

3.3.3. Proposed Models of Research

Twelve models are developed to reveal to the factors providing competitive advantages to Turkish foundation universities. Internal resources, which are determined in context of RBV, are used as independent variables of study. Performance measurements are used as dependent variables of study. Models are established to emerge the relation between independent and dependent variables. The proposed models of study are given in the following figures.

Research and teaching
The number of panelist researcher
The number of PhD enrolments
The number of BA degree programs
The number of MA degree programs
The number of PhD degree programs
Doctoral student-total students' ratio

— H1 →

Research dimensions
The number of exchange students
The publication score
The citation score
The number of R&D project
The amount of research grant
The number of PhD graduated
The number of patent

Figure 3.2 Proposed Model1

Research and teaching
The number of panelist researcher
The number of PhD enrolments
The number of BA degree programs
The number of MA degree programs
The number of PhD degree programs
Doctoral student-total students' ratio

— H2 →

Educational dimensions
The number of bachelor enrolments
The number of bachelor graduated
The number of master enrolments
The number of master graduated
The number of international enrolments

Figure 3.3 Proposed Model2

Relationship and innovation
The number of industry partnership
The number of university partnership
The number of exchange academics
The number of proposed R&D project

— H3 →

Research dimensions
The number of exchange students
The publication score
The citation score
The number of R&D project
The amount of research grant
The number of PhD graduated
The number of patent

Figure 3.4 Proposed Model3

Relationship and innovation
The number of industry partnership
The number of university partnership
The number of exchange academics
The number of proposed R&D project

— H4 →

Educational dimensions
The number of bachelor enrolments
The number of bachelor graduated
The number of master enrolments
The number of master graduated
The number of international enrolments

Figure 3.5 Proposed Model4

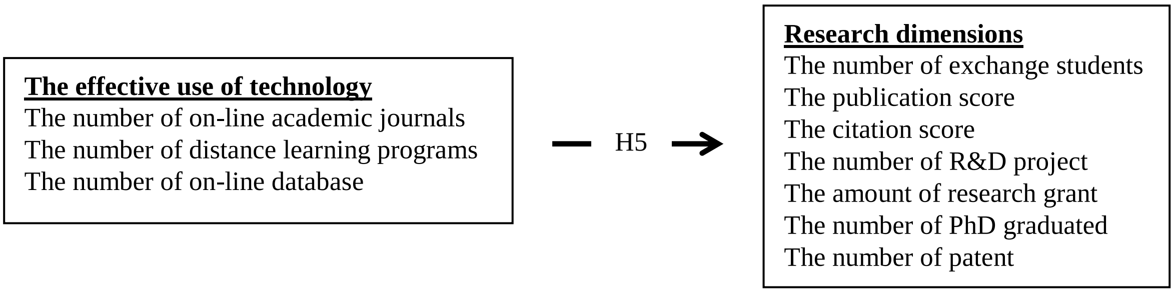

Figure 3.6 Proposed Model5

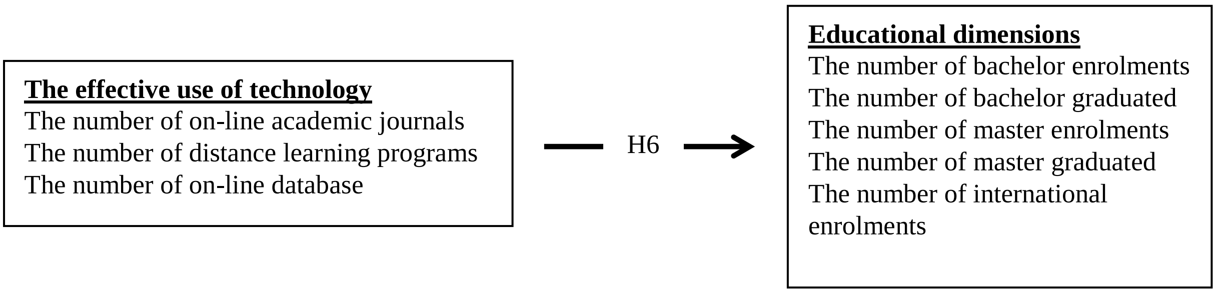

Figure 3.7 Proposed Model6

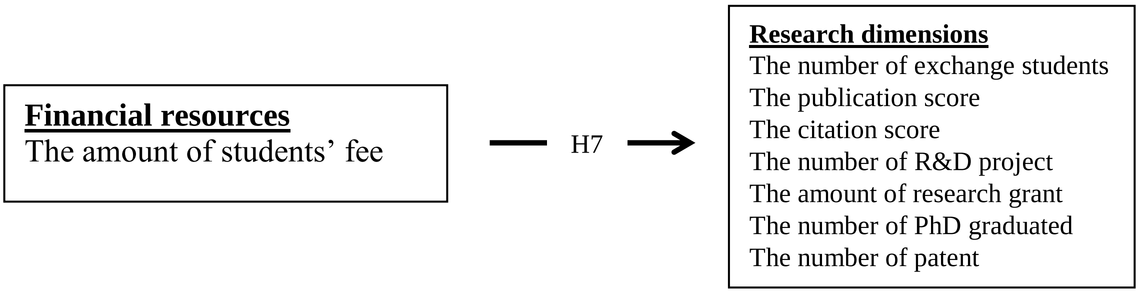

Figure 3.8 Proposed Model7

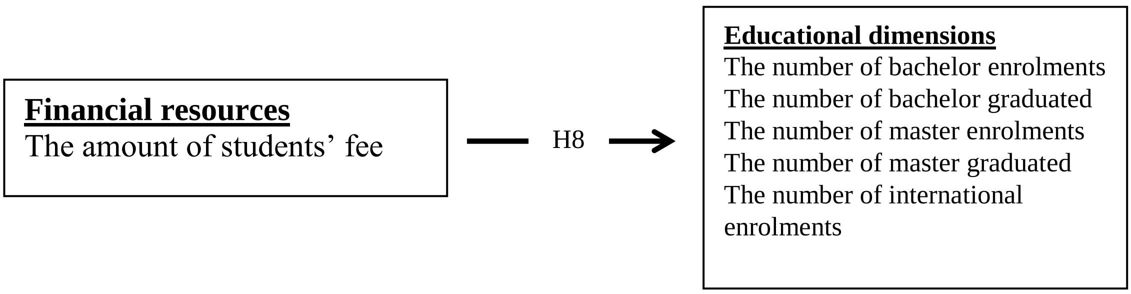

Figure 3.9 Proposed Model8

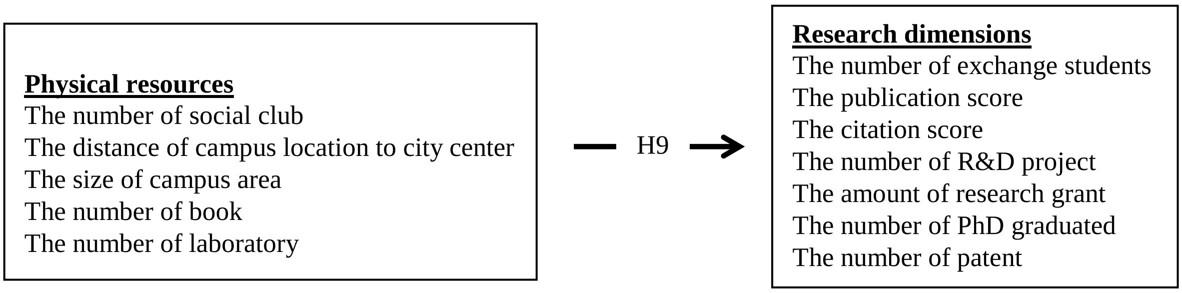

Figure 3.10 Proposed Model9

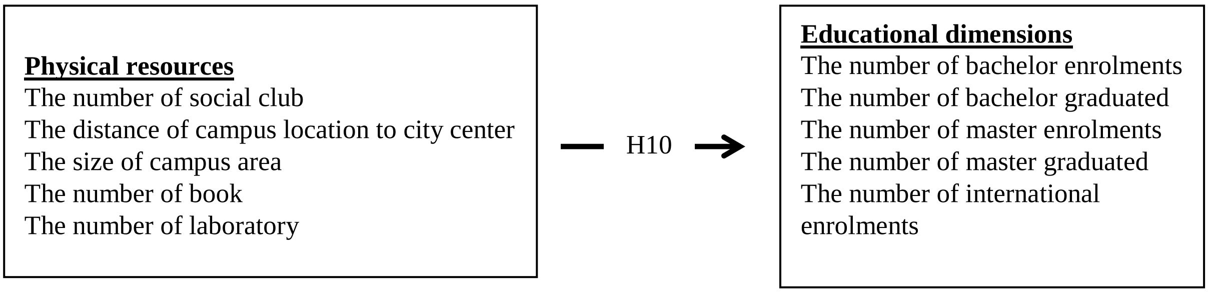

Figure 3.11 Proposed Model10

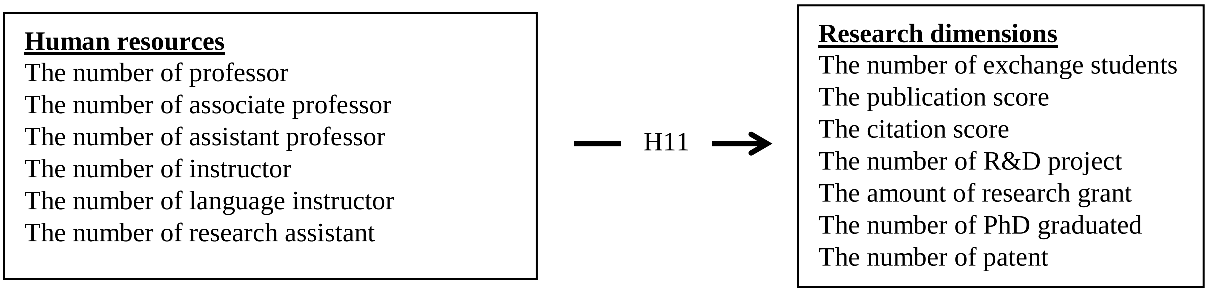

Figure 3.12 Proposed Model11

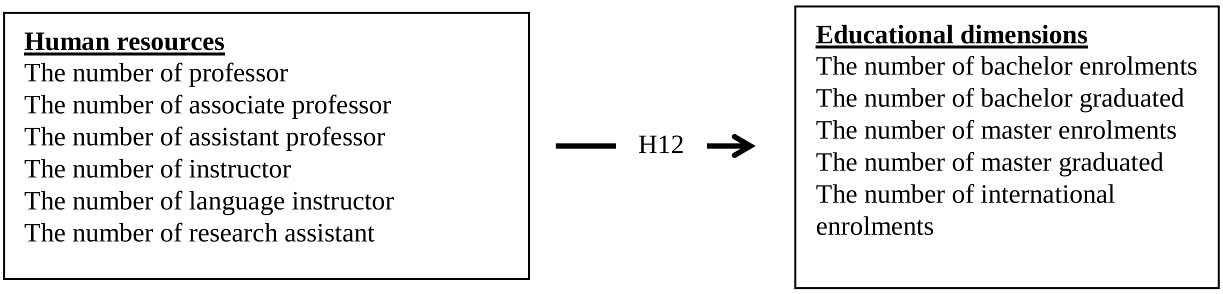

Figure 3.13 Proposed Model12

3.3.4. Research Framework

In the second part of research is applied quantitative research method. Based on the literature, the internal resources are determined as independent variables; the performance is determined as dependent variables of study. All of selected variables can be measured quantitatively. The primary sources and secondary sources are used to provide the quantitative data. The main secondary sources are reached by reports and documents such as annual reports, press releases and other documents published by the universities. In addition, they are obtained from official statistics such as the Council of Higher Education, TUBITAK or URAP. The research can attempt to collect a primary data in communicating with the universities' rectors, deans or the department managers. The regression analysis is applied to emerge relationship between internal sources and performance. At the end of the study, the models are established by using the results of regression analysis. Research framework of second part is given in Figure 3.14.

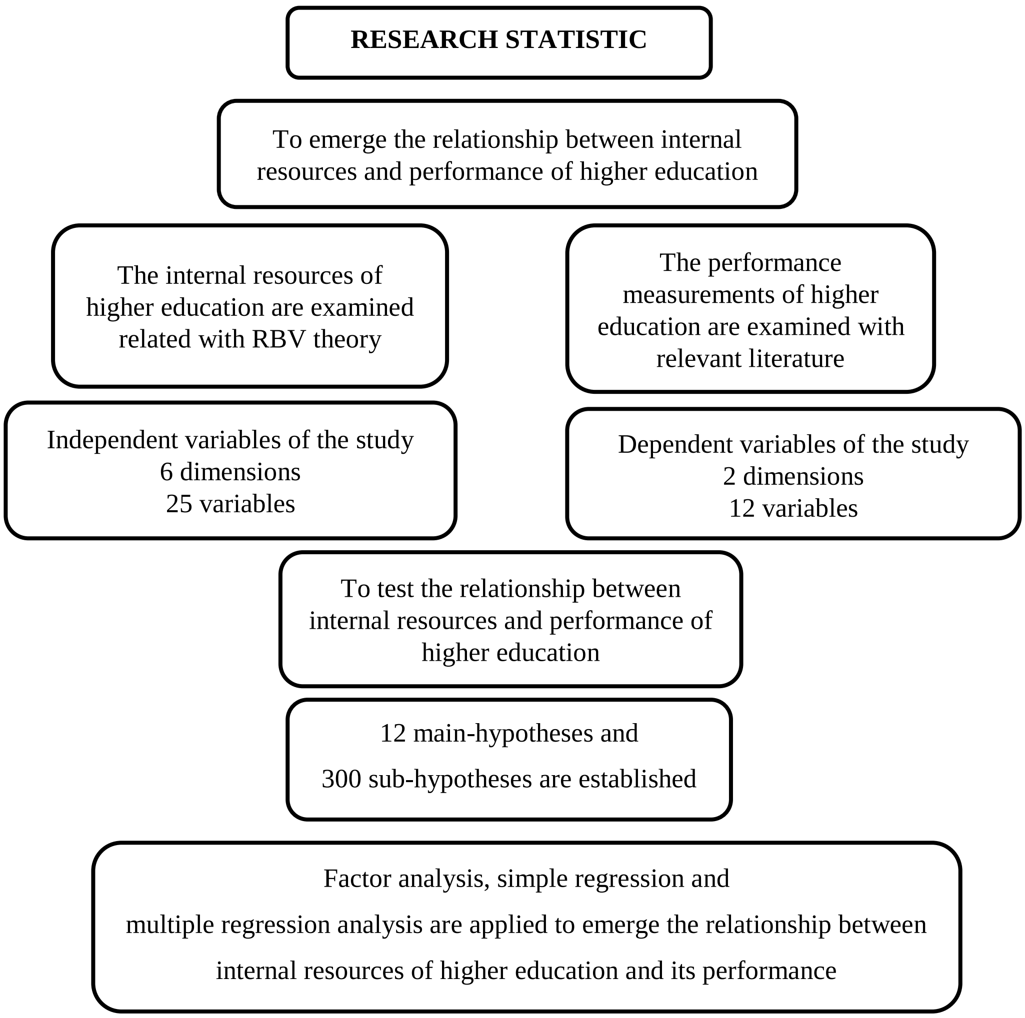

Figure 3.14 Research Framework 2

3.3.5. Sampling

In the second part of research method, the foundation universities are used for the sample of study. There are 70 foundation universities in Turkey. Thirty-six of foundation universities were selected which have the graduated students (all of selected universities are founded before 2010 and they are different cities of Turkey).

As twenty-six of them are founded after 2009 –that is, they do not have any graduated students- and eight of them do not have necessary data for study. Therefore, 34 of foundation universities were excluded of study.

The selected universities are alphabetically shown as follows: Acıbadem, Atılım, Bahçeşehir, Başkent, Beykent, Çağ, Çankaya, Doğuş, Fatih, Haliç, Işık, İhsan Doğramacı Bilkent, İstanbul Arel, İstanbul Aydın, İstanbul Bilgi, İstanbul Bilim, İstanbul Kültür, İstanbul Şehir, İstanbul Ticaret, İzmir Ekonomi, İzmir, Kadir Has, Koç, Maltepe, Melikşah, Mevlana, Okan, Özyeğin, Sabancı, TOBB, Turgut Özal, Ufuk, Yaşar, Yeditepe, Yeni Yüzyıl and Zirve.

3.3.6. Analysis of Data

In the second part of research method, the following statistical techniques were used to test the proposed models.

- **Factor analysis:** The purpose of factor analysis is to summarize or reduce the data contained in a number of original variables into a smaller set of composite factors. The factor analysis is useful in exploring the key factors of each aspect of the conceptual framework, when faced with a situation where a concept consists of more than one underlying factor (Churchill, 1979). Bartlett's test is used to test that the correlation matrix is an identity matrix. If the Bartlett's test statistic is large and significant, then factorability is assumed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is used to compare the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Interpretive adjectives for the Kaiser-Meyer-Olkin Measure of sampling adequacy are:
    - The value of 0.90 as marvelous
    - The value of 0.80's as meritorious
    - The value of 0.70's as middling
    - The value of 0.60's as mediocre
    - The value of 0.50's as miserable
    - The value of below 0.50 as unacceptable

That is a value of 0.50 or above from the KMO measure of a sampling adequacy test indicates that the data is adequate for exploratory factor analysis. Values below 0.5 imply that factor analysis may not be appropriate. The Kaiser-Meyer-Olkin measure of sampling adequacy tests whether the partial correlations among items are small. Bartlett's test of sphericity tests whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate.

- **Simple regression analysis:** A simple linear regression is carried out to estimate the relationship between a dependent variable, Y, and a single explanatory variable, X given a set of data that includes observations for both of these variables for a particular population. The relationship between Y and X is then estimated by carrying out a simple linear regression analysis. The model of simple regression can be wrote down the following form where β_0 the *intercept* and β_1 is the *slope* of the line. We assume that the error terms ei have a mean value of zero.

$$\boldsymbol{Y_i = \beta_0 + \beta_1 X_i + e_i}$$

- **Multiple regression analysis:** In multiple linear regression, there are p explanatory variables, and the relationship between the dependent variable and the explanatory variables is represented by the following equation:

$$\boldsymbol{Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \ldots\ldots\ldots + \beta_P X_{Pi} + e_i}$$

In this equation, β_0 is the constant term and β_1 to β_p are the coefficients relating the p explanatory variables to the variables of interest. Therefore multiple linear regression can be thought of an extension of simple linear regression, where there are p explanatory variables, or simple linear regression can be thought of as a special case of multiple linear regression, where $p=1$. The term “linear” is used because in multiple linear regression we assume that y is directly related to a linear combination of the explanatory variables. The enter method is preferred when building the model in multiple regression analysis. In this method, the variables are included in the regression equation regardless of whether or not they are statistically significant.

CHAPTER 4

RESEARCH FINDINGS

As two different research methods are applied, the research findings of study will be examined in two categories. First part of these is about the perception of academics. The perception of academics is revealed by survey. Reliability analysis and descriptive statistic results of survey are discussed in the first part.

Second part of research findings refers the relationship between internal resources and performance measurements of universities. The variables of study are classified by factor analysis. The outcomes of regression analysis based on the results of factor analysis are discussed in the second part.

4.1. RESEARCH FINDINGS OF SURVEY

A survey is developed based on the review of the literature. It consisted of two parts. The first part of questionnaire is prepared to explore the demographic profiles of academics. This part consists of five questions. The second part consists of two sections. The first section of questionnaire is about external environment of universities. The second section is prepared to reveal the views of academics about the relationship between internal sources and university performance.

4.1.1. First Part of Survey

The first section of survey is prepared to explore the demographic profiles of academics. This part includes five questions. First is about the gender. Second is about the name of university. Third of them is about the age. Fourth of them is about the academic title. Last question is about the research number. The answers of last question are excluded of the study. It will be used for other research.

The sample consists of 150 academics from nine different universities. 31 respondents of survey are from Aydın University, 19 of them are Okan University, 25 of them Bilgi University, 10 of them are Kemerburgaz University, 2 of them are Bilkent University, 13 of them are İTO University, 27 of them are Yeditepe University, 3 of them Çağ University, 20 of them are Gelişim University. Some of surveys are applied by using mail; some of them are collected by hand. The profile of respondent is given in Table 4.1.

Table 4.1 Profile of Respondents

Demographic Characteristics	Category	Total	Percentage (%)
Gender	Male	80	53,3
	Female	70	46,7
Age Groups	20-30	20	13,3
	31-40	60	40
	41-50	45	30
	51-60	25	16,7
Title	Professor	30	20
	Associate Professor	50	33,3
	Assistant Professor	35	23,3
	Instructor	15	10
	Research assistant	20	13,3

4.1.2. Second Part of Survey

The second section consists of two parts with 261 questions. The reliability and descriptive analysis are applied to the survey results. The first section of questionnaire is about external environment of universities. It has 99 questions that are related with perception of academics about the impacts of five competitive forces on identified performance measurements. The second part is prepared to reveal the views of academics about the relationship between internal sources and university performance. This part of survey includes 162 questions.

4.1.2.1 First Section of Second Part of Survey

In the parallel of relevant literature, five main dimensions have determined with eleven items to reveal Five Competitive Forces. Two main performance dimensions have identified with nine items to reveal the performance of universities. Therefore, the first section has 99 questions. The reliability analysis is conducted for following dimensions:

- The effect of threat of new entrants on higher education performance
- The effect of rivalry among existing competitors on performance of higher education
- The effect of the bargaining power of suppliers on performance of higher education
- The effect of the bargaining power buyers on performance of higher education
- The effect of the threat of substitutes on performance of higher education

As shown the following table, Cronbach alpha scores of the five dimensions are ranged between 0,836 and 0,918. Cronbach alpha scores of survey are ranged with 0,938. The reliability coefficients for each variable are given in Table 4.2.

Table 4.2 Reliability Analysis of External Environment Dimensions

External Environment Dimensions	Number of participant	Number of items	Number of expressions	Cronbach's alphas
The effect of new entrants on higher education performance	150	1	9	0,849
The effect of rivalry among existing competitors on higher education performance	150	1	9	0,884
The effect of the bargaining power of suppliers on higher education performance	150	4	36	0,836
The effect of the bargaining power buyers on higher education performance	150	2	18	0,861
The effect of the threat of substitutes on higher education performance	150	3	27	0,918
Total	150	11	99	0,938

The responses of questionnaire are analyzed by descriptive statistic. The five-point Likert scale is used to the interpretation of the academicians' response. In the study, the determination of Likert scale ranges, the width of the class interval is found by dividing the data range by the chosen number of classes (Kan, 2009). The difference between the minimum and maximum limits is found (5-1=4). After this process, it was divided by the numbers of choices in the analyses, that is (4/5= 0.80). In this case, the average of the scores obtained from measurement scale is evaluated as Table 4.3.

Table 4.3 Evaluation Table of Five-Point Likert Scale

Points	Evaluation	Range
5	Strongly agree	**4.21 – 5.00**
4	Agree	**3.41 – 4.20**
3	Neutral or Slightly agree	**2.61 – 3.40**
2	Disagree	**1.81 – 2.60**
1	Strongly disagree	**1.0 – 1.80**

The results of descriptive analysis are shown in the context of main five dimensions:

1. The threat of new entrants: The threat of new entrants is one of the dimensions of Porter Five Forces theory. It is the first dimension of the survey. This dimension has nine expressions as illustrated in Table 4.4. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the threat of new entrants are summarized in Table 4.4.

Table 4.4 Descriptive Analysis of Academics' Perception about the Threat of New Entrants

Dimension 1		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
1	The threat of new entrants to higher education area affects the amount of research grant of a university.	150	12	24,7	42	13,3	8	2,7	1,072
2	The threat of new entrants to higher education area affects the number of exchange students of a university.	150	5,3	24,7	36	26	8	3	1,021
3	The threat of new entrants to higher education area affects the publication and citation score of a university.	150	17,3	22,7	41,3	13,3	5,3	2,6	1,078
4	The threat of new entrants to higher education area affects the number of supported R&D project of a university.	150	16,7	27,3	32,7	18,7	4,7	2,67	1,102
5	The threat of new entrants to higher education area affects the number of PhD graduated of a university.	150	11,3	24	34	20,7	10	2,9	1,142
6	The threat of new entrants to higher education area affects the number of the number of patent of a university.	150	4	20,7	35,3	28,7	11,3	3,2	1,03
7	The threat of new entrants to higher education area affects the number of bachelor and master enrolments of a university.	150	3,3	13,3	25,3	40,7	17,3	3,5	1,033
8	The threat of new entrants to higher education area affects the number of international enrolments of a university.	150	6,7	14,7	43,3	24	11,3	3,1	1,038
9	The new entrants to higher education area affect the number of bachelor and master graduated of a university.	150	3,3	14	35,3	34	13,3	3,4	0,996
Average Mean Score: 3									

As shown in the table, the overall mean of all academics' view about the effect of threat of new entrants on higher education performance is 3. According to the results, the academics believe that the most important impact of the threat of new entrants is on the number of bachelor and master enrolments of a university with 3,5 mean value. The least important item with 2,6 mean score is that the threat of new entrants to higher education area affects the publication and citation score of a university. The standard deviation of this part lies between (0,99-1,14). The general average of all academics' view shows that the academics slightly agree on the effect of the threat of new entrants to the higher education performance according to evaluation table of Likert scale as mentioned above.

2. The rivalry among existing competitors: The rivalry among existing competitors is another dimension of Porter Five Forces theory. It is the second dimension of the survey. This dimension has nine expressions as illustrated in Table 4.5. The table shows the perception of academics about the impact of the rivalry among existing competitors on higher education performance. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the rivalry among existing competitors are illustrated in Table 4.5.

Table 4.5 Descriptive Analysis of Academics' Perception about the Rivalry among Existing Competitors

Dimension 2		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
10	The intensity of rivalry in higher education area affects the amount of research grant of a university.	150	4	17,3	34	24	20,7	3,5	1,117
11	The intensity of rivalry in higher education area affects the number of exchange students of a university.	150	2	12	49,3	21,3	15,3	3,4	0,950
12	The intensity of rivalry in higher education area affects the publication and citation score of a university.	150	2,7	10	39,3	30	18	3,5	0,988
13	The intensity of rivalry in higher education area affects the number of supported R&D project of a university.	150	6	30	36,7	16,7	10,7	2,96	1,067
14	The intensity of rivalry in higher education area affects the number of PhD graduated of a university.	150	0,7	18	37,3	28,7	15,3	3,4	0,976
15	The intensity of rivalry in higher education area affects the number of the number of patent of a university.	150	2	19,3	38	26	14,7	3,38	1,012
16	The intensity of rivalry in higher education area affects the number of bachelor and master enrolments of a university.	150	1,3	8,7	40,7	39,3	10	3,55	0,841
17	The intensity of rivalry in higher education area affects the number of international enrolments of a university.	150	1,3	14	33,3	36	15,3	3,5	0,960
18	The intensity of rivalry in higher education area affects the number of bachelor and master graduated of a university.	150	0,7	7,3	41,3	32,7	18	3,68	0,889
Average Mean Score: 3,43									

As indicated in the table, the overall mean of all academics' view about the effect of the rivalry among existing competitors on higher education performance is 3,43. For respondent academics, the least important item with 2,96 mean score is that the rivalry among existing competitors to higher education area affects the number of supported research-development project of a university. The standard deviation of this part is between (0,84-1,11).

Examination of the mean value listed in the Table 4.5 reveals that the most important expressions is that the intensity of rivalry in higher education area affects the number of bachelor and master graduated of a university with mean value of 3,68. The general average of all academics' view indicates that the academics agree on the effect of the rivalry among existing competitors to the higher education performance.

3. The bargaining power of suppliers: The bargaining power of suppliers is the third dimension of Porter Five Forces theory. Based on the literature, this dimension consists of four items that are related to the higher education. They are regarded as the power of state, the power of foundation, the power of high schools teachers, and the power of academics. Following four tables show the perception of academics about the impact of the bargaining power of suppliers on performance of higher education institutions. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the bargaining power of state are shown in Table 4.6.

Table 4.6 Descriptive Analysis of Academics' Perception about the Bargaining Power of State

First Item of Dimension 3		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
19	The power of state to higher education area affects the amount of research grant of a university.	150	3,3	15,3	32,7	28	20,7	3,47	1,084
20	The power of state to higher education area affects the number of exchange students of a university.	150	2,7	17,3	47,3	22	10,7	3,2	0,943
21	The power of state to higher education area affects the publication and citation score of a university.	150	3,3	16	50,7	22	8	3,15	0,902
22	The power of state to higher education area affects the number of supported R&D project of a university.	150	16	22	35,3	18	8,7	2,81	1,166
23	The power of state to higher education area affects the number of PhD graduated of a university.	150	2	18	38	30	12	3,32	0,971
24	The power of state to higher education area affects the number of the number of patent of a university.	150	6	18,7	40,7	26,7	8	3,12	1,002
25	The power of state to higher education area affects the number of bachelor and master enrolments of a university.	150	6	13,3	31,3	38	11,3	3,35	1,043
26	The power of state to higher education area affects the number of international enrolments of a university.	150	1,3	14	30	38,7	16	3,54	0,966
27	The power of state to higher education area affects the number of bachelor and master graduated of a university.	150	7,3	16,7	32	23,3	20,7	3,33	1,190
Average Mean Score: 3,25									

The academics’ view about the power of state dimension of the bargaining power of suppliers on identified higher education performance can be seen in Table 4.6. The overall mean of all academics’ view about the power of state on identified higher education performance is 3,25. According to the results, the academics believe that the most important impact of the power of state is on the number of international enrolments with 3,54 mean value. For respondent academics, the least important expression with mean score of 2,81 is that the power of state affects the number of supported research-development project of a university. The standard deviation of this part is between (0,9-1,19). The means and standard deviations with the frequencies of academicians’ answer of the survey questions related to the bargaining power of foundation are shown in Table 4.7.

Table 4.7 Descriptive Analysis of Academics’ Perception about the Bargaining Power of Foundation

Second Item of Dimension 3		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
28	The power of foundation to higher education area affects the amount of research grant of a university.	150	14,7	34,7	29,3	10,7	10,7	2,68	1,171
29	The power of foundation to higher education area affects the number of exchange students of a university.	150	14	16	42	16	12	2,96	1,169
30	The power of foundation to higher education area affects the publication and citation score of a university.	150	6	19,3	37,3	26,7	10,7	3,16	1,051
31	The power of foundation to higher education area affects the number of supported R&D project of a university.	150	2,7	21,3	29,3	32,7	14	3,34	1,048
32	The power of foundation to higher education area affects the number of PhD graduated of a university.	150	4	21,3	36	31,3	7,3	3,16	0,979
33	The power of foundation to higher education area affects the number of the number of patent of a university.	150	4,7	16	35,3	38	6	3,24	0,954
34	The power of foundation to higher education area affects the number of bachelor and master enrolments of a university.	150	3,3	18,7	32,7	34	11,3	3,31	1,01
35	The power of foundation to higher education area affects the number of international enrolments of a university.	150	4,7	13,3	31,3	35,3	15,3	3,43	1,051
36	The power of foundation to higher education area affects the number of bachelor and master graduated of a university.	150	4,7	12,7	39,3	30,7	12,7	3,34	1,008
Average Mean Score: 3,18									

The academics' view about the power of foundation dimension of the bargaining power of suppliers on identified higher education performance can be observed in the Table 4.7. The overall mean of all academics' view about the power of state on identified higher education performance is 3,18. According to the results, the academics believe that the most important impact of the power of foundation is on the number of international enrolments of a university with mean value of 3,43. For respondent academics, the least important expression with mean score of 2,68 is that the power of foundation affects the amount of research grant from TUBITAK of a university. The standard deviation of this part is between (0,95-1,17). When the mean value of power of state and foundation are compared, the impact of state power on identified higher education performance criteria with mean score of 3,25 is slightly more important than the impact of foundation power with mean score of 3,18. These results indicate that the academics slightly agree on the effect of the power of state and foundation to the performance of higher education according to Likert scale evaluation table.

The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the bargaining power of high school teachers are shown in Table 4.8.

Table 4.8 Descriptive Analysis of Academics' Perception about the Bargaining Power of High Schools Teachers

Third Item of Dimension 3		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
37	The power of high schools teachers to higher education area affects the amount of research grant of a university.	150	32,7	21,3	32,7	9,3	4	2,3	1,140
38	The power of high schools teachers to higher education area affects the number of exchange students of a university.	150	24,7	18	37,3	13,3	6,7	2,5	1,187
39	The power of high schools teachers to higher education area affects the publication and citation score of a university.	150	34	14,7	35,3	12,7	3,3	2,1	1,172
40	The power of high schools teachers to higher education area affects the number of supported R&D project of a university.	150	40	11,3	33,3	11,3	4	2,25	1,215
41	The power of high schools teachers to higher education area affects the number of PhD graduated of a university.	150	35,3	17,3	20	25,3	2	2,4	1,259
42	The power of high schools teachers to higher education area affects the number of the number of patent of a university.	150	53,3	14	22,7	8	2	1,9	1,122
43	The power of high schools teachers to higher education area affects the number of bachelor and master enrolments of a university.	150	14,7	10	30,7	32,7	12	3,1	1,213
44	The power of high schools teachers to higher education area affects the number of international enrolments of a university.	150	43,3	31,3	21,3	3,3	0,7	1,7	0,909
45	The power of high schools teachers to higher education area affects the number of bachelor and master graduated of a university.	150	54	30	11,3	3,3	1,3	1,5	0,899
Average Mean Score: 2,19									

The academics' view about the power of high schools teachers of the bargaining power of suppliers on identified higher education performance can be seen in Table 4.8. The overall mean of all academics' view about the power of high schools teachers on identified higher education performance is 2,19. According to the results, the academics believe that the most important impact of the power of high schools teachers is on the number of bachelor and master enrolments of a university with 3,1 mean value. The least important item with mean score of 1,5 is that the power of high schools teachers to higher education area affects the number of bachelor and master graduated of a university. The standard deviation of this part is between (0,89-1,25). According to respondent academics, when the mean value of power of high schools teachers is compared with power of state and power of foundation; the impact of high schools teachers on higher education performance with mean score of 2,19 is the least important item. This result indicates that the academics disagree on the effect of the power of high schools teachers to the performance of higher education.

The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the bargaining power of academics are shown in Table 4.9.

Table 4.9 Descriptive Analysis of Academics' Perception about the Bargaining Power of Academics

Fourth Item of Dimension 3		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
46	The power of academics to higher education area affects the amount of research grant of a university.	150	1,3	13,3	33,3	34,7	17,3	3,53	0,973
47	The power of academics to higher education area affects the number of exchange students of a university.	150	0,7	11,3	47,3	30	10,7	3,38	0,849
48	The power of academics to higher education area affects the publication and citation score of a university.	150	4	9,3	38	23,3	25,3	3,56	1,108
49	The power of academics to higher education area affects the number of supported R&D project of a university.	150	0	3,3	22,7	33,3	40,7	4,11	0,871
50	The power of academics to higher education area affects the number of PhD graduated of a university.	150	1,3	8	24	46	20,7	3,76	0,915
51	The power of academics to higher education area affects the number of the number of patent of a university.	150	0,7	3,3	27,3	44,7	24	3,88	0,834
52	The power of academics to higher education area affects the number of bachelor and master enrolments of a university.	150	3,3	10	30,7	40	16	3,55	0,986
53	The power of academics to higher education area affects the number of international enrolments of a university.	150	3,3	12,7	36	27,3	20,7	3,49	1,060
54	The power of academics to higher education area affects the number of bachelor and master graduated of a university.	150	3,3	11,3	29,3	30	26	3,64	1,088
Average Mean Score: 3,65									
OVERALL MEAN								**3,06**	

The power of academics is the last dimension of the bargaining power of suppliers. The perception of academics about the power of academics on identified higher education performance can be observed in Table 4.9. The overall mean of all academics' view about the power of academics on identified higher education performance is 3,65. According to the results, the academics believe that the most important impact of the power of academics is on the number of supported research-development project of a university with mean of 4,11. For respondent academics, the least important expression with mean score of 3,38 is that the power of academics affects the number of exchange students of a university. The standard deviation of this part lies between (0,83-1,1). When mean value scores are examined, the most important item of the bargaining power of suppliers is the power of academics. The result of survey indicates that the academics agree on the effect of the power of academics to the performance of higher education.

By means of statistical mean sores, the results of bargaining power of suppliers dimension can be summarized as follows:

- The effect of the power of academics to the identified higher education performance has the most highest mean value of 3,65.
- The effect of the power of state to the identified higher education performance criteria has an effect with mean value of 3,25.
- The effect of the power of foundation to the identified higher education performance has an effect with mean value of 3,18.
- The effect of the power of high school teacher to the identified higher education performance criteria has an effect with mean value of 2,19.
- The overall mean score of all attributes of the bargaining power of suppliers is 3,06.

According to the survey results, it is proven that the bargaining power of suppliers is more important than the threat of new entrants but it is less important than the rivalry among existing competitors on higher education performance.

4. The bargaining power of buyers: The bargaining power of buyers is the fourth dimension of Porter Five Forces theory. In parallel of literature, this dimension contains two items that are related to the higher education. These items are identified as the power of students and the power of employers. Therefore, there are eighteen expressions in this dimension. Following two tables show the perception of academics about the impact of the bargaining power of buyers on higher education performance. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the bargaining power of students are illustrated in Table 4.10.

Table 4.10 Descriptive Analysis of Academics' Perception about the Bargaining Power of Students

First Item of Dimension 4		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
55	The power of students to higher education area affects the amount of research grant of a university.	150	3,3	13,3	29,3	36	18	3,52	1,04
56	The power of students to higher education area affects the number of exchange students of a university.	150	2	12	35,3	31,3	19,3	3,54	1
57	The power of students to higher education area affects the publication and citation score of a university.	150	6,7	16,7	40	26	10,7	3,17	1,047
58	The power of students to higher education area affects the number of supported R&D project of a university.	150	12	15,3	36	25,3	11,3	3,08	1,158
59	The power of students to higher education area affects the number of PhD graduated of a university.	150	6	10,7	28	38,7	16,7	3,49	1,079
60	The power of students to higher education area affects the number of the number of patent of a university.	150	10	23,3	46	18	2,7	2,8	0,941
61	The power of students to higher education area affects the number of bachelor and master enrolments of a university.	150	0,7	3,3	25,3	46	24,7	3,9	0,830
62	The power of students to higher education area affects the number of international enrolments of a university.	150	6,7	5,3	30	31,3	26,7	3,66	1,128
63	The power of students to higher education area affects the number of bachelor and master graduated of a university.	150	2	6,7	19,3	30	42	4,03	1,032
Average Mean Score: 3,46									

The power of students is the first item of the bargaining power of buyers. The perception of academics about the power of students on identified higher education performance can be observed in the table. The overall mean of all academics' view about the power of students on higher education performance is 3,46. According to the results, the academics believe that the most important impact of the power of students is on the number of bachelor and master graduated of a university with mean of 4,03. The least important expression with mean score of 2,8 is that the power of students to higher education area affects the number of the number of patent of a university. The standard deviation of this part lies between (0,83-1,15). The result of survey indicates that the academics agree on the effect of the students' power to the higher education performance.

The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the bargaining power of employers are illustrated in Table 4.11.

Table 4.11 Descriptive Analysis of Academics' Perception about the Bargaining Power of Employers

Second Item of Dimension 4		**N**	**1(%)**	**2(%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
64	The power of employers to higher education area affects the amount of research grant of a university.	150	21,3	28	32	11,3	7,3	2,55	1,161
65	The power of employers to higher education area affects the number of exchange students of a university.	150	24	24	32	14	6	2,54	1,173
66	The power of employers to higher education area affects the publication and citation score of a university.	150	22	21,3	37,3	16,7	2,7	2,56	1,089
67	The power of employers to higher education area affects the number of supported R&D project of a university.	150	15,3	29,3	26	24	5,3	2,74	1,142
68	The power of employers to higher education area affects the number of PhD graduated of a university.	150	16,7	18,7	28,7	28	8	2,92	1,206
69	The power of employers to higher education area affects the number of the number of patent of a university	150	25,3	26	25,3	20,7	2,7	2,49	1,157
70	The power of employers to higher education area affects the number of bachelor and master enrolments of a university.	150	12,7	17,3	28,7	26	15,3	3,14	1,242
71	The power of employers to higher education area affects the number of international enrolments of a university.	150	11,3	22	29,3	21,3	16	3,08	1,236
72	The power of employers to higher education area affects the number of bachelor and master graduated of a university.	150	21,3	13,3	26,7	23,3	15,3	2,98	1,358
Average Mean Score: 2,77									
OVERALL MEAN								**3,11**	

The power of employers is the second item of the bargaining power of buyers. As indicated in the table, the overall mean of all academics' view about the effect of the power of employers on higher education performance is 2,77. According to the results, the academics believe that the most important impact of the power of employers is on the number of bachelor and master enrolments of a university with 3,14 mean value. The least important item with mean score of 2,49 is that the power of employers to higher education area affects the patent number of a university. The standard deviation of this part is between (1,08-1,35).

By means of mean sores, this part of the survey outcomes can be summarized as follows:

- The influence of the power of students to the identified higher education performance is concluded with mean value of 3,46.

- The influence of the power of employers to the identified higher education performance is concluded with mean value of 2,77.
- The general average with mean score of 3,11 indicates that the academics slightly agree on the effect of the bargaining power of buyers to the identified performance criteria.

5. The threat of substitutes: The threat of substitutes is the fifth dimension of Porter Five Forces theory. Based on relevant literature, this dimension includes three items that are related to the higher education. They are described as the online programs, the international educational opportunities and the state universities. There are twenty-seven expressions in this dimension. Following three tables display the perception of academics about the influence of the threat of substitutes on the performance of higher education institutions. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the threat of online programs are indicated in Table 4.12.

Table 4.12 Descriptive Analysis of Academics' Perception about the Threat of Online Programs

First Item of Dimension 5		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
73	The number of online programs to higher education area affects the amount of research grant of a university.	150	13,3	24	33,3	21,3	8	2,7	1,139
74	The number of online programs to higher education area affects the number of exchange students of a university.	150	14	16,7	40,7	22,7	6	2,9	1,091
75	The number of online programs to higher education area affects the publication and citation score of a university.	150	18,7	10,7	44	18,7	8	2,6	1,162
76	The number of online programs to higher education area affects the number of supported R&D project of a university.	150	30	10,7	26,7	25,3	7,3	2,5	1,330
77	The number of online programs to higher education area affects the number of PhD graduated of a university.	150	18	12	28	35,3	6,7	3	1,212
78	The number of online programs to higher education area affects the number of the number of patent of a university.	150	22,7	23,3	28	23,3	2,7	2,2	1,152
79	The number of online programs to higher education area affects the number of bachelor and master enrolments of a university.	150	3,3	8	28,7	46	14	3,5	0,941
80	The number of online programs to higher education area affects the number of international enrolments of a university.	150	4	12	37,3	32,7	14	3,4	1,004
81	The number of online programs to higher education area affects the number of bachelor and master graduated of a university.	150	11,3	28	24	26,7	9,3	2,9	1,177
Average Mean Score: 2,85									

The online programs is determined the first item of the threat of the substitutes. In respect of the table, the overall mean of all academics' view about the effect of the online programs on higher education performance is 2,85. In the survey, the academics believe that the most important impact of the online programs is on the number of bachelor and master enrolments of a university with mean value of 3,5. The least important item with mean score of 2,2 is that the number of online programs to higher education area affects the number of patent of a university. The standard deviation of this part is between (0,94-1,33). The overall mean score (2,85) indicates that the academics slightly agree on the effect of the online programs to the identified performance criteria.

The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the threat of international educational opportunity are indicated in the Table 4.13.

Table 4.13 Descriptive Analysis of Academics' Perception about the Threat of International Educational Opportunity

Second Item of Dimension 5		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
82	The number of international educational opportunities to higher education area affects the amount of research grant of a university.	150	22,7	23,3	30,7	16	7,3	2,61	1,219
83	The number of international educational opportunities to higher education area affects the number of exchange students of a university.	150	14	17,3	34	30	4,7	2,8	1,106
84	The number of international educational opportunities to higher education area affects the publication and citation score of a university.	150	21,3	13,3	41,3	18,7	5,3	2,7	1,150
85	The number of international educational opportunities to higher education area affects the number of supported research-development project of a university.	150	36,7	8,7	30	14,7	10	2,2	1,374
86	The number of international educational opportunities to higher education area affects the number of PhD graduated of a university.	150	19,3	17,3	33,3	24	6	2,6	1,181
87	The number of international educational opportunities to higher education area affects the number of the number of patent of a university.	150	26	17,3	33,3	15,3	8	2,62	1,246
88	The number of international educational opportunities to higher education area affects the number of bachelor and master enrolments of a university.	150	4	7,3	28	51,3	9,3	3,4	0,909
89	The number of international educational opportunities to higher education area affects the number of international enrolments of a university.	150	3,3	8	37,3	38	13,3	3,3	0,939
90	The number of international educational opportunities to higher education area affects the number of bachelor and master graduated of a university.	150	26,7	16	28,7	18,7	8	2,61	1,294
Average Mean Score: 2,76									

The international educational opportunity is the second item of the threat of substitutes. According to the table, the overall mean of all academics' view about the effect of the power of employers on higher education performance is 2,76. In the survey, the academics believe that the most important impact of the international educational opportunities is on the number of bachelor and master enrolments of a university with mean value of 3,4. As it can be observed in the previous table, the most important impact of the online programs is again on the number of bachelor and master enrolments of a university. The least important item with mean score of 2,2 is that the number of the international educational opportunities to higher education area affects the number of supported research-development project of a university. The standard deviation of this part is between (0,9-1,37). The overall mean score (2,76) indicates that the academics slightly agree on the effect of the online programs to the identified performance criteria.

The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the threat of state universities are indicated in the Table 4.14.

Table 4.14 Descriptive Analysis of Academics' Perception about the Threat of State Universities

	Third Item of Dimension 5	**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
91	The number of state universities to higher education area affects the amount of research grant of a university.	150	10,7	20,7	38,7	17,3	12,7	3	1,149
92	The number of state universities to higher education area affects the number of exchange students of a university.	150	20	20,7	30	20,7	8,7	2,77	1,232
93	The number of state universities to higher education area affects the publication and citation score of a university.	150	10	20,7	41,3	17,3	10,7	2,98	1,101
94	The number of state universities to higher education area affects the number of supported research-development project of a university.	150	16	18	35,3	23,3	7,3	2,88	1,158
95	The number of state universities to higher education area affects the number of PhD graduated of a university.	150	8,7	22,7	36	24,7	8	3	1,071
96	The number of state universities to higher education area affects the number of the number of patent of a university.	150	30	22,7	30	12,7	4,7	2,39	1,175
97	The number of state universities to higher education area affects the number of bachelor and master enrolments of a university.	150	1,3	12	28	30,7	28	3,72	1,043
98	The number of state universities to higher education area affects the number of international enrolments of a university.	150	1,3	12	28,7	35,3	22,7	3,66	1,002
99	The number of state universities to higher education area affects the number of bachelor and master graduated of a university.	150	18	17,3	27,3	22,7	14,7	2,98	1,310
Average Mean Score: 3,04									
OVERALL MEAN									**2,88**

The state universities are defined as the third item of threat of the substitutes. As illustrated the table, the overall mean of all academics' view about the effect of the state universities on higher education performance is 3,04. In the survey, the academics believe that the most important impact of the state universities is -like other two attributes of this dimension but more higher mean value- on the number of bachelor and master enrolments of a university with mean score of 3,72. The least important item with mean value of 2,39 is that the number of state universities to higher education area affects the number of the number of patent of a university. The standard deviation of this part is between (1-1,31). The overall mean score (3,04) indicates that the academics slightly agree about the effect of the state universities to the identified performance criteria. By means of mean value, the outcomes of this dimension can be summarized as follows:

- The influence of the online programs to the identified higher education performance is concluded with mean value of 2,85.
- The influence of the international educational opportunity to the identified higher education performance is concluded with mean value of 2,76.
- The influence of the state universities to the identified higher education performance is concluded with mean value of 3,04.
- The general average with mean score of 2,88 indicates that the academics slightly agree on the effect of threat of substitutes to the identified performance criteria.

4.1.2.1.1. Summary of First Section

By means of the mean value, the conclusion of all descriptive analyses of the first section of questionnaire can be summarized as follows: The perception of academics about the effect of the threat of new entrants to the performance of higher education with mean value of 3. The perception of academics about the effect of rivalry among existing competitors to the performance of higher education with mean value of 3,43. The perception of academics about the effect of suppliers to the performance of higher education with mean value of 3,06. The perception of academics about the effect of buyers to the performance of higher education with mean value of 3,11. The perception of academics about the effect of substitutes to the performance of higher education with mean value of 2,88. According to these results, for respondents, the most important dimension is the effect of rivalry among existing competitors; the least important dimension is the threat of substitutes.

Besides that, the main 5 dimension, it must be emphasized that the most and least important items in these dimensions. The effect of the power of academics which is in the dimension of the bargaining power of the suppliers on identified higher education performance is the most important item with mean value of 3,65 in all dimensions. The effect of the power of high school teachers which is in the dimension of the bargaining power of the suppliers on identified higher education performance is the least important item with mean value of 2,19 in all dimensions. The most important expression is that the power of academics to higher education area affects the number of supported research-development project of a university with mean value of 4,11. The other significant expression is that the power of students to higher education area affects the number of bachelor and master graduated of a university with mean value of 4,03. The least significant items is that the power of high schools teachers to higher education area affects the number of bachelor and master graduated of a university with mean value of 1,5. The overall mean value of the survey first part about higher education external environment which is determined by Porter Five Forces is 3,09. The average mean of all dimensions indicates that the academics slightly agree the impact of the external environment forces, which are identified by Porter Five Forces theory, on higher education performance.

4.1.2.2. Second Section of Second Part of Survey

In the parallel of relevant literature, six main dimensions have determined with eighteen items to explain internal resources of higher education. Two main performance dimensions have identified with nine items to reveal performance of universities. Therefore, the second section has 162 questions. The reliability analysis is conducted for following dimensions:

- The relationship between teaching and research and higher education performance
- The relationship between relationship-innovation and higher education performance
- The relationship between financial sources and higher education performance
- The relationship between effective use of technology and higher education performance
- The relationship between physical resources and higher education performance
- The relationship between human resources and higher education performance

Cronbach alpha scores of six measures of internal resources are ranged between 0,821 and 0,959. Cronbach alpha scores of survey are are ranged with 0,968. The reliability coefficients for each variable are given in Table 4.15.

Table 4.15 Reliability Analysis of Internal Resources Dimensions

The Main Dimensions of the Internal Sources	**Number of participant**	**Number of items**	**Number of expressions**	**Cronbach's alphas**
The relationship between teaching and research and higher education performance	150	4	36	0,893
The relationship between relationship-innovation and higher education performance	150	4	36	0,821
The relationship between financial sources and higher education performance	150	1	9	0,909
The relationship between effective use of technology and higher education performance	150	3	27	0,935
The relationship between physical resources and higher education performance	150	5	45	0,959
The relationship between human resources and higher education performance	150	1	9	0,880
Total	150	18	162	0,968

As mentioned in previous section of survey, the responses of questionnaire are analyzed by descriptive statistic. The evaluation is done by using five-point Likert scale. To reveal academics' perception, the results of descriptive analysis are illustrated as follows:

1. The relationship between teaching and research and higher education performance: Based on the related Resource-Based View literature, the dimension of teaching and research is determined as one of the sources of higher education. It is the first dimension of the second section of survey. As four items are determined for teaching and research dimension and nine items are determined for performance; Table 4.16 illustrates first 36 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to teaching and research items are summarized in Table 4.16.

Table 4.16 Descriptive Analysis of Academics' Perception about Relationship between Teaching-Research and Higher Education Performance

Dimension 1		N	1%	2%	3%	4%	5%	Mean	Std. Deviation
1	There is a relationship between the number of panelist researcher and the amount of research grant	150	0,7	2,7	20	38,7	38	4,1	0,860
2	There is a relationship between the number of panelist researcher and the number of exchange students	150	2,7	17,3	44	27,3	8,7	3,22	0,925
3	There is a relationship between the number of panelist researcher and the publication and citation score	150	3,3	8,7	36,7	30,7	20,7	3,56	1,019
4	There is a relationship between the number of panelist researcher and the number of supported R&D project	150	1,3	2,7	15,3	43,3	37,3	4,12	0,861
5	There is a relationship between the number of panelist researcher and the number of PhD graduated	150	4	8	26	34,7	27,3	3,73	1,072
6	There is a relationship between the number of panelist researcher and the number of patent	150	2,7	15,3	41,3	32,7	8	3,28	0,913
7	There is a relationship between the number of panelist researcher and the number of bachelor and master enrolments	150	5,3	18	36,7	28	12	3,23	1,051
8	There is a relationship between the number of panelist researcher and the number of international enrolments	150	6,7	19,3	35,3	21,3	17,3	3,23	1,149
9	There is a relationship between the number of panelist researcher and the number of bachelor and master graduated	150	7,3	19,3	34,7	21,3	17,3	3,22	1,163
10	There is a relationship between the number of PhD enrolments and the amount of research grant	150	4	9,3	32,7	34,7	19,3	3,56	1,032
11	There is a relationship between the number of PhD enrolments and the number of exchange students	150	8,7	17,3	44,7	16	13,3	3,08	1,102
12	There is a relationship between the number of PhD enrolments and the publication and citation score	150	3,3	3,3	44,7	24,7	24	3,62	0,993
13	There is a relationship between the number of PhD enrolments and the number of supported R&D project	150	2,7	18,7	43,3	24	11,3	3,22	0,970
14	There is a relationship between the number of PhD enrolments and the number of PhD graduated	150	0,7	6	32,7	40,7	20	3,73	0,872
15	There is a relationship between the number of PhD enrolments and the number of patent	150	2	9,3	32,7	33,3	22,7	3,65	0,996
16	There is a relationship between the number of PhD enrolments and the number of bachelor and master enrolments	150	3,3	13,3	28,7	36	18,7	3,53	1,046
17	There is a relationship between the number of PhD enrolments and the number of international enrolments	150	5,3	14,7	35,3	27,3	17,3	3,36	1,095
18	There is a relationship between the number of PhD enrolments and the number of bachelor and master graduated	150	3,3	14	34	28	20,7	3,48	1,072
19	There is a relationship between the number of BA, MA, PhD degree programs and the amount of research grant	150	5,3	20	40,7	24	10	3,13	1,021
20	There is a relationship between the number of BA, MA, PhD degree programs and the number of exchange students	150	0,7	17,3	49,3	24	8,7	3,22	0,860
21	There is a relationship between the number of BA, MA, PhD degree programs and the publication and citation score	150	0,7	16	46	23,3	14	3,34	0,932

Table 4.16 (Continued)

22	There is a relationship between the number of BA, MA, PhD degree programs and the number of supported R&D project	150	22	12,7	30,7	27,3	7,3	2,85	1,249
23	There is a relationship between the number of BA, MA, PhD degree programs and the number of PhD graduated	150	3,3	10	34,7	35,3	16,7	3,52	0,994
24	There is a relationship between the number of BA, MA, PhD degree programs and the number of patent	150	9,3	16	34,7	32,7	7,3	3,12	1,07
25	There is a relationship between the number of BA, MA, PhD degree programs and the number of bachelor and master enrolments	150	0,7	10	36	36,7	16,7	3,58	0,906
26	There is a relationship between the number of BA, MA, PhD degree programs and the number of international enrolments	150	0,7	7,3	37,3	30,7	24	3,7	0,939
27	There is a relationship between the number of BA, MA, PhD degree programs and the number of bachelor and master graduated	150	0,7	12,7	35,3	31,3	20	3,57	0,971
28	There is a relationship between doctoral student-total students' ratio and the amount of research grant	150	0,7	8,7	23,3	30,7	36,7	3,94	1,004
29	There is a relationship between doctoral student-total students' ratio and the number of exchange students	150	5,3	11,3	38,7	31,3	13,3	3,36	1,025
30	There is a relationship between doctoral student-total students' ratio and the publication and citation score	150	1,3	8,7	36	35,3	18,7	3,61	0,932
31	There is a relationship between doctoral student-total students' ratio and the number of supported R&D project	150	0	3,3	32	44	20,7	3,82	0,794
32	There is a relationship between doctoral student-total students' ratio and the number of PhD graduated	150	0,7	4,7	21,3	60,7	12,7	3,8	0,741
33	There is a relationship between doctoral student-total students' ratio and the number of patent	150	0,7	7,3	41,3	42,7	8	3,5	0,775
34	There is a relationship between the number of exchange students and the number of bachelor and master enrolments	150	0,7	10,7	20,7	44	24	3,8	0,948
35	There is a relationship between doctoral student-total students' ratio and the number of international enrolments	150	0	6,7	35,3	35,3	22,7	3,74	0,885
36	There is a relationship between doctoral student-total students' ratio and the number of bachelor and master graduated	150	0,7	8,7	28,7	41,3	20,7	3,72	0,911
Average Mean Score: 3,5									

As shown in table, the overall mean of all academics' view about the relationship between teaching-research items and identified performance criteria is 3,5. According to the results, the academics believe that the most important items are about the relationship between the number of panelist researcher and the number of supported R&D project with mean value of 4,12; the amount of research grant with mean value of 4,1. The item which has the lowest score of mean value 2,85 is that there is relationship between the number of BA, MA, PhD degree programs and the number of supported research-development project. The standard deviation of this part lies between (0,74-1,24). The general average (3,5) of this part indicates that the academics agree on the relationship between the attributes of teaching-research and performance of higher education.

2. The relationship between relationship-innovation and higher education performance: Based on the related literature, the relationship-innovation is determined as one of the sources of higher education. It is the second dimension of the second section of survey. As four items are determined for relationship-innovation dimension and nine items are determined for performance; Table 4.17 illustrates 36 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the relationship-innovation are summarized in Table 4.17.

Table 4.17 Descriptive Analysis of Academics' Perception about the Relationship between Relationship-Innovation and Higher Education Performance

Dimension 2		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
37	There is a relationship between the number of industry partnership and the amount of research grant	150	0,7	18	34	20	27,3	3,55	1,096
38	There is a relationship between the number of industry partnership and the number of exchange students	150	1,3	32	40	20	6,7	2,98	0,919
39	There is a relationship between the number of industry partnership and the publication and citation score	150	2	14	40	26	18	3,44	1,006
40	There is a relationship between the number of industry partnership and the number of supported R&D project	150	4,7	7,3	31,3	38	18,7	3,58	1,024
41	There is a relationship between the number of industry partnership and the number of PhD graduated	150	3,3	12	27,3	36,7	20,7	3,59	1,049
42	There is a relationship between the number of industry partnership and the number of patent	150	2	15,3	35,3	36	11,3	3,39	0,947
43	There is a relationship between the number of industry partnership and the number of bachelor and master enrolments	150	2	27,3	24	38	8,7	3,24	1,014
44	There is a relationship between the number of industry partnership and the number of international enrolments	150	0,7	26,7	30	28,7	14	3,28	1,031
45	There is a relationship between the number of industry partnership and the number of bachelor and master graduated	150	3,3	25,3	33,3	22,7	14,7	3,25	1,254
46	There is a relationship between the number of university partnership and the amount of research grant	150	10,7	17,3	38	10,7	25,3	3,18	1,271
47	There is a relationship between the number of university partnership and the number of exchange students	150	2,7	7,3	17,3	26,7	46	4,06	1,082
48	There is a relationship between the number of university partnership and the publication and citation score	150	5,3	24,7	49,3	12,7	8	2,93	0,953
49	There is a relationship between the number of university partnership and the number of supported R&D project	150	22	24	32	18	4	2,58	1,136

Table 4.17 (Continued)

50	There is a relationship between the number of university partnership and the number of PhD graduated	150	7,3	26	37,3	25,3	4	2,92	0,983
51	There is a relationship between the number of university partnership and the number of patent	150	21,3	47,3	22,7	8	0,7	2,19	0,887
52	There is a relationship between the number of university partnership and the number of bachelor and master enrolments	150	3,3	18,7	40	34	4	3,16	0,893
53	There is a relationship between the number of university partnership and the number of international enrolments	150	2	19,3	30,7	32	16	3,4	1,036
54	There is a relationship between the number of university partnership and the number of bachelor and master graduated	150	5,3	26	29,3	24	15,3	3,18	1,141
55	There is a relationship between the number of exchange academics and the amount of research grant	150	16	31,3	24,7	21,3	6,7	2,71	1,166
56	There is a relationship between the number of exchange academics and the number of exchange students	150	2	4	26,7	55,3	12	3,71	0,805
57	There is a relationship between the number of exchange academics and the publication and citation score	150	2,7	10	55,3	18,7	13,3	3,30	0,917
58	There is a relationship between the number of exchange academics and the number of supported R&D project	150	35,3	23,3	22	13,3	6	2,31	1,248
59	There is a relationship between the number of exchange academics and the number of PhD graduated	150	2	29,3	39,3	21,3	8	3,04	0,954
60	There is a relationship between the number of exchange academics and the number of patent	150	38	48	9,3	4	0,7	1,81	0,814
61	There is a relationship between the number of exchange academics and the number of bachelor and master enrolments	150	0,7	8	26,7	47,3	17,3	3,72	0,866
62	There is a relationship between the number of exchange academics and the number of international enrolments	150	0,7	7,3	44,7	38,7	8,7	3,47	0,783
63	There is a relationship between the number of exchange academics and the number of bachelor and master graduated	150	8,7	22,7	29,3	30,7	8,7	3,08	1,108
64	There is a relationship between the number of proposed R&D project and the amount of research grant	150	5,3	8	26	29,3	31,3	3,73	1,144
65	There is a relationship between the number of proposed R&D project and the number of exchange students	150	6,7	22	33,3	28	10	3,12	1,076
66	There is a relationship between the number of proposed R&D project and the publication and citation score	150	1,3	8	36,7	34,7	19,3	3,62	0,930
67	There is a relationship between the number of proposed R&D project and the number of supported R&D project	150	0,7	5,3	24	43,3	26,7	3,9	0,880
68	There is a relationship between the number of proposed R&D project and the number of PhD graduated	150	1,3	9,3	24	34	31,3	3,84	1,014
69	There is a relationship between the number of proposed R&D project and the number of patent	150	4	10	34,7	33,3	18	3,51	1,028
70	There is a relationship between the number of proposed R&D project and the number of bachelor and master enrolments	150	8,7	22,7	24,7	36,7	7,3	3,11	1,108
71	There is a relationship between the number of proposed R&D project and the number of international enrolments	150	8	21,3	28,7	26,7	15,3	3,20	1,175
72	There is a relationship between the number of proposed R&D project and the number of bachelor and master graduated	150	8	22,7	28,7	29,3	11,3	3,13	1,133
Average Mean Score: 3,22									

As indicated in table, the overall mean of all academics' view about the relationship between relationship-innovation items and identified performance criteria of higher education is 3,22. According to the results, the academics believe that the most important item is about the relationship between the number of university partnership with ERASMUS and the number of exchange students with mean value of 4,06. The item which has the lowest mean value of 1,81 is that there is a relationship between the number of exchange academics and the number of patent. The standard deviation of this part lies between (0,81-1,08). The average mean value (3,22) represents that the respondent academics slightly agree on the relationship between the attributes of relationship-innovation and performance of higher education.

3. The relationship between financial resources and higher education performance: Based on the relevant literature, the financial resources are described as one of the sources of higher education. It is the third dimension of the second section of survey. One of eighteen items is about financial resources dimension. The table illustrates 9 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the financial resources are summarized in Table 4.18.

Table 4.18 Descriptive Analysis of Academics' Perception about the Relationship between Financial Resources and the Higher Education Performance

Dimension 3		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
73	There is a relationship between the amount of students' fee and the amount of research grant.	150	21,3	9,3	36,7	18,7	14	2,94	1,304
74	There is a relationship between the amount of students' fee and the number of exchange students.	150	20	14	40,7	15,3	10	2,81	1,211
75	There is a relationship between the amount of students' fee and the publication and citation score.	150	24,7	14,7	29,3	19,3	12	2,79	1,332
76	There is a relationship between the amount of students' fee and the number of supported R&D project.	150	22	20,7	30	20	7,3	2,7	1,224
77	There is a relationship between the amount of students' fee and the number of PhD graduated.	150	22	17,3	23,3	29,3	8	2,84	1,285
78	There is a relationship between the amount of students' fee and the number of patent.	150	16,7	21,3	31,3	21,3	9,3	2,85	1,206
79	There is a relationship between the amount of students' fee and the number of bachelor and master enrolments.	150	10	12,7	23,3	37,3	16,7	3,43	1,196
80	There is a relationship between and the amount of students' fee and the number of international enrolments.	150	6	14	28	38,7	13,3	3,39	1,073
81	There is a relationship between the amount of students' fee and the number of bachelor and master graduated.	150	8	12	27,3	34	18,7	3,38	1,160
Average Mean Score: 3,01									

As shown outcomes, the academics believe that the most important item is that there is a relationship between the amount of students' fee and the number of bachelor and master enrolments with almost same mean value of 3,43. The expression which has the lowest mean value of 2,7 is that there is a relationship between the amount of students' fee and the number of supported research-development project. The standard deviation of this part lies between (1,07-1,33). This result indicates that the academics slightly agree on the relationship between the attribute of financial resources and the performance of higher education.

4. The relationship between effective use of technology and higher education performance: Based on the related literature, the effective use of technology is described as one of the sources of higher education. It is the fourth dimension of the second part of survey. As three items are determined for effective use of technology dimension and nine items are determined for performance; Table 4.19 illustrates 27 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the competence of effective use of technology are summarized in Table 4.19.

Table 4.19 Descriptive Analysis of Academics' Perception about the Relationship between Effective Use of Technology and Higher Education Performance

Dimension 4		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
82	There is a relationship between the number of on-line academic journals and the amount of research grant.	150	24,7	14,7	35,3	16	9,3	2,7	1,261
83	There is a relationship between the number of on-line academic journals and the number of exchange students.	150	28,7	14,7	32	16,7	8	2,6	1,279
84	There is a relationship between the number of on-line academic journals and the publication and citation score.	150	2	14	35,3	32	16,7	3,47	0,994
85	There is a relationship between the number of on-line academic journals and the number of supported R&D project.	150	25,3	14,7	30,7	21,3	8	2,72	1,275
86	There is a relationship between the number of on-line academic journals and the number of PhD graduated.	150	11,3	13,3	45,3	23,3	6,7	3	1,045
87	There is a relationship between the number of on-line academic journals and the number of patent.	150	10,7	29,3	43,3	16	0,7	2,66	0,894
88	There is a relationship between the number of on-line academic journals and the number of bachelor and master enrolments.	150	11,3	20	25,3	34,7	8,7	3,09	1,160
89	There is a relationship between the number of on-line academic journals and the number of international enrolments.	150	14	13,3	35,3	22,7	14,7	3,1	1,226
90	There is a relationship between the number of on-line academic journals and the number of bachelor and master graduated.	150	17,3	20	24	27,3	11,3	2,95	1,276
91	There is a relationship between the number of distance learning programs and the amount of research grant.	150	19,3	25,3	31,3	17,3	6,7	2,66	1,168
92	There is a relationship between the number of distance learning programs and the number of exchange students.	150	24,7	18	38,7	13,3	5,3	2,56	1,155
93	There is a relationship between the number of distance learning programs and the publication and citation score.	150	18	17,3	45,3	16,7	2,7	2,68	1,037

Table 4.19 (Continued)

94	There is a relationship between the number of distance learning programs and the number of supported R&D project.	150	28	12	37,3	19,3	3,3	2,58	1,183
95	There is a relationship between the number of distance learning programs and the number of PhD graduated.	150	22,7	13,3	36	20,7	7,3	2,76	1,222
96	There is a relationship between the number of distance learning programs and the number of patent.	150	25,3	26,7	35,3	10,7	2	2,37	1,039
97	There is a relationship between the number of distance learning programs and the number of bachelor and master enrolments.	150	11,3	8	30	34	16,7	3,36	1,189
98	There is a relationship between the number of distance learning programs and the number of international enrolments.	150	9,3	10,7	28,7	31,3	20	3,42	1,194
99	There is a relationship between the number of distance learning programs and the number of bachelor and master graduated.	150	11,3	11,3	30,7	24,7	22	3,34	1,258
100	There is a relationship between the number of on-line database and the amount of research grant.	150	20	23,3	34,7	12,7	9,3	2,68	1,2
101	There is a relationship between the number of on-line database and the number of exchange students.	150	22,7	20,7	39,3	10	7,3	2,58	1,159
102	There is a relationship between the number of on-line database and the publication and citation score.	150	6	14,7	42	16,7	20,7	3,31	1,135
103	There is a relationship between the number of on-line database and the number of supported R&D project.	150	21,3	20	34	16	8,7	2,7	1,218
104	There is a relationship between the number of on-line database and the number of PhD graduated.	150	8	9,3	42,7	29,3	10,7	3,25	1,037
105	There is a relationship between the number of on-line database and the number of patent.	150	6,7	12	46,7	30,7	4	3,13	0,917
106	There is a relationship between the number of on-line database and the number of bachelor and master enrolments.	150	10	22,7	23,3	30	14	3,15	1,213
107	There is a relationship between the number of on-line database and the number of international enrolments.	150	11,3	18,7	28	30	12	3,12	1,188
108	There is a relationship between the number of on-line database and the number of bachelor and master graduated.	150	15,3	14	28	30,7	12	3,1	1,241
Average Mean Score: 2,92									

According to the table, the overall mean of all academics' view about the relationship between the competence of effective use of technology attributes and identified performance criteria of higher education is 2,92. As indicated the result of descriptive analysis, the academics believe that the most important items of effective use of technology are the relationship between the number of on-line academic journals and the publication and citation score with mean value of 3,47 and the relationship between the number of distance learning programs and the number of international enrolments with mean value of 3,42. The item which has the lowest mean value of 2,37 is that there is a relationship between the number of distance learning programs and the number of patent. The standard deviation of this part lies between (0,89-1,27). The overall mean value indicates that the academics slightly agree on the relationship between the items of effective use of technology and the performance of higher education.

5. The relationship between physical resources and performance of higher education: Based on the related literature, physical resources are described as one of the sources of higher education. It is the fifth dimension of the second section of survey. As five items are determined for physical resources dimension and nine items are determined for performance; Table 4.20 illustrates 45 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the physical resources are summarized in Table 4.20.

Table 4.20 Descriptive Analysis of Academics' Perception about the Relationship between Physical Resources and Higher Education Performance

Dimension 5		N	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	Std. Deviation
109	There is a relationship between the number of social club and the amount of research grant.	150	34,7	18,7	27,3	13,3	6	2,37	1,250
110	There is a relationship between the number of social club and the number of exchange students.	150	26	16	37,3	18,7	2	2,54	1,126
111	There is a relationship between the number of social club and the publication and citation score.	150	33,3	16	36	10,7	4	2,36	1,165
112	There is a relationship between the number of social club and the number of supported R&D project.	150	37,3	12	34,7	14	2	2,31	1,17
113	There is a relationship between the number of social club and the number of PhD graduated.	150	26	18,7	30	22,7	2,7	2,57	1,177
114	There is a relationship between the number of social club and the number of patent.	150	38,7	24	28	8	1,3	2,09	1,051
115	There is a relationship between the number of social club and the number of bachelor and master enrollments.	150	15,3	18	27,3	31,3	8	2,99	1,212
116	There is a relationship between the number of social club and the number of international enrolments.	150	18	16	30	30,7	5,3	2,89	1,182
117	There is a relationship between the number of social club and the number of bachelor and master graduated.	150	18	28,7	22,7	17,3	13,3	2,79	1,296
118	There is a relationship between the number of book and the amount of research grant.	150	16,7	16,7	44	10	12,7	2,85	1,194
119	There is a relationship between the number of book and the number of exchange students.	150	20	20	36	16,7	7,3	2,71	1,177
120	There is a relationship between the number of book and the publication and citation score.	150	10,7	11,3	49,3	10	18,7	3,14	1,172
121	There is a relationship between the number of book and the number of supported R&D project.	150	13,3	19,3	37,3	18,7	11,3	2,95	1,172
122	There is a relationship between the number of book and the number of PhD graduated.	150	10,7	14,7	34	27,3	13,3	3,18	1,164
123	There is a relationship between the number of book and the number of patent.	150	14,7	16,7	32	28	8,7	2,99	1,178
124	There is a relationship between the number of book and the number of bachelor and master enrolments.	150	14,7	14,7	26,7	33,3	10,7	3,1	1,221
125	There is a relationship between the number of book and the number of international enrolments.	150	14,7	13,3	26,7	29,3	16	3,18	1,276
126	There is a relationship between the number of book and the number of bachelor and master graduated.	150	18	11,3	24,7	30	16	3,14	1,328

Table 4.20 (Continued)

127	There is a relationship between the number of laboratory and the amount of research grant.	150	14,7	8,7	42,7	18,7	15,3	3,11	1,212
128	There is a relationship between the number of laboratory and the number of exchange students.	150	18	16	36,7	16,7	12,7	2,9	1,246
129	There is a relationship between the number of laboratory and the publication and citation score.	150	8,7	12,7	42	19,3	17,3	3,24	1,145
130	There is a relationship between the number of laboratory and the number of supported R&D project.	150	1,3	7,3	49,3	31,3	10,7	3,42	0,830
131	There is a relationship between the number of laboratory and the number of PhD graduated.	150	6	10	32	32,7	19,3	3,49	1,097
132	There is a relationship between the number of laboratory and the number of patent.	150	4	10,7	34	35,3	16	3,48	1,014
133	There is a relationship between the number of laboratory and the number of bachelor and master enrolments.	150	6	17,3	26,7	32,7	17,3	3,38	1,139
134	There is a relationship between the number of laboratory and the number of international enrolments.	150	6,7	19,3	24	35,3	14,7	3,32	1,142
135	There is a relationship between the number of laboratory and the number of bachelor and master graduated.	150	9,3	20,7	24,7	26,7	18,7	3,24	1,242
136	There is a relationship between the distance of campus location to city center and the amount of research grant.	150	24,7	22,7	34,7	6,7	11,3	2,57	1,249
137	There is a relationship between the distance of campus location to city center and the number of exchange students.	150	26,7	17,3	38	8,7	9,3	2,56	1,233
138	There is a relationship between the distance of campus location to city center and the publication and citation score.	150	22,7	18,7	38,7	9,3	10,7	2,66	1,229
139	There is a relationship between the distance of campus location to city center and the number of supported R&D project.	150	28	19,3	33,3	16,7	2,7	2,46	1,144
140	There is a relationship between the distance of campus location to city center and the number of PhD graduated.	150	20,7	20,7	23,3	28	7,3	2,8	1,256
141	There is a relationship between the distance of campus location to city center and the number of patent.	150	14,7	26,7	36	21,3	1,3	2,68	1,012
142	There is a relationship between the distance of campus location to city center and the number of bachelor and master enrolments.	150	5,3	12	20	37,3	25,3	3,65	1,14
143	There is a relationship between the distance of campus location to city center and the number of international enrolments.	150	9,3	6	32	37	15,3	3,43	1,113
144	There is a relationship between the distance of campus location to city center and the number of bachelor and master graduated.	150	8	11,3	36,7	27,3	16,7	3,33	1,127
145	There is a relationship between the size of campus area and the amount of research grant.	150	24	19,3	28	16,7	12	2,73	1,319
146	There is a relationship between the size of campus area and the number of exchange students.	150	26	17,3	28,7	19,3	8,7	2,86	2,785
147	There is a relationship between the size of campus area and the publication and citation score.	150	28	16,7	32	18,7	4,7	2,55	1,212
148	There is a relationship between the size of campus area and the number of supported R&D project.	150	20	26	28	18,7	7,3	2,67	1,201
149	There is a relationship between the size of campus area and the number of PhD graduated.	150	27,3	12,7	30,7	21,3	8	2,7	1,294
150	There is a relationship between the size of campus area and the number of patent.	150	23,3	17,3	38	17,3	4	2,61	1,139
151	There is a relationship between the size of campus area and the number of bachelor and master enrolments.	150	12	10,7	21,3	40	16	3,37	1,223
152	There is a relationship between the size of campus area and the number of international enrolments.	150	14	12,7	28	34	11,3	3,16	1,21
153	There is a relationship between the size of campus area and the number of bachelor and master graduated.	150	16	6	33,3	32,7	12	3,18	1,217
Average Mean Score: 2,92									

As indicated in table, the overall mean of all academics' view about the relationship between physical resources attributes and identified performance criteria of higher education is 2,92. According to the results, the academics believe that the most important item is about the relationship between the distance of campus location to city center and the number of bachelor and master enrolments with mean value of 3,65. The item which has the lowest mean value of 2,09 is that there is a relationship between the number of social club and the number of patent. The standard deviation of this part lies between (0,83-2,78). The general average (2,92) of this part indicates that the academics slightly agree on the relationship between the attributes of physical resources and the performance of higher education.

6. The relationship between human resources and performance of higher education: Based on the related literature, human resources are described as one of the sources of higher education. It is the last dimension of the second section of survey. As one item is described for human resources dimension and nine items are determined for performance; Table 4.21 illustrates 9 expressions of 162. The means and standard deviations with the frequencies of academicians' answer of the survey questions related to the human resources are summarized in Table 4.21.

Table 4.21 Descriptive Analysis of Academics' Perception about the Relationship between Human Resources and Higher Education Performance

Dimension 6		**N**	**1 (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**	**Mean**	**Std. Deviation**
154	There is a relationship between the number of professor and the amount of research grant.	150	1,3	8,7	38	36	16	3,56	0,907
155	There is a relationship between the number of total teaching staff and the number of exchange students.	150	4	14,7	52	21,3	8	3,14	0,907
156	There is a relationship between the number of total teaching staff and the publication and citation score.	150	0,7	7,3	46	21,3	24,7	3,62	0,960
157	There is a relationship between the number of total teaching staff and the number of supported R&D project.	150	0,7	12,7	36,7	25,3	24,7	3,6	1,015
158	There is a relationship between the number of total teaching staff and the number of PhD graduated.	150	4,7	8	27,3	39,3	20,7	3,63	1,045
159	There is a relationship between the number of total teaching staff and the number of patent.	150	3,3	8,7	32	37,3	18,7	3,59	0,997
160	There is a relationship between the number of total teaching staff and the number of bachelor and master enrolments.	150	4	12,7	26	38	19,3	3,56	1,064
161	There is a relationship between the number of total teaching staff and the number of international enrolments.	150	5,3	10,7	35,3	34,7	14	3,41	1,030
162	There is a relationship between the number of total teaching staff and the number of bachelor and master graduated.	150	1,3	8	27,3	47,3	16	3,68	0,883
Average Mean Score: 3,53									

The overall mean of all academics' view about the relationship between human resources dimension and identified performance criteria of higher education is 3,53. The academics believe that the most important item is about the relationship between the number of total teaching staff and the number of bachelor and master graduated with mean value of 3,68. The item which has the lowest mean value of 3,14 is that there is a relationship between the number of total teaching staff and the number of exchange students. The standard deviation of this part lies between (0,88-1,06). The general average of this dimension shows that the academics agree on the relationship between the attributes of human resources and the performance of higher education.

4.1.2.2.1 Summary of Second Section

By means of the mean value, all descriptive analyses' of the second section can be summarized as follows: the perception of academics about the relationship between teaching-research and higher education performance with mean value of 3,5. The perception of academics about the relationship between relationship-innovation and higher education performance with mean value of 3,22. The perception of academics about the relationship between financial resources and higher education performance with mean value of 3,01. The perception of academics about the performance of effective use of technology to higher education performance with mean value of 2,92. The perception of academics about the relationship between physical resources and higher education performance with mean value of 2,92. The perception of academics about the relationship between human resources and higher education performance with mean value of 3,53. According to these results, for respondents, the most important dimension is the human resources; the least important dimension are the physical resources and effective use of technology. The respondent academics agree on the dimensions of human resources and teaching and research competence. Nevertheless, they slightly agree on the other dimensions of the second section of survey.

Besides that, the main 6 dimension, it must be emphasized that the most and least important items of them. The most important items are:

- There is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of supported R&D project with mean value of 4,12.
- There is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the amount of research grant with mean value of 4,1.

- There is a relationship between the number of university partnership with ERASMUS and the number of exchange students with mean value of 4,06.

The least important items are:

- There is a relationship between the number of social club and the number of patent with mean value of 2,09.
- There is a relationship between the number of exchange academics and the number of patent with mean value of 1,81.

The overall mean value of the survey second section is 3,18. The average mean of all dimensions indicates that the academics slightly agree the impact of the internal resources, which are identified by Resourced-Based View. When the results of the first and second section of survey are compared, it can be observed that the second section is slightly significant than the first section.

4.2. RESEARCH FINDINGS OF ADVANCED STATISTIC

This part will explain to the second part of results. Research findings of this part refer the relationship between internal resources and higher education performance. To reveal the relationship between independent variables and dependent variables, two statistics method are applied. First, the variables of study are classified by factor analysis. Second, each of independent and dependent variable will be examined by simple regression. After that, the relation of independent and dependent variable groups, which are determined by factor analysis, will be examined by regression analysis and t-test.

4.2.1. Results of Factor Analysis

In the study, the internal sources of higher education are identified as independent variables. The performance measurements of higher education are described as dependent variables. All of variables are grouped by using factor analysis.

Bartlett's test is used to test that the correlation matrix is an identity matrix. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is used to compare the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. In interpreting the results of the KMO measure is that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy are in the 0,90 as marvelous, in the 0,80's as meritorious, in the 0,70's as middling, in the 0,60's as mediocre, in the 0,50's as miserable, and below 0,50 as unacceptable. That is a value of 0,50 or above from the KMO measure of a sampling adequacy test indicates that the data is adequate for exploratory factor analysis.

Several methods are suggested for determining the number of factors to be retained. Firstly, an eigenvalue above 1,0 is the most common measure used. Eigenvalues represent the percentage of variance explained by a given factor. Secondly, rotation is conducted to simplify the factor structure and enhance more information for factor interpretation. The Varimax approach is used to maximize the simplification of the columns of the factor matrices. The objective of the rotation is to achieve a clear separation of the factors and to identify the variables most representative of these factors.

4.2.1.1 Factor Analysis Results of Internal Sources

The internal resources of higher education are determined by 6 dimension and 25 variables. As financial resources are determined in one item, this dimension is excluded of factor analysis. As the results of Bartlett's test of sphericity are significant at a 0,000 level and KMO value of all variables are above value of 0,50, the data of internal resources is adequate for exploratory factor analysis. In addition, independent variables do not have the low loadings than 0,60. All of the independent variables of study with factor loadings greater than 0,60. As the variables of study are selected in literature, there is no elimination of the determined variables. In the study, there is only one dimension with a Barlett's test of sphericity is significant at a 0,007 level and the KMO measure of 0,49. It is the effective use of technology. The universities using in study do not have the sufficient data about the effective use of technology items. Therefore, the low number data is caused to the KMO value of 0,49. If the number of data increases, the KMO value will also increase. Therefore, this data is also accepted in the study because of significant value of 0,007 and high factor loads.

Each of internal sources dimension is defined by two factors. The results of factor analysis of each dimension are presented in the following tables.

4.2.1.1.1. Factor Analysis Results of Teaching-Research Dimension

The teaching-resources dimension has the two factors. Factor 1 refers that the number of BA degree programs, the number of MA degree programs, the number of PhD degree programs and the number of PhD enrolments. Factor 2 refers that the number of panelist researcher and doctoral student-total students' ratio. As the variables are selected based on the relevant literature, the factor loads of the analysis result of for all teaching-research variables are significant. The least factor load is 0,694 for the number PhD enrolments. This value is also greater than 0,60. The highest factor load is 0,884 for the number of BA degree programs. The factor analysis results of the teaching-research dimension indicate that the data are suitable for factor analysis, as Bartlett's test of sphericity is significant at a 0,000 level. In addition, the KMO measure of sampling adequacy is 0,770. As the value is bigger than the acceptable level of 0,50 and so, it is an indicative of a satisfactory value. The results of the rotated component matrix indicate that the eigenvalues of Factor 1 is 3,962 and it accounts for 44,6 % of total variance; the eigenvalues of Factor 2 is 1,050 and it accounts for 38,9 of total variance. These two factors explain about 83,5% total of variance.

Table 4.22 Factor Analysis Results of the Teaching-Research Dimension

Items	Factor 1	Factor 2
	Tar 1	**Tar 2**
The number of BA degree programs	0,884	
The number of MA degree programs	0,882	
The number of PhD degree programs	0,737	
The number of PhD enrolments	0,694	
The number of panelist researcher		0,922
Doctoral student-total students' ratio		0,885
KMO	0,770	
Bartlett's test (p value)	0,000	
Eigenvalues	3,962	1,050
% of Variance Explained	44,605	38,919
% of Total Variance Explained	83,525	

4.2.1.1.2. Factor Analysis Results of Relationship-Innovation Dimension

The relationship-innovation dimension has the two factors. The number of industry partnership and the number of proposed R&D project are substantially loaded on Factor 1 while the number of university partnership and the number of exchange academics are substantially loaded on Factor 2. As the variables are selected based on the relevant literature, the factor loads of the analysis result of for all relationship-innovation variables are above 0,60 and so they are significant variables for explaining. As illustrated in Table, the factors consist of variables with significant factor loadings of above 0,60. The least factor load is 0,801for the number of exchange academics. The highest factor load is 0,938 for the number of industry partnership. The Factor analysis results of the relationship-innovation dimension indicate that the data are suitable for factor analysis, as Bartlett's test of sphericity is significant at a 0,000 level. In addition, the KMO measure of sampling adequacy is 0,557. As the value is bigger than the acceptable level of 0.50, it is an indicative of a satisfactory value. For factor 1, the eigenvalue and the percentage of variance accounts for 2,076 and 43,8% respectively and for factor 2, the eigenvalue and the percentage of variance accounts for 1,167 and 37,1% respectively. 81% total of variance is explained by two factors.

Table 4.23 Factor Analysis Results of the Relationship-Innovation Dimension

Items	Factor 1	Factor 2
	Rsi1	Rsi2
The number of industry partnership	0,938	
The number of proposed R&D project	0,896	
The number of university partnership		0,892
The number of exchange academics		0,801
KMO	0,557	
Bartlett's test (p value)	0,000	
Eigenvalues	2,076	1,167
% of Variance Explained	43,889	37,177
% of Total Variance Explained	81,066	

4.2.1.1.3. Factor Analysis Results of Effective Use of Technology Dimension

The effective use of technology dimension has the two factors. The number of distance learning programs and the number of online-academic journals are substantially loaded on Factor 1 while the number of on-line database is substantially loaded on Factor 2. As the variables are selected based on the relevant literature, the factor loads of the analysis result of for all effective use of technology variables are above 0,60 and so they are significant variables for explaining. As illustrated in Table, the factor 1 of variables has factor loads of 0,906 and 0,792 respectively and factor 2 of variable has factor load of 0,972. The least factor load is about the number of online-academic journals. The highest factor load is about the number of on-line database. The effective use of technology has the lowest KMO value of 0,490 in all six dimensions of internal resources. The Bartlett's test of sphericity is significant at a 0,007 level. Nevertheless, this dimension is also accepted as a suitable data for factor analysis because of the result of meaningful Bartlett's test and the important factor loads of variables. When the obtained data from universities are examined, as many of universities do not have the academic journals, the result of KMO is lower than expected despite the important factor load of variables. For this reason, there is also a problem in the eigenvalues of factor 2. For factor 1, the eigenvalue and the percentage of variance accounts for 1,593 and 48,4% respectively. For factor 2, the eigenvalue and the percentage of variance accounts for 0,944 and 36,1% respectively. 84,5% total of variance is explained by two factors.

Table 4.24 Factor Analysis Results of the Effective Use of Technology Dimension

Items	Factor 1	Factor 2
	Tech1	Tech2
The number of distance learning programs	0,906	
The number of online-academic journals	0,792	
The number of on-line database		0,972
KMO	0,490	
Bartlett's test (p value)	0,007	
Eigenvalues	1,593	0,944
% of Variance Explained	48,407	36,151
% of Total Variance Explained	84,558	

4.2.1.1.4. Factor Analysis Results of Physical Research Dimension

The physical resources dimension has the two factors. The number of social club, the number of book, the number of laboratory and the size of closed area are substantially loaded on Factor 1 while the distance of campus location to city center is substantially loaded on Factor 2. As the variables are selected based on the relevant literature, the factor loads of the analysis result of for all physical resources variables are above 0,60 and so they are significant variables for explaining. As illustrated in Table, the factors consist of variables with significant factor loadings of above 0,60. The least factor load is 0,69 for the item of The size of closed area. The highest factor load is 0,937 for the item of the distance of campus location to city center. The Factor analysis results of the physical resources dimension indicate that the data are suitable for factor analysis, as Bartlett's test of sphericity is significant at a 0,000 level. In addition, the KMO measure of sampling adequacy is 0,709. As the value is greater than the acceptable level of 0,50, it is an indicative of a satisfactory value. For factor 1, the eigenvalue and the percentage of variance explain 2,770 and 54,8% respectively and for factor 2, the eigenvalue and the percentage of variance accounted for 1,115 and nearly 22,8% respectively. About 77,7% total of variance is explained by two factors.

Table 4.25 Factor Analysis Results of the Physical Resources Dimension

Items	Factor 1	Factor 2
	Phys1	**Phys2**
The number of social club	0,895	
The number of book	0,877	
The number of laboratory	0,830	
The size of closed area	0,693	
The distance of campus location to city center		0,937
KMO	0,709	
Bartlett's test (p value)	0,000	
Eigenvalues	2,770	1,115
% of Variance Explained	54,814	22,888
% of Total Variance Explained	77,702	

4.2.1.1.5. Factor Analysis Results of Human Research Dimension

The human resources dimension has the two factors. Factor 1 refers that the number of language instructor, the number of assistant professor, the number of professor, the number of associate professor and the number of research assistant. Factor 2 refers that the number of instructor. As the variables are selected based on the relevant literature, the factor loads of the analysis result of for all human resources variables are significant. The least factor load is 0,678 for the item of the number of research assistant. This value is also greater than 0,60. The highest factor load is 0,947 for the item of the number of instructor. The factor analysis results of the human resources dimension indicate that the data are suitable for factor analysis, as Bartlett's test of sphericity is significant at a 0,000 level. In addition, the KMO measure of sampling adequacy is 0,723. As the value is bigger than the acceptable level of 0.50 and so, it is an indicative of a satisfactory value. The results of the rotated component matrix indicate that the eigenvalues of Factor 1 is 3,801 and it explains 49,6% of total variance; the eigenvalues of Factor 2 is 1,003 and it accounts for 30,4 of total variance. These two factors explain about 80% total of variance.

Table 4.26 Factor Analysis Results of the Human Resources Dimension

Items	Factor 1	Factor 2
	Staff1	**Staff2**
The number of language instructor	0,892	
The number of assistant professor	0,761	
The number of professor	0,755	
The number of associate professor	0,753	
The number of research assistant	0,678	
The number of instructor		0,947
KMO	0,723	
Bartlett's test	0,000	
Eigenvalues	3,801	1,003
% of Variance Explained	49,651	30,427
% of Total Variance Explained	80,078	

4.2.1.2. Factor Analysis Results of Performance

The dependent variables of study are described as the higher education performance measurements. They are determined by 2 dimension and 12 variables. In the study, the dependent variables do not have the low loadings than 0,60. All of the independent variables of study with factor loadings greater than 0,60. As the variables of study are selected in literature, there is no elimination of the determined variables. The identified performance criteria are explained by two factors. The number of supported research-development project, the amount of research grant, the number of PhD graduated, the citation score, the publication score, the number of exchange students and the number of patent are substantially loaded on Factor 1. The number of master enrolments, the number of master graduated, the number of bachelor enrolments, the number of international enrolments and the number of bachelor graduated are substantially loaded on Factor 2. The results of factor analysis are illustrated in Table 4.27.

Table 4.27 Results of Factor Analysis for Higher Education Performance Measurements

Items	Factor 1	Factor 2
	Research	**Education**
The number of supported research-development project	0,921	
The amount of research grant	0,906	
The number of PhD graduated	0,847	
The citation score	0,822	
The publication score	0,785	
The number of exchange students	0,772	
The number of patent	0,640	
The number of master enrolments		0,921
The number of master graduated		0,912
The number of bachelor enrolments		0,828
The number of international enrolments		0,812
The number of bachelor graduated		0,713
KMO	0,730	
Bartlett's test (p value)	0,000	
Eigenvalues	6,114	2,896
% of Variance Explained	42,558	32,526
% of Total Variance Explained	75,084	

As illustrated in Table, the factors consist of variables with significant factor loadings of above 0,60. The least factor load is 0,64 for the item of the number of patent. The highest factor loads are 0,921 for the item of the number of supported research-development project in factor 1 and with same factor load of the number of master enrolments in factor 2. The Factor analysis results show that the data are suitable for factor analysis, as Bartlett's test of sphericity is significant at a 0,000 level. In addition, the KMO measure of sampling adequacy is 0,730. As the value is greater than the acceptable level of 0,50, it is an indicative of a satisfactory value. For factor 1, the eigenvalue and the percentage of variance explain 6,114 and 42,5% respectively and for factor 2, the eigenvalue and the percentage of variance accounted for 2,896 and nearly 32,5% respectively. The variables are explained about 75% total of variance with two factors.

4.2.2. Results of the Analysis

The simple and multiple regression analysis are used to test the hypotheses of study. In order to investigate the sub-hypotheses of the study, simple regression analysis is performed; in order to investigate the main hypotheses of the study, simple regression, multiple regression and t-test are conducted.

4.2.2.1. Results of Sub-Hypotheses

To test sub-hypotheses of study, the simple regression analysis is applied. The simple linear regression is carried out to estimate the relationship between a dependent variable, and a single independent variable in a given set of data. As the values of the variables are very different from each other, the normalization is performed in analysis.

The variables values of study are very different from each other; we used Z-scores of variables in simple regression. The simple regression results, which are done with Z-scores of variables, are given the following tables. In tables, the variables of internal resources and the variables of research and educational dimensions are matched by simple regression.

Important statistics, R squared, Beta, t-value and p-value are illustrated in the following tables. R^2 is simply the square of the sample correlation coefficient between the outcomes and their predicted values; in the case of simple linear regression, it is the square of the correlation between the outcomes and the values of the single regression being used for prediction. The "Beta" column under "unstandardized coefficients" has the same value with “standardized coefficients”, as all values of dependent and independent variables have been standardized before the weights are computed. The equation and weights for the example data appear below:

$$Z_Y = b_0 + b_1 Z_{X1}$$

The simple regression is done by z-scores of variables. Therefore, the two of beta value of unstandardized and standardized coefficients have the same value in the study. This beta value explains that the correlation between the dependent and independent variables. In the next column is the t-statistics, followed by their p-value. If the p-value is smaller than the significance level α, we reject the null hypothesis in favor of the alternative. It means that there is a sufficient evidence at “α” level to conclude that there is a relationship in the population between the predictor x and response y. If the p-value is larger than the significance level α, we fail to reject the null hypothesis. It means that "there is not enough evidence at “α” level to conclude that there is a relationship in the population between the predictor x and response y. In terms of a hypothesis test, for the case of a simple linear regression the null hypothesis, H_0 is that the coefficient relating the explanatory (x) variable to the dependent (y) variable is 0. In other words, there is no relationship between the explanatory variable and the dependent variable. The alternative hypothesis H_1 is that the coefficient relating the (x) variable to the (y) variable is not equal to zero. In other words, there is some kind of relationship between x and y.

4.2.2.1.1. Simple Regression Results of Internal Sources and Number of Exchange Students

In this table, the dependent variable of study is the number of exchange students. The each of internal resources is matched with the number of exchange students. The number of exchange students is the first variable of research dimension. The results of simple regression analysis are shown in Table 4.28.

Table 4.28 Simple Regression between Internal Resources and the Number of Exchange Students

Predictable Variables	**The Number of Exchange Students**			
	R^2	**Beta**	**t-value**	**p-value**
Doctoral student-total students' ratio	0,622	0,789	7,476	0,000
The number of book	0,613	0,783	7,341	0,000
The number of proposed R&D project	0,597	0,772	7,090	0,000
The number of PhD enrolments	0,587	0,766	6,949	0,000
The number of panelist researcher	0,581	0,762	6,869	0,000
The number of on-line database	0,480	0,693	5,605	0,000
The number of social club	0,463	0,681	5,419	0,000
The number of PhD degree programs	0,424	0,651	5,001	0,000
The number of laboratory	0,399	0,631	4,749	0,000
The number of industry partnership	0,391	0,625	4,671	0,000
The number of MA degree programs	0,384	0,619	4,599	0,000
The number of instructor	0,364	0,603	4,407	0,000
The number of exchange academics	0,359	0,599	4,361	0,000
The number of university partnership	0,313	0,560	3,938	0,000
The number of BA degree programs	0,251	0,501	3,374	0,002
The number of assistant professor	0,232	0,482	3,205	0,003
The amount of students' fee	0,227	0,477	3,164	0,003
The size of campus closed area	0,202	0,450	2,936	0,006
The number of associate professor	0,194	0,441	2,863	0,007
The number of professor	0,161	0,401	2,551	0,015
The number of language instructor	0,112	0,335	2,074	0,046
The number of distance learning programs	0,009	0,093	0,547	0,588
The distance of campus location to city center	0,002	0,041	0,241	0,811
The number of research assistant	0,000	0,021	0,123	0,903
The number of on-line academic journals	0,000	0,006	0,034	0,973
Dependent Variable: The Number of Exchange Students				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The first six sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_1$-$H1_6$)
- The first four sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_1$-$H3_4$)

- The first sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_1$)
- The first three sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_1$-$H7_3$)
- The first five sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_1$-$H9_5$)
- The first six sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_1$-$H11_6$)

are tested by simple regression analysis. $H1_1$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of exchange students. $H1_2$ argues that there is a relationship between the number of PhD enrolments and the number of exchange students. $H1_3$ argues that there is a relationship between the number of BA degree programs and the number of exchange students. $H1_4$ argues that there is a relationship between the number of MA degree programs and the number of exchange students. $H1_5$ argues that there is a relationship between the number of PhD degree programs and the number of exchange students. $H1_6$ argues that there is a relationship between doctoral student-total students' ratio and the number of exchange students. $H3_1$ argues that there is a relationship between the number of industry partnership and the number of exchange students. $H3_2$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of exchange students. $H3_3$ argues that there is a relationship between the number of exchange academics and the number of exchange students. $H3_4$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of exchange students. $H5_1$ argues that there is a relationship between the amount of students' fee and the number of exchange students. $H7_1$ argues that there is a relationship between the number of on-line academic journals and the number of exchange students. $H7_2$ argues that there is a relationship between the number of distance learning programs and the number of exchange students. $H7_3$ argues that there is a relationship between the number of on-line database and the number of exchange students. $H9_1$ argues that there is a relationship between the number of social club and the number of exchange students. $H9_2$ argues that there is a relationship between the distance of campus location to city center and the number of exchange students. $H9_3$ argues that there is a relationship between the size of campus area and the number of exchange students. $H9_4$ argues that there is a relationship between the number of book and the number of exchange students. $H9_5$ argues that there is a relationship between the number of laboratory and the number of exchange students. $H11_1$ argues that there is a relationship between the number of professor and the number of exchange students. $H11_2$ argues that there is a relationship between the number of associate professor and the number of exchange students. $H11_3$ argues that there is a relationship between the number of assistant professor and the number of exchange students. $H11_4$ argues that there is a relationship between the number of instructor and the number of exchange students. $H11_5$ argues that there is a relationship between the number of language instructor and the number of exchange students. $H11_6$ argues that there is a relationship between the number of research assistant and the number of exchange students.

As indicated the table, there is a significant and positive relationship between the independent variables and the number of exchange students except four variables. According to the results:

- There is not a significant relationship between the number of distance learning programs and the number of exchange students ($p = 0,588 > 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the number of exchange students ($p = 0,811 > 0,05$).
- There is not a significant relationship between the number of research assistant and the number of exchange students ($p = 0,903 > 0,05$).
- There is not a significant relationship between the numbers of online academic journals and the number of exchange students ($p = 0,973 > 0,05$).

As the p-value of these four independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H7_2$, $H9_2$, $H11_6$ and $H7_1$ are not accepted; the null hypotheses of them are failed to reject.

The sub-hypotheses of teaching research dimension ($H1_1$-$H1_6$), the sub-hypotheses of relationship-innovation dimension ($H3_1$-$H3_4$), the sub-hypotheses of finance dimension ($H5_1$), the sub-hypothesis of technology dimension ($H7_3$), the sub-hypotheses of physical resources dimension ($H9_1$, $H9_3$, $H9_4$, $H9_5$) and the sub-hypotheses of human resources dimension ($H11_1$- $H11_5$) are accepted; the null hypotheses of them are rejected. In sum, the all independent variables of study are related significantly and positively to the exchange number of students except the four of them (the number of distance learning programs, the distance of campus location to city center, the number of research assistant and the number of on-line academic journals).

4.2.2.1.2. Simple Regression between Internal Sources and Publication Score

In this table, the dependent variable of study is the publication score. The each of internal resources is matched with publication score. Publication score is the second variable of research dimension. The results of simple regression analysis are shown in Table 4.29.

Table 4.29 Simple Regression between Internal Resources and the Publication Score

Predictable Variables	**The Publication Score**			
	R^2	**Beta**	**t-value**	**p-value**
The number of panelist researcher	0,493	0,702	5,752	0,000
The number of proposed research-development project	0,472	0,687	5,514	0,000
The number of industry partnership	0,364	0,603	4,412	0,000
Doctoral student-total students' ratio	0,337	0,581	4,158	0,000
The number of social club	0,320	0,566	4,004	0,000
The number of on-line database	0,311	0,558	3,918	0,000
The number of laboratory	0,302	0,549	3,832	0,001
The number of book	0,278	0,527	3,618	0,001
The number of associate professor	0,205	0,452	2,957	0,006
The number of PhD degree programs	0,189	0,435	2,814	0,008
The number of PhD enrolments	0,173	0,416	2,665	0,012
The number of exchange academics	0,151	0,389	2,460	0,019
The size of campus closed area	0,142	0,377	2,372	0,023
The amount of students’ fee	0,118	0,343	2,131	0,040
The number of language instructor	0,100	0,315	1,939	0,061
The number of assistant professor	0,070	0,265	1,602	0,118
The number of professor	0,068	0,261	1,575	0,124
The distance of campus location to city center	0,063	0,252	1,516	0,139
The number of BA degree programs	0,046	0,215	1,285	0,207
The number of instructor	0,043	0,209	1,243	0,222
The number of MA degree programs	0,028	0,168	0,994	0,327
The number of research assistant	0,019	0,138	0,813	0,422
The number of university partnership	0,007	0,083	0,483	0,632
The number of distance learning programs	0,002	0,044	0,255	0,800
The number of on-line academic journals	0,000	-0,003	-0,017	0,986
Dependent Variable: The Publication Score				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_7$-$H1_{12}$)

- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_5$-$H3_8$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_2$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_4$-$H7_6$)
- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_6$-$H9_{10}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_7$-$H11_{12}$)

are tested by simple regression analysis. $H1_7$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of publication. $H1_8$ argues that there is a relationship between the number of PhD enrolments and the number of publication. $H1_9$ argues that there is a relationship between the number of BA degree programs and the number of publication. $H1_{10}$ argues that there is a relationship between the number of MA degree programs and the number of publication. $H1_{11}$ argues that there is a relationship between the number of PhD degree programs and the number of publication. $H1_{12}$ argues that there is a relationship between doctoral student-total students' ratio and the number of publication. $H3_5$ argues that there is a relationship between the number of industry partnership and the number of publication. $H3_6$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of publication. $H3_7$ argues that there is a relationship between the number of exchange academics and the number of publication. $H3_8$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of publication. $H5_2$ argues that there is a relationship between the amount of students' fee and the number of publication. $H7_4$ argues that there is a relationship between the number of on-line academic journals and the number of publication. $H7_5$ argues that there is a relationship between the number of distance learning programs and the number of publication. $H7_6$ argues that there is a relationship between the number of on-line database and the number of publication. $H9_6$ argues that there is a relationship between the number of social club and the number of publication. $H9_7$ argues that there is a relationship between the distance of campus location to city center and the number of publication. $H9_8$ argues that there is a relationship between the size of campus area and the number of publication. $H9_9$ argues that there is a relationship between the number of book and the number of publication. $H9_{10}$ argues that there is a relationship between the number of laboratory and the number of publication. $H11_7$ argues that there is a relationship between the number of professor and the number of publication. $H11_8$ argues that there is a relationship between the number of associate professor and the number of publication. $H11_9$ argues that there is a relationship between the number of assistant professor and the number of publication. $H11_{10}$ argues that there is a relationship between the number of instructor and the number of publication. $H11_{11}$ argues that there is a relationship between the number of language instructor and the number of publication. $H11_{12}$ argues that there is a relationship between the number of research assistant and the number of publication.

As indicated the table, there is a significant and positive relationship between the independent variables and the publication score except eleven variables. According to the results:

- There is not a significant relationship between the number of language instructor and the number of publication ($p = 0,061 > 0,05$).
- There is not a significant relationship between the number of assistant professor and the number of publication ($p = 0,118 > 0,05$).
- There is not a significant relationship between the number of professor and the number of publication ($p = 0,124> 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the number of publication ($p = 0,139 > 0,05$).
- There is not a significant relationship between the numbers of BA degree programs and the number of publication ($p = 0,207 > 0,05$).
- There is not a significant relationship between the numbers of instructor and the number of publication ($p = 0,222 > 0,05$).
- There is not a significant relationship between the numbers of MA degree programs and the number of publication ($p = 0,327 > 0,05$).
- There is not a significant relationship between the number of research assistant and the number of publication ($p = 0,422 > 0,05$).
- There is not a significant relationship between the number of university partnership and the number of publication ($p = 0,632 > 0,05$).
- There is not a significant relationship between the number of distance learning programs and the number of publication ($p = 0,800 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the number of publication ($p = 0,986 > 0,05$).

As the p-value of these eleven independent variables are greater than alpha ($p > 0,05$), they ($H11_{11}$, $H11_{9}$, $H11_{7}$, $H9_{7}$, $H1_{9}$, $H11_{10}$, $H1_{10,}$ $H11_{12,}$ $H3_{6,}$ $H7_{5,}$ $H7_{4}$) are not accepted; the null hypotheses of them are failed to reject.

In conclusion, the statistical results indicate that the fourteen of the independent variables (the number of panelist researcher in TUBITAK-ARDEB, the number of proposed research-development project, the number of industry partnership, doctoral student-total students' ratio, the number of social club, the number of on-line database, the number of laboratory, the number of book, the number of associate professor, the number of PhD degree programs , the number of PhD enrolments, the number of exchange academics, the size of campus closed area , the amount of students' fee) are related significantly and positively to the publication score. The eleven of the independent variables (the number of language instructor, the number of assistant professor, the number of professor, the distance of campus location to city center, the number of BA degree programs, the number of instructor, the number of MA degree programs, the number of research assistant, the number of university partnership, the number of distance learning programs, the number of on-line academic journals) do not have a statistically significant relationship with the publication score.

4.2.2.1.3. Simple Regression between Internal Sources and Citation Score

In this table, the dependent variable of study is the citation score. The each of internal resources is matched with citation score. Citation score is the third variable of research dimension. The results of simple regression analysis are shown in Table 4.30.

Table 4.30 Simple Regression between Internal Resources and the Citation Score

Predictable Variables	**The Citation Score**			
	R^2	**Beta**	**t-value**	**p-value**
The number of panelist researcher	0,545	0,738	6,386	0,000
The number of proposed research-development project	0,508	0,713	5,930	0,000
The number of industry partnership	0,404	0,635	4,798	0,000
The number of on-line database	0,343	0,585	4,208	0,000
Doctoral student-total students' ratio	0,334	0,578	4,130	0,000
The number of social club	0,295	0,543	3,771	0,001
The number of laboratory	0,294	0,542	3,761	0,001
The number of book	0,285	0,534	3,682	0,001
The number of associate professor	0,234	0,483	3,220	0,003
The number of PhD enrolments	0,199	0,447	2,910	0,006
The number of exchange academics	0,166	0,407	2,600	0,014
The number of PhD degree programs	0,157	0,397	2,519	0,017
The size of campus closed area	0,128	0,357	2,230	0,032
The number of language instructor	0,105	0,324	1,994	0,054
The amount of students' fee	0,103	0,322	1,980	0,056
The distance of campus location to city center	0,073	0,271	1,641	0,110
The number of professor	0,071	0,267	1,613	0,116
The number of assistant professor	0,067	0,259	1,566	0,127
The number of instructor	0,049	0,222	1,325	0,194
The number of BA degree programs	0,034	0,185	1,099	0,280
The number of MA degree programs	0,022	0,149	0,877	0,386
The number of research assistant	0,019	0,138	0,810	0,424
The number of university partnership	0,005	0,074	0,431	0,669
The number of distance learning programs	0,003	-0,055	-0,322	0,749
The number of on-line academic journals	0,002	-0,047	-0,275	0,785
Dependent Variable: The Citation Score				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_{13}$-$H1_{18}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_9$-$H3_{12}$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_3$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_7$-$H7_9$)
- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_{11}$-$H9_{15}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_{13}$-$H11_{18}$)

are tested by simple regression analysis. $H1_{13}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of citation. $H1_{14}$ argues that there is a relationship between the number of PhD enrolments and the number of citation. $H1_{15}$ argues that there is a relationship between the number of BA degree programs and the number of citation. $H1_{16}$ argues that there is a relationship between the number of MA degree programs and the number of citation. $H1_{17}$ argues that there is a relationship between the number of PhD degree programs and the number of citation. $H1_{18}$ argues that there is a relationship between doctoral student-total students' ratio and the number of citation. $H3_9$ argues that there is a relationship between the number of industry partnership and the number of citation. $H3_{10}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of citation. $H3_{11}$ argues that there is a relationship between the number of exchange academics and the number of citation. $H3_{12}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of citation. $H5_3$ argues that there is a relationship between the amount of students' fee and the number of citation. $H7_7$ argues that there is a relationship between the number of on-line academic journals and the number of citation. $H7_8$ argues that there is a relationship between the number of distance learning programs and the number of citation. $H7_9$ argues that there is a relationship between the number of on-line database and the number of citation. $H9_{11}$ argues that there is a relationship between the number of social club and the number of citation. $H9_{12}$ argues that there is a relationship between the distance of campus location to city center and the number of citation. $H9_{13}$ argues that there is a relationship between the size of campus area and the number of citation. $H9_{14}$ argues that there is a relationship between the number of book and the number of citation. $H9_{15}$ argues that there is a relationship between the number of laboratory and the number of citation. $H11_{13}$ argues that there is a relationship between the number of professor and the number of citation. $H11_{14}$ argues that there is a relationship between the number of associate professor and the number of citation. $H11_{15}$ argues that there is a relationship between the number of assistant professor and the number of citation. $H11_{16}$ argues that there is a relationship between the number of instructor and the number of citation. $H11_{17}$ argues that there is a relationship between the number of language instructor and the number of citation. $H11_{18}$ argues that there is a relationship between the number of research assistant and the number of citation.

As indicated the table, there is a significant and positive relationship between thirteen independent variables and the citation score. According to the results:

- There is not a significant relationship between the number of language instructor and the number of citation ($p = 0,054 > 0,05$).
- There is not a significant relationship between the amount of students' fee and the number of citation ($p = 0,056 > 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the number of citation ($p = 0,110 > 0,05$).
- There is not a significant relationship between the number of professor and the number of citation ($p = 0,116 > 0,05$).
- There is not a significant relationship between the number of assistant professor and the number of citation ($p = 0,127 > 0,05$).
- There is not a significant relationship between the numbers of instructor and the number of citation ($p = 0,194 > 0,05$).
- There is not a significant relationship between the numbers of BA degree programs and the number of citation ($p = 0,280 > 0,05$).
- There is not a significant relationship between the numbers of MA degree programs and the number of citation ($p = 0,386 > 0,05$).
- There is not a significant relationship between the number of research assistant and the number of citation ($p = 0,424 > 0,05$).

- There is not a significant relationship between the number of university partnership and the number of citation ($p = 0,669 > 0,05$).
- There is not a significant relationship between the number of distance learning programs and the number of citation ($p = 0,749 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the number of citation ($p = 0,785 > 0,05$).

As p-value of these twelve independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H11_{17}$, $H5_{3}$, $H9_{12}$, $H11_{13}$, $H11_{5}$, $H11_{16}$, $H1_{15}$, $H1_{16}$, $H11_{18}$, $H3_{10}$, $H7_{8}$ and $H7_{7}$ are not accepted; the null hypotheses of them are failed to reject.

To conclude, the statistical results show that the thirteen of the independent variables (the number of panelist researcher in TUBITAK-ARDEB, the number of proposed research-development project, the number of industry partnership, the number of on-line database, doctoral student-total students' ratio, the number of social club, the number of laboratory, the number of book, the number of associate professor, the number of PhD enrolments, the number of exchange academics, the number of PhD degree programs, the size of campus closed area) are related significantly and positively to the citation score. The twelve of the independent variables (the number of language instructor, the amount of students' fee, the distance of campus location to city center, the number of professor, the number of assistant professor, the number of instructor, the number of BA degree programs, the number of MA degree programs, the number of research assistant, the number of university partnership, the number of distance learning programs, the number of on-line academic journals) do not have a statistically significant relationship with the citation score.

4.2.2.1.4. Simple Regression between Internal Sources and Number of Supported R&D Project

In this table, the dependent variable of study is the number of supported R&D project. The each of internal resources is matched with the number of supported R&D project. The number of supported R&D project is the fourth variable of research dimension. The results of simple regression analysis are shown in Table 4.31.

Table 4.31 Simple Regression between Internal Resources and the Number of Supported R&D Project

Predictable Variables	**The Number of Supported R&D Project**			
	R^2	**Beta**	**t-value**	**p-value**
The number of panelist researcher	0,910	0,954	18,535	0,000
The number of proposed research-development project	0,893	0,945	16,816	0,000
The number of on-line database	0,691	0,831	8,715	0,000
The number of book	0,659	0,812	8,099	0,000
The number of industry partnership	0,646	0,804	7,883	0,000
Doctoral student-total students' ratio	0,514	0,717	5,993	0,000
The number of social club	0,408	0,639	4,839	0,000
The number of PhD enrolments	0,304	0,551	3,851	0,000
The number of laboratory	0,285	0,534	3,686	0,001
The number of PhD degree programs	0,224	0,494	3,311	0,002
The number of instructor	0,203	0,450	2,938	0,006
The amount of students' fee	0,185	0,430	2,779	0,009
The size of campus closed area	0,172	0,415	2,659	0,012
The number of associate professor	0,151	0,388	2,455	0,019
The number of MA degree programs	0,048	0,220	1,313	0,198
The number of research assistant	0,040	-0,200	-1,191	0,242
The number of assistant professor	0,038	0,196	1,166	0,252
The number of exchange academics	0,038	0,195	1,161	0,254
The number of on-line academic journals	0,037	-0,191	-1,135	0,264
The number of professor	0,032	0,180	1,065	0,295
The distance of campus location to city center	0,014	0,118	0,695	0,492
The number of BA degree programs	0,011	0,103	0,603	0,550
The number of university partnership	0,009	0,093	0,543	0,591
The number of distance learning programs	0,008	-0,088	-0,517	0,608
The number of language instructor	0,001	0,035	0,203	0,840
Dependent Variable: The number of Supported Research-Development Project				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_{19}$-$H1_{24}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_{13}$-$H3_{16}$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_4$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_{10}$-$H7_{12}$)
- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_{16}$-$H9_{20}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_{19}$-$H11_{24}$)

are tested by simple regression analysis. $H1_{19}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of supported R&D project. $H1_{20}$ argues that there is a relationship between the number of PhD enrolments and the number of supported R&D project. $H1_{21}$ argues that there is a relationship between the number of BA degree programs and the number of supported R&D project. $H1_{22}$ argues that there is a relationship between the number of MA degree programs and the number of supported R&D project. $H1_{23}$ argues that there is a relationship between the number of PhD degree programs and the number of supported R&D project. $H1_{24}$ argues that there is a relationship between doctoral student-total students' ratio and the number of supported R&D project. $H3_{13}$ argues that there is a relationship between the number of industry partnership and the number of supported R&D project. $H3_{14}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of supported R&D project. $H3_{15}$ argues that there is a relationship between the number of exchange academics and the number of supported R&D project. $H3_{16}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of supported R&D project. $H5_4$ argues that there is a relationship between the amount of students' fee and the number of supported R&D project. $H7_{10}$ argues that there is a relationship between the number of on-line academic journals and the number of supported R&D project. $H7_{11}$ argues that there is a relationship between the number of distance learning programs and the number of supported R&D project. $H7_{12}$ argues that there is a relationship between the number of on-line database and the number of supported R&D project. $H9_{16}$ argues that there is a relationship between the number of social club and the number of supported R&D project. $H9_{17}$ argues that there is a relationship between the distance of campus location to city center and the number of supported R&D project. $H9_{18}$ argues that there is a relationship between the size of campus area and the number of supported R&D project. $H9_{19}$ argues that there is a relationship between the number of book and the number of supported R&D project. $H9_{20}$ argues that there is a relationship between the number of laboratory and the number of supported R&D project. $H11_{19}$ argues that there is a relationship between the number of professor and the number of supported R&D project. $H11_{20}$ argues that there is a relationship between the number of associate professor and the number of supported R&D project. $H11_{21}$ argues that there is a relationship between the number of assistant professor and the number of supported R&D project. $H11_{22}$ argues that there is a relationship between the number of instructor and the number of supported R&D project. $H11_{23}$ argues that there is a relationship between the number of language instructor and the number of supported R&D project. $H11_{24}$ argues that there is a relationship between the number of research assistant and the number of supported R&D project.

As indicated the table, there is a significant and positive relationship between independent variables and the number of supported R&D project except eleven variables. According to the results:

- There is not a significant relationship between the number of MA degree programs and the number of supported R&D project ($p = 0,198 > 0,05$).
- There is not a significant relationship between the number of research assistant and the number of supported R&D project ($p = 0,242 > 0,05$).
- There is not a significant relationship between the number of assistant professor and the number of supported R&D project ($p = 0,252 > 0,05$).
- There is not a significant relationship between the number of exchange academics and the number of supported R&D project ($p = 0,254 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the number of supported R&D project ($p = 0,264 > 0,05$).
- There is not a significant relationship between the numbers of professor and the number of supported R&D project ($p = 0,295 > 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the number of supported R&D project ($p = 0,492 > 0,05$).

- There is not a significant relationship between the number of BA degree programs and the number of supported R&D project ($p = 0,550 > 0,05$).
- There is not a significant relationship between the number of university partnership and the number of supported R&D project ($p = 0,591 > 0,05$).
- There is not a significant relationship between the number of distance learning programs and the number of supported R&D project ($p = 0,608 > 0,05$).
- There is not a significant relationship between the number of language instructor and the number of supported R&D project ($p = 0,840 > 0,05$).

As the p-value of these eleven independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H1_{21}$, $H1_{22}$, $H11_{24,}$ $H11_{21}$, $H3_{15,}$ $H7_{10,}$ $H11_{19}$, $H1_{21,}$ $H3_{14}$, $H7_{11}$ and $H11_{23}$ are not accepted; the null hypotheses of them are failed to reject.

In sum, the statistical results illustrate that the fourteen of the independent variables (the number of panelist researcher in TUBITAK-ARDEB, the number of proposed research-development project, the number of on-line database, the number of book, the number of industry partnership, doctoral student-total students' ratio, the number of social club, the number of PhD enrolments, the number of laboratory, the number of PhD degree programs, the number of instructor, the amount of students' fee, the size of campus closed area and the number of associate professor) are related significantly and positively to the number of supported R&D project. The eleven of the independent variables (the number of MA degree programs, the number of research assistant, the number of assistant professor, the number of exchange academics, the number of on-line academic journals, the number of professor, the distance of campus location to city center, the number of BA degree programs, the number of university partnership, the number of distance learning programs, and the number of language instructor) do not have a statistically significant relationship with the number of supported R&D project.

4.2.2.1.5. Simple Regression between Internal Sources and amount of Research Grant

In this table, the dependent variable of study is the amount of research grant. The each of internal resources is matched with the amount of research grant. The amount of research grant is the fifth variable of research dimension. The results of simple regression analysis are shown in Table 4.32.

Table 4.32 Simple Regression between Internal Resources and the amount of Research Grant

Predictable Variables	The Amount of Research Grant			
	R^2	Beta	t-value	p-value
The number of panelist researcher	0,890	0,943	16,566	0,000
The number of proposed research-development project	0,866	0,931	14,817	0,000
The number of industry partnership	0,700	0,837	8,910	0,000
The number of book	0,683	0,826	8,550	0,000
The number of on-line database	0,650	0,806	7,949	0,000
Doctoral student-total students' ratio	0,497	0,705	5,799	0,000
The number of social club	0,388	0,623	4,645	0,000
The number of PhD enrolments	0,278	0,528	3,621	0,001
The number of laboratory	0,262	0,511	3,470	0,001
The number of instructor	0,241	0,491	3,283	0,002
The number of PhD degree programs	0,222	0,472	3,118	0,004
The size of campus closed area	0,208	0,456	2,988	0,005
The amount of students' fee	0,143	0,378	2,378	0,023
The number of associate professor	0,120	0,347	2,156	0,038
The number of research assistant	0,045	-0,213	-1,272	0,212
The number of MA degree programs	0,044	0,211	1,257	0,217
The number of exchange academics	0,039	0,198	1,177	0,247
The number of on-line academic journals	0,032	-0,179	-1,060	0,296
The number of assistant professor	0,030	0,175	1,034	0,309
The number of professor	0,020	0,142	0,839	0,407
The distance of campus location to city center	0,013	0,116	0,681	0,500
The number of BA degree programs	0,008	0,088	0,515	0,610
The number of university partnership	0,003	0,055	0,318	0,752
The number of language instructor	0,003	-0,054	-0,313	0,756
The number of distance learning programs	0,002	-0,040	-0,232	0,818
Dependent Variable: The Amount of Research Grant				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_{25}$-$H1_{30}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_{17}$-$H3_{20}$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_5$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_{13}$-$H7_{15}$)
- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_{21}$-$H9_{25}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_{25}$-$H11_{30}$)

are tested by simple regression analysis. $H1_{25}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the amount of research grant. $H1_{26}$ argues that there is a relationship between the number of PhD enrolments and the amount of research grant. $H1_{27}$ argues that there is a relationship between the number of BA degree programs and the amount of research grant. $H1_{28}$ argues that there is a relationship between the number of MA degree programs and the amount of research grant. $H1_{29}$ argues that there is a relationship between the number of PhD degree programs and the amount of research grant. $H1_{30}$ argues that there is a relationship between doctoral student-total students' ratio and the amount of research grant. $H3_{17}$ argues that there is a relationship between the number of industry partnership and the amount of research grant. $H3_{18}$ argues that there is a relationship between the number of university partnership with ERASMUS and the amount of research grant. $H3_{19}$ argues that there is a relationship between the number of exchange academics and the amount of research grant. $H3_{20}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the amount of research grant. $H5_5$ argues that there is a relationship between the amount of students' fee and the amount of research grant. $H7_{13}$ argues that there is a relationship between the number of on-line academic journals and the amount of research grant. $H7_{14}$ argues that there is a relationship between the number of distance learning programs and the amount of research grant. $H7_{15}$ argues that there is a relationship between the number of on-line database and the amount of research grant. $H9_{21}$ argues that there is a relationship between the number of social club and the amount of research grant. $H9_{22}$ argues that there is a relationship between the distance of campus location to city center and the amount of research grant. $H9_{23}$ argues that there is a relationship between the size of campus area and the amount of research grant. $H9_{24}$ argues that there is a relationship between the number of book and the amount of research grant. $H9_{25}$ argues that there is a relationship between the number of laboratory and the amount of research grant. $H11_{25}$ argues that there is a relationship between the number of professor and the amount of research grant. $H11_{26}$ argues that there is a relationship between the number of associate professor and the amount of research grant. $H11_{27}$ argues that there is a relationship between the number of assistant professor and the amount of research grant. $H11_{28}$ argues that there is a relationship between the number of instructor and the amount of research grant. $H11_{29}$ argues that there is a relationship between the number of language instructor and the amount of research grant. $H11_{30}$ argues that there is a relationship between the number of research assistant and the amount of research grant.

As indicated the table, there is a significant and positive relationship between the independent variables and the amount of research grant except eleven variables. According to the results:

- There is not a significant relationship between the number of research assistant and the amount of research grant ($p = 0,212 > 0,05$).
- There is not a significant relationship between the number of MA degree programs and the amount of research grant ($p = 0,217 > 0,05$).
- There is not a significant relationship between the number of exchange academics and the amount of research grant ($p = 0,247 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the amount of research grant ($p = 0,296 > 0,05$).
- There is not a significant relationship between the number of assistant professor and the amount of research grant ($p = 0,309 > 0,05$).
- There is not a significant relationship between the numbers of professor and the amount of research grant ($p = 0,407 > 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the amount of research grant ($p = 0,500 > 0,05$).
- There is not a significant relationship between the number of BA degree programs and the amount of research grant ($p = 0,610 > 0,05$).

- There is not a significant relationship between the number of university partnership and the amount of research grant (p = 0,752 > 0,05).
- There is not a significant relationship between the number of language instructor and the amount of research grant (p = 0,756 > 0,05).
- There is not a significant relationship between the number of distance learning programs and the amount of research grant (p = 0,818 > 0,05).

As the p-value of these eleven independent variables are greater than alpha (p > 0,05), the hypotheses of $H11_{30}$, $H1_{28}$, $H3_{19}$, $H7_{13}$, $H11_{27}$, $H9_{22}$, $H11_{25}$, $H1_{27}$, $H3_{18}$, $H11_{29}$ and $H7_{14}$ are not accepted; the null hypotheses of them are failed to reject.

In conclusion, the statistical results illustrate that the fourteen of the independent variables (the number of panelist researcher in TUBITAK-ARDEB, the number of proposed research-development project, the number of industry partnership, the number of book, the number of on-line database, doctoral student-total students' ratio, the number of social club, the number of PhD enrolments, the number of laboratory, the number of instructor, the number of PhD degree programs, the size of campus closed area, the amount of students' fee, and the number of associate professor) are related significantly and positively to the amount of research grant. The eleven of the independent variables (the number of research assistant, the number of MA degree programs, the number of exchange academics, the number of on-line academic journals, the number of assistant professor, the number of professor, the distance of campus location to city center, the number of BA degree programs, the number of university partnership, the number of language instructor and the number of distance learning programs) do not have a statistically significant relationship with the amount of research grant.

4.2.2.1.6. Simple Regression between Internal Sources and Number of PhD Graduated

In this table, the dependent variable of study is the number of PhD graduated. The each of internal resources is matched with the amount of number of PhD graduated. The number of PhD graduated is the sixth variable of research dimension. The results of simple regression analysis are shown in Table 4.33.

Table 4.33 Simple Regression between Internal Resources and the Number of PhD Graduated

Predictable Variables	**The Number of PhD Graduated**			
	R^2	**Beta**	**t-value**	**p-value**
The number of PhD enrolments	0,741	0,861	9,865	0,000
The number of panelist researcher	0,673	0,820	8,356	0,000
The number of industry partnership	0,621	0,788	7,456	0,000
Doctoral student-total students' ratio	0,553	0,744	6,488	0,000
The number of proposed research-development project	0,526	0,726	6,147	0,000
The number of book	0,523	0,724	6,111	0,000
The number of laboratory	0,372	0,610	4,490	0,000
The number of assistant professor	0,370	0,608	4,465	0,000
The number of on-line database	0,358	0,598	4,352	0,000
The number of instructor	0,353	0,594	4,307	0,000
The number of associate professor	0,327	0,572	4,066	0,000
The number of PhD degree programs	0,304	0,551	3,850	0,000
The number of professor	0,297	0,545	3,792	0,001
The number of social club	0,249	0,499	3,354	0,002
The number of MA degree programs	0,233	0,482	3,210	0,003
The number of university partnership	0,229	0,479	3,178	0,003
The number of BA degree programs	0,149	0,386	2,438	0,020
The size of campus closed area	0,127	0,357	2,227	0,033
The number of exchange academics	0,102	0,320	1,967	0,057
The number of language instructor	0,102	0,319	1,965	0,058
The amount of students' fee	0,034	0,184	1,094	0,282
The number of distance learning programs	0,018	-0,134	-0,788	0,436
The number of research assistant	0,002	0,047	0,274	0,786
The number of on-line academic journals	0,002	-0,041	-0,238	0,813
The distance of campus location to city center	0,001	0,028	0,161	0,873
Dependent Variable: The Number of PhD Graduated				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_{31}$-$H1_{36}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_{21}$-$H3_{24}$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_{6}$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_{16}$-$H7_{18}$)

- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_{26}$-$H9_{30}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_{31}$-$H11_{36}$)

are tested by simple regression analysis. $H1_{31}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of PhD graduated. $H1_{32}$ argues that there is a relationship between the number of PhD enrolments and the number of PhD graduated. $H1_{33}$ argues that there is a relationship between the number of BA degree programs and the number of PhD graduated. $H1_{34}$ argues that there is a relationship between the number of MA degree programs and the number of PhD graduated. $H1_{35}$ argues that there is a relationship between the number of PhD degree programs and the number of PhD graduated. $H1_{36}$ argues that there is a relationship between doctoral student-total students' ratio and the number of PhD graduated. $H3_{21}$ argues that there is a relationship between the number of industry partnership and the number of PhD graduated. $H3_{22}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of PhD graduated. $H3_{23}$ argues that there is a relationship between the number of exchange academics and the number of PhD graduated. $H3_{24}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of PhD graduated. $H5_{6}$ argues that there is a relationship between the amount of students' fee and the number of PhD graduated. $H7_{16}$ argues that there is a relationship between the number of on-line academic journals and the number of PhD graduated. $H7_{17}$ argues that there is a relationship between the number of distance learning programs and the number of PhD graduated. $H7_{18}$ argues that there is a relationship between the number of on-line database and the number of PhD graduated. $H9_{26}$ argues that there is a relationship between the number of social club and the number of PhD graduated. $H9_{27}$ argues that there is a relationship between the distance of campus location to city center and the number of PhD graduated. $H9_{28}$ argues that there is a relationship between the size of campus area and the number of PhD graduated. $H9_{29}$ argues that there is a relationship between the number of book and the number of PhD graduated. $H9_{30}$ argues that there is a relationship between the number of laboratory and the number of PhD graduated. $H11_{31}$ argues that there is a relationship between the number of professor and the number of PhD graduated. $H11_{32}$ argues that there is a relationship between the number of associate professor and the number of PhD graduated. $H11_{33}$ argues that there is a relationship between the number of assistant professor and the number of PhD graduated.

$H11_{34}$ argues that there is a relationship between the number of instructor and the number of PhD graduated. $H11_{35}$ argues that there is a relationship between the number of language instructor and the number of PhD graduated. $H11_{36}$ argues that there is a relationship between the number of research assistant and the number of PhD graduated.

As indicated the table, there is a significant and positive relationship between independent variables and the number of PhD graduated except seven variables. According to the results:

- There is not a significant relationship between the number of exchange academics and the number of PhD graduated ($p = 0,057 > 0,05$).
- There is not a significant relationship between the number of language instructor and the number of PhD graduated ($p = 0,058 > 0,05$).
- There is not a significant relationship between the amount of students' fee and the number of PhD graduated ($p = 0,282 > 0,05$).
- There is not a significant relationship between the number of distance learning programs and the number of PhD graduated ($p = 0,436 > 0,05$).
- There is not a significant relationship between the number of research assistant and the number of PhD graduated ($p = 0,786 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the number of PhD graduated ($p = 0,813 > 0,05$).
- There is not a significant relationship between the distance of campus location to city center and the number of PhD graduated ($p = 0,873 > 0,05$).

As the p-value of these seven independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H3_{23}$, $H1_{35}$, $H5_{6}$, $H7_{17}$, $H11_{36}$, $H7_{16}$ and $H9_{27}$ are not accepted; the null hypotheses of them are failed to reject.

As a result, the eighteen of the independent variables (the number of PhD enrolments, the number of panelist researcher in TUBITAK-ARDEB, the number of industry partnership, doctoral student-total students' ratio, the number of proposed research-development project, the number of book, the number of laboratory, the number of assistant professor, the number of on-line database, the number of instructor, the number of associate professor, the number of PhD degree programs, the number of professor, the number of social club, the number of MA degree programs, the number of university partnership, the number of BA degree programs and the size of campus closed area) are related significantly and positively to the number of PhD graduated for study. The seven of the independent variables (the number of exchange academics, the number of language instructor, the amount of students' fee, the number of distance learning programs, the number of research assistant, the number of on-line academic journals, and the distance of campus location to city center) do not have a statistically significant relationship with the number of PhD graduated.

4.2.2.1.7. Simple Regression between Internal Resources and Number of Patent

In this table, the dependent variable of study is the number of patent. The each of internal resources is matched with the amount of number of patent. The number of patent is the last variable of research dimension. The results of simple regression analysis are shown in Table 4.34.

Table 4.34 Simple Regression between Internal Resources and the Number of Patent

Predictable Variables	**The Number of Patent**			
	R^2	**Beta**	**t-value**	**p-value**
The number of PhD enrolments	0,774	0,880	10,801	0,000
The number of university partnership	0,432	0,657	5,088	0,000
The number of laboratory	0,369	0,608	4,462	0,000
The number of assistant professor	0,364	0,604	4,414	0,000
The number of panelist researcher	0,342	0,584	4,199	0,000
The number of MA degree programs	0,303	0,551	3,846	0,001
Doctoral student-total students' ratio	0,294	0,543	3,766	0,001
The number of industry partnership	0,294	0,542	3,761	0,001
The number of proposed R&D project	0,292	0,540	3,743	0,001
The number of PhD degree programs	0,257	0,507	3,428	0,002
The number of book	0,253	0,503	3,394	0,002
The number of on-line database	0,223	0,472	3,120	0,004
The number of language instructor	0,220	0,469	3,093	0,004
The number of professor	0,195	0,441	2,866	0,007
The number of BA degree programs	0,190	0,436	2,822	0,008
The number of instructor	0,142	0,376	2,369	0,024
The number of associate professor	0,137	0,370	2,320	0,026
The number of social club	0,099	0,315	1,937	0,061
The size of campus closed area	0,069	0,263	1,590	0,121
The number of exchange academics	0,035	0,187	1,108	0,276
The number of distance learning programs	0,022	-0,148	-0,874	0,388
The distance of campus location to city center	0,020	0,140	0,825	0,415
The number of research assistant	0,013	-0,113	-0,665	0,511
The number of on-line academic journals	0,008	-0,088	-0,517	0,609
The amount of students' fee	0,007	0,086	0,503	0,618
Dependent Variable: The Number of Patent				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and research dimension ($H1_{37}$-$H1_{42}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and research dimension ($H3_{25}$-$H3_{28}$)
- The sub-hypothesis which is defined the relation between finance dimension and research dimension ($H5_{7}$)
- The sub-hypotheses which are defined the relation between technology dimension and research dimension ($H7_{19}$-$H7_{21}$)
- The sub-hypotheses which are defined the relationship between physical dimension and research dimension ($H9_{31}$-$H9_{35}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and research dimension ($H11_{37}$-$H11_{42}$)

are tested by simple regression analysis. $H1_{37}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of patent. $H1_{38}$ argues that there is a relationship between the number of PhD enrolments and the number of patent. $H1_{39}$ argues that there is a relationship between the number of BA degree programs and the number of patent. $H1_{40}$ argues that there is a relationship between the number of MA degree programs and the number of patent. $H1_{41}$ argues that there is a relationship between the number of PhD degree programs and the number of patent. $H1_{42}$ argues that there is a relationship between doctoral student-total students' ratio and the number of patent. $H3_{25}$ argues that there is a relationship between the number of industry partnership and the number of patent. $H3_{26}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of patent. $H3_{27}$ argues that there is a relationship between the number of exchange academics and the number of patent. $H3_{28}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of patent. $H5_{7}$ argues that there is a relationship between the amount of students' fee and the number of patent. $H7_{19}$ argues that there is a relationship between the number of on-line academic journals and the number of patent. $H7_{20}$ argues that there is a relationship between the number of distance learning programs and the number of patent. $H7_{21}$ argues that there is a relationship between the number of on-line database and the number of patent. $H9_{31}$ argues that there is a relationship between the number of social club and the number of patent. $H9_{32}$ argues that there is a relationship between the distance of campus location to city center and the number of patent. $H9_{33}$ argues that there is a relationship between the size of campus area and the number of patent. $H9_{34}$ argues that there is a relationship between the number of book and the number of patent. $H9_{35}$ argues that there is a relationship between the number of laboratory and the number of patent. $H11_{37}$ argues that there is a relationship between the number of professor and the number of patent. $H11_{38}$ argues that there is a relationship between the number of associate professor and the number of patent. $H11_{39}$ argues that there is a relationship between the number of assistant professor and the number of patent. $H11_{40}$ argues that there is a relationship between the number of instructor and the number of patent. $H11_{41}$ argues that there is a relationship between the number of language instructor and the number of patent. $H11_{42}$ argues that there is a relationship between the number of research assistant and the number of patent.

As indicated the table, there is a significant and positive relationship between independent variables and the number of patent except eight variables. According to the results:

- There is not a significant relationship between the number of social club and the number of patent (p = 0,061 > 0,05).
- There is not a significant relationship between the size of campus closed area and the number of patent (p = 0,121 > 0,05).
- There is not a significant relationship between the number of exchange academics and the number of patent (p = 0, 276 > 0,05).
- There is not a significant relationship between the number of distance learning programs and the number of patent (p = 0, 388 > 0,05).
- There is not a significant relationship between the distance of campus location to city center and the number of patent (p = 0,415 > 0,05).
- There is not a significant relationship between the number of research assistant and the number of patent (p = 0, 511 > 0,05).
- There is not a significant relationship between the number of on-line academic journals and the number of patent (p = 0,609 > 0,05).
- There is not a significant relationship between the amount of students' fee and the number of patent (p = 0,618 > 0,05).

As the p-value of these eight independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H9_{31}$, $H9_{32,}$ $H9_{33}$, $H3_{27}$, $H7_{20}$, $H11_{42}$, $H7_{19}$ and $H5_{7}$ are not accepted; the null hypotheses of them are failed to reject.

In sum, the statistical results illustrate that the seventeen of the independent variables (the number of PhD enrolments, the number of university partnership, the number of laboratory, the number of assistant professor, the number of panelist researcher in TUBITAK-ARDEB, the number of MA degree programs, doctoral student-total students' ratio, the number of industry partnership, the number of proposed research-development project, the number of PhD degree programs, the number of book, the number of on-line database, the number of language instructor, the number of professor, the number of BA degree programs the number of instructor and the number of associate professor) are related significantly and positively to the number of patent. The eight of the independent variables (the number of social club, the size of campus closed area, the number of exchange academics, the number of distance learning programs, the distance of campus location to city center, the number of research assistant, the number of on-line academic journals and the amount of students’ fee) do not have a statistically significant relationship with the number of patent.

4.2.2.1.8. Simple Regression between Internal Sources and Number of Bachelor Enrollments

In this table, the dependent variable of study is the number of bachelor enrollments. The each of internal resources is matched with the number of bachelor enrollments. The number of bachelor enrollments is the first variable of the educational dimension. The results of simple regression analysis are shown in Table 4.35.

Table 4.35 Simple Regression between Internal Resources and the Number of Bachelor Enrollments

Predictable Variables	**The Number of Bachelor Enrollments**			
	R^2	**Beta**	**t-value**	**p-value**
The number of BA degree programs	0,797	0,893	11.544	0,000
The number of assistant professor	0,690	0,831	8,694	0,000
The number of PhD enrolments	0,671	0,819	8.319	0,000
The number of university partnership	0,528	0,726	6.161	0,000
The number of laboratory	0,501	0,708	5.840	0,000
The number of PhD degree programs	0,436	0,660	5.125	0,000
The number of professor	0,400	0,633	4,763	0,000
The number of language instructor	0,369	0,608	4,464	0,000
The number of social club	0,338	0,581	4,162	0,000
The number of instructor	0,328	0,573	4,072	0,000
The number of book	0,264	0,514	3,492	0,001
The size of campus closed area	0,203	0,451	2,944	0,006
The number of MA degree programs	0,490	0,700	5,712	0,000
The number of exchange academics	0,200	0,447	2.916	0,006
The number of associate professor	0,197	0,444	2,887	0,007
Doctoral student-total students' ratio	0,163	0,403	2.571	0,015
The number of on-line database	0,157	0,396	2,516	0,017
The number of panelist researcher	0,149	0,386	2.441	0,020
The number of industry partnership	0,149	0,385	2.435	0,020
The number of proposed research-development project	0,116	0,341	2.115	0,042
The number of distance learning programs	0,082	0,287	1,745	0,090
The number of on-line academic journals	0,070	0,264	1,598	0,119
The number of research assistant	0,042	0,206	1,225	0,229
The distance of campus location to city center	0,002	-0,044	-0,255	0,801
The amount of students' fee	0,000	0,019	0,113	0,911
Dependent Variable: The Number of Bachelor Enrollments				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and educational dimension ($H2_1$-$H2_6$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and educational dimension ($H4_1$-$H4_4$)
- The sub-hypothesis which is defined the relation between finance dimension and educational dimension ($H6_1$)
- The sub-hypotheses which are defined the relation between technology dimension and educational dimension ($H8_1$-$H8_3$)
- The sub-hypotheses which are defined the relationship between physical dimension and educational dimension ($H10_1$-$H10_5$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and educational dimension ($H12_1$-$H12_6$)

are tested by simple regression analysis. $H2_1$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of bachelor enrollments. $H2_2$ argues that there is a relationship between the number of PhD enrolments and the number of bachelor enrollments. $H2_3$ argues that there is a relationship between the number of BA degree programs and the number of bachelor enrollments. $H2_4$ argues that there is a relationship between the number of MA degree programs and the number of bachelor enrollments. $H2_5$ argues that there is a relationship between the number of PhD degree programs and the number of bachelor enrollments. $H2_6$ argues that there is a relationship between doctoral student-total students' ratio and the number of bachelor enrollments. $H4_1$ argues that there is a relationship between the number of industry partnership and the number of bachelor enrollments. $H4_2$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of bachelor enrollments. $H4_3$ argues that there is a relationship between the number of exchange academics and the number of bachelor enrollments. $H4_4$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of bachelor enrollments. $H6_1$ argues that there is a relationship between the amount of students' fee and the number of bachelor enrollments. $H8_1$ argues that there is a relationship between the number of on-line academic journals and the number of bachelor enrollments. $H8_2$ argues that there is a relationship between the number of distance learning programs and the number of bachelor enrollments. $H8_3$ argues that there is a relationship between the number of on-line database and the number of bachelor enrollments. $H10_1$ argues that there is a relationship between the number of social club and the number of bachelor enrollments. $H10_2$ argues that there is a relationship between the distance of campus location to city center and the number of bachelor enrollments. $H10_3$ argues that there is a relationship between the size of campus area and the number of bachelor enrollments. $H10_4$ argues that there is a relationship between the number of book and the number of bachelor enrollments. $H10_5$ argues that there is a relationship between the number of laboratory and the number of bachelor enrollments. $H12_1$ argues that there is a relationship between the number of professor and the number of bachelor enrollments. $H12_2$ argues that there is a relationship between the number of associate professor and the number of bachelor enrollments. $H12_3$ argues that there is a relationship between the number of assistant professor and the number of bachelor enrollments. $H12_4$ argues that there is a relationship between the number of instructor and the number of bachelor enrollments. $H12_5$ argues that there is a relationship between the number of language instructor and the number of bachelor enrollments. $H12_6$ argues that there is a relationship between the number of research assistant and the number of bachelor enrollments.

As indicated the table, there is a significant and positive relationship between independent variables and the number of bachelor enrollments except five variables. According to the results:

- There is not a significant relationship between the number of distance learning programs and the number of bachelor enrollments ($p = 0{,}009 > 0{,}05$).
- There is not a significant relationship between the number of on-line academic journals and the number of bachelor enrollments ($p = 0{,}119 > 0{,}05$).
- There is not a significant relationship between the number of research assistant and the number of bachelor enrollments ($p = 0{,}229 > 0{,}05$).
- There is not a significant relationship between the number of campus location to city center and the number of bachelor enrollments ($p = 0{,}801 > 0{,}05$).
- There is not a significant relationship between the amount of students' fee and the number of bachelor enrollments ($p = 0{,}911 > 0{,}05$).

As the p-value of these five independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H8_2$, $H8_1$, $H12_6$, $H10_2$ and $H6_1$ are not accepted; the null hypotheses of them are failed to reject.

In the study, the statistical results illustrates that the twenty of the independent variables (the number of BA degree programs, the number of assistant professor, the number of PhD enrolments, the number of university partnership, the number of laboratory, the number of MA degree programs, the number of PhD degree programs, the number of professor, the number of language instructor, the number of social club, the number of instructor, the number of book, the size of campus closed area, the number of exchange academics, the number of associate professor, doctoral student-total students' ratio, the number of on-line database, the number of panelist researcher in TUBITAK-ARDEB, the number of industry partnership and the number of proposed research-development project) are related significantly and positively to the number of bachelor enrollments. The five of the independent variables (the number of distance learning programs, the number of on-line academic journals, the number of research assistant, the distance of campus location to city center, and the amount of students' fee) do not have a statistically significant relationship with the number of bachelor enrollments.

4.2.2.1.9. Simple Regression between Internal Sources and Number of Bachelor Graduated

In this table, the dependent variable of study is the number of bachelor graduated. The each of internal resources is matched with the number of bachelor graduated. The number of bachelor graduated is the second variable of the educational dimension. The results of simple regression analysis are shown in Table 4.36.

Table 4.36 Simple Regression between Internal Resources and the Number of Bachelor Graduated

Predictable Variables	The Number of Bachelor Graduated			
	R^2	Beta	t-value	p-value
The number of PhD enrolments	0,586	0,765	6,931	0,000
The number of BA degree programs	0,572	0,756	6,735	0,000
The number of assistant professor	0,530	0,728	6,188	0,000
The number of PhD degree programs	0,476	0,690	5,558	0,000
The number of MA degree programs	0,445	0,667	5,220	0,000
The number of social club	0,426	0,653	5,026	0,000
The number of professor	0,415	0,644	4,910	0,000
The number of laboratory	0,409	0,640	4,853	0,000
The number of exchange academics	0,408	0,638	4,837	0,000
The number of university partnership	0,396	0,629	4,723	0,000
The number of book	0,379	0,616	4,558	0,000
The number of language instructor	0,368	0,606	4,448	0,000
The number of associate professor	0,340	0,583	4,186	0,000
Doctoral student-total students' ratio	0,302	0,550	3,838	0,001
The number of instructor	0,302	0,549	3,832	0,001
The number of panelist researcher	0,258	0,508	3,442	0,002
The number of industry partnership	0,233	0,483	3,215	0,003
The number of on-line database	0,208	0,457	2,992	0,005
The number of proposed research-development project	0,192	0,439	2,846	0,007
The number of research assistant	0,151	0,388	2,456	0,019
The size of campus closed area	0,148	0,385	2,432	0,020
The number of distance learning programs	0,059	0,242	1,456	0,154
The number of on-line academic journals	0,044	0,211	1,258	0,217
The amount of students' fee	0,010	0,101	0,591	0,558
The distance of campus location to city center	0,002	-0,047	-0,274	0,786
Dependent Variable: The Number of Bachelor Graduated				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and educational dimension ($H2_7$-$H2_{12}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and educational dimension ($H4_5$-$H4_8$)
- The sub-hypothesis which is defined the relation between finance dimension and educational dimension ($H6_2$)
- The sub-hypotheses which are defined the relation between technology dimension and educational dimension ($H8_4$-$H8_6$)
- The sub-hypotheses which are defined the relationship between physical dimension and educational dimension ($H10_6$-$H10_{10}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and educational dimension ($H12_7$-$H12_{12}$)

are tested by simple regression analysis. $H2_7$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of bachelor graduates. $H2_8$ argues that there is a relationship between the number of PhD enrolments and the number of bachelor graduates. $H2_9$ argues that there is a relationship between the number of BA degree programs and the number of bachelor graduates. $H2_{10}$ argues that there is a relationship between the number of MA degree programs and the number of bachelor graduates. $H2_{11}$ argues that there is a relationship between the number of PhD degree programs and the number of bachelor graduates. $H2_{12}$ argues that there is a relationship between doctoral student-total students' ratio and the number of bachelor graduates. $H4_5$ argues that there is a relationship between the number of industry partnership and the number of bachelor graduates. $H4_6$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of bachelor graduates. $H4_7$ argues that there is a relationship between the number of exchange academics and the number of bachelor graduates. $H4_8$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of bachelor graduates. $H6_2$ argues that there is a relationship between the amount of students' fee and the number of bachelor graduates. $H8_4$ argues that there is a relationship between the number of on-line academic journals and the number of bachelor graduates. $H8_5$ argues that there is a relationship between the number of distance learning programs and the number of bachelor graduates. $H8_6$ argues that there is a relationship between the number of on-line database and the number of bachelor graduates. $H10_6$ argues that there is a relationship between the number of social club and the number of bachelor graduates. $H10_7$ argues that there is a relationship between the distance of campus location to city center and the number of bachelor graduates. $H10_8$ argues that there is a relationship between the size of campus area and the number of bachelor graduates. $H10_9$ argues that there is a relationship between the number of book and the number of bachelor graduates. $H10_{10}$ argues that there is a relationship between the number of laboratory and the number of bachelor graduates. $H12_7$ argues that there is a relationship between the number of professor and the number of bachelor graduates. $H12_8$ argues that there is a relationship between the number of associate professor and the number of bachelor graduates. $H12_9$ argues that there is a relationship between the number of assistant professor and the number of bachelor graduates. $H12_{10}$ argues that there is a relationship between the number of instructor and the number of bachelor graduates. $H12_{11}$ argues that there is a relationship between the number of language instructor and the number of bachelor graduates. $H12_{12}$ argues that there is a relationship between the number of research assistant and the number of bachelor graduates.

As indicated the table, there is a significant and positive relationship between independent variables and the number of bachelor graduates except four variables. According to the results:

- There is not a significant relationship between the number of distance learning programs and the number of bachelor graduates ($p = 0, 154 > 0,05$).
- There is not a significant relationship between the number of on-line academic journals and the number of bachelor graduates ($p = 0,217 > 0,05$).
- There is not a significant relationship between the amount of students' fee and the number of bachelor graduates ($p = 0,558 > 0,05$).
- There is not a significant relationship between the number of campus location to city center and the number of bachelor graduates ($p = 0,786 > 0,05$).

As the p-value of these four independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H8_5$, $H8_4$, $H6_2$ and $H10_7$ are not accepted; the null hypotheses of them are failed to reject.

In the study, the statistical results illustrates that the twenty-one of the independent variables (the number of PhD enrolments, the number of BA degree programs, the number of assistant professor, the number of PhD degree programs, the number of MA degree programs, the number of social club, the number of professor, the number of laboratory, the number of exchange academics, the number of university partnership, the number of book, the number of language instructor, the number of associate professor, doctoral student-total students' ratio, the number of instructor, the number of panelist researcher in TUBITAK-ARDEB, the number of industry partnership, the number of on-line database, the number of proposed research-development project, the number of research assistant and the size of campus closed area) are related significantly and positively to the number of bachelor graduates. The four of the independent variables (the number of distance learning programs, the number of on-line academic journals, the amount of students' fee and the distance of campus location to city center) do not have a statistically significant relationship with the number of bachelor graduates.

4.2.2.1.10. Simple Regression between Internal Sources and Number of Master Enrollments

In this table, the dependent variable of study is the number of master enrollments. The each of internal resources is matched with the number of master enrollments. The number of master enrollments is the third variable of the educational dimension. The results of simple regression analysis are shown in Table 4.37.

Table 4.37 Simple Regression between Internal Resources and the Number of Master Enrollments

Predictable Variables	The Number of Master Enrollments			
	R^2	Beta	t-value	p-value
The number of BA degree programs	0,487	0,698	5,683	0,000
The number of MA degree programs	0,407	0,638	4,829	0,000
The number of university partnership	0,356	0,596	4,332	0,000
The number of distance learning programs	0,353	0,594	4,307	0,000
The number of PhD degree programs	0,267	0,517	3,517	0,001
The number of assistant professor	0,255	0,505	3,408	0,002
The number of PhD enrolments	0,228	0,477	3,164	0,003
The number of laboratory	0,185	0,431	2,782	0,009
The number of language instructor	0,169	0,411	2,631	0,013
The number of exchange academics	0,128	0,357	2,230	0,032
The number of professor	0,109	0,330	2,035	0,050
The number of social club	0,107	0,327	2,021	0,051
The size of campus closed area	0,100	0,316	1,941	0,061
The number of instructor	0,098	0,312	1,917	0,064
The number of book	0,088	0,297	1,815	0,078
The number of on-line academic journals	0,039	0,197	1,171	0,250
The number of on-line database	0,033	0,182	1,078	0,289
Doctoral student-total students' ratio	0,031	0,177	1,047	0,302
The amount of students’ fee	0,031	0,177	1,046	0,303
The number of proposed research-development project	0,021	0,143	0,845	0,404
The number of associate professor	0,02	0,140	0,823	0,416
The number of research assistant	0,013	0,112	0,659	0,514
The number of panelist researcher	0,006	0,080	0,466	0,644
The distance of campus location to city center	0,005	0,074	0,433	0,668
The number of industry partnership	0,002	0,045	0,265	0,793
Dependent Variable: The Number of Master Enrollments				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and educational dimension ($H2_{13}$-$H2_{18}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and educational dimension ($H4_9$-$H4_{12}$)
- The sub-hypothesis which is defined the relation between finance dimension and educational dimension ($H6_3$)
- The sub-hypotheses which are defined the relation between technology dimension and educational dimension ($H8_7$-$H8_9$)
- The sub-hypotheses which are defined the relationship between physical dimension and educational dimension ($H10_{11}$-$H10_{15}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and educational dimension ($H12_{13}$-$H12_{18}$)

are tested by simple regression analysis. $H2_{13}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of master enrollments. $H2_{14}$ argues that there is a relationship between the number of PhD enrolments and the number of master enrollments. $H2_{15}$ argues that there is a relationship between the number of BA degree programs and the number of master enrollments. $H2_{16}$ argues that there is a relationship between the number of MA degree programs and the number of master enrollments. $H2_{17}$ argues that there is a relationship between the number of PhD degree programs and the number of master enrollments. $H2_{18}$ argues that there is a relationship between doctoral student-total students' ratio and the number of master enrollments. $H4_9$ argues that there is a relationship between the number of industry partnership and the number of master enrollments. $H4_{10}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of master enrollments. $H4_{11}$ argues that there is a relationship between the number of exchange academics and the number of master enrollments. $H4_{12}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of master enrollments. $H6_3$ argues that there is a relationship between the amount of students' fee and the number of master enrollments. $H8_7$ argues that there is a relationship between the number of on-line academic journals and the number of master enrollments. $H8_8$ argues that there is a relationship between the number of distance learning programs and the number of master enrollments. $H8_9$ argues that there is a relationship between the number of on-line database and the number of master enrollments. $H10_{11}$ argues that there is a relationship between the number of social club and the number of master enrollments. $H10_{12}$ argues that there is a relationship between the distance of campus location to city center and the number of master enrollments. $H10_{13}$ argues that there is a relationship between the size of campus area and the number of master enrollments. $H10_{14}$ argues that there is a relationship between the number of book and the number of master enrollments. $H10_{15}$ argues that there is a relationship between the number of laboratory and the number of master enrollments. $H12_{13}$ argues that there is a relationship between the number of professor and the number of master enrollments. $H12_{14}$ argues that there is a relationship between the number of associate professor and the number of master enrollments. $H12_{15}$ argues that there is a relationship between the number of assistant professor and the number of master enrollments. $H12_{16}$ argues that there is a relationship between the number of instructor and the number of master enrollments. $H12_{17}$ argues that there is a relationship between the number of language instructor and the number of master enrollments. $H12_{18}$ argues that there is a relationship between the number of research assistant and the number of master enrollments.

Table 4.37 shows that there is a significant and positive relationship between eleven independent variables and the number of master enrollments. According to the results, there is not a significant relationship between following independent variables and the number of master enrollments.

- The number of social club ($p = 0,051 > 0,05$)
- The size of campus closed area ($p = 0,061 > 0,05$)
- The number of instructor ($p = 0,064 > 0,05$)
- The number of book ($p = 0,078 > 0,05$)
- The number of on-line academic journals ($p = 0,250 > 0,05$)
- The number of on-line database ($p = 0,289 > 0,05$)
- Doctoral student-total students' ratio ($p = 0,302 > 0,05$)
- The amount of students' fee ($p = 0,303 > 0,05$)
- The number of proposed research-development project ($p = 0,404 > 0,05$)
- The number of associate professor ($p = 0,416 > 0,05$)
- The number of research assistant ($p = 0,514 > 0,05$)
- The number of panelist researcher in TUBITAK-ARDEB ($p = 0.644 > 0,05$)
- The distance of campus location to city center ($p = 0.668 > 0,05$)
- The number of industry partnership ($p = 0.793 > 0,05$)

As the p-value of the fourteen independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H10_{11}$, $H10_{13}$, $H12_{16}$, $H10_{14}$, $H8_{7}$, $H8_{9}$, $H2_{18}$, $H6_{3}$, $H4_{12,}$ $H12_{14,}$ $H12_{18,}$ $H2_{13,}$ $H10_{12}$ and $H4_{9}$ are not accepted; the null hypotheses of them are failed to reject. The eleven sub-hypotheses that are defined the relation between internal resources and the number of master enrollments ($H2_{14,}$ $H2_{15,}$ $H2_{16,}$ $H2_{17,}$ $H4_{10,}$ $H4_{11}$, $H8_{8,}$ $H10_{15,}$ $H12_{13,}$ $H12_{15}$ and $H12_{17}$) are accepted; the null hypotheses of them are rejected.

4.2.2.1.11. Simple Regression between Internal Sources and Number of Master Graduated

In this table, the dependent variable of study is the number of master graduated. The each of internal resources is matched with the number of master graduated. The number of master graduated is the fourth variable of the educational dimension. The results of simple regression analysis are shown in Table 4.38.

Table 4.38 Simple Regression between Internal Resources and the Number of Master Graduated

Predictable Variables	**The Number of Master Graduated**			
	R^2	**Beta**	**t-value**	**p-value**
The number of BA degree programs	0,366	0,605	4,430	0,000
The number of distance learning programs	0,342	0,585	4,202	0,000
The number of PhD degree programs	0,253	0,503	3,389	0,002
The number of PhD enrolments	0,251	0,501	3,379	0,002
The number of MA degree programs	0,234	0,484	3,221	0,003
The number of assistant professor	0,219	0,468	3,085	0,004
The number of laboratory	0,182	0,426	2,748	0,010
The size of campus closed area	0,173	0,416	2,669	0,012
The number of university partnership	0,165	0,406	2,588	0,014
The number of book	0,134	0,366	2,294	0,028
The number of language instructor	0,114	0,337	2,087	0,044
The number of exchange academics	0,092	0,303	1,857	0,072
The number of social club	0,082	0,286	1,743	0,090
The number of on-line academic journals	0,080	0,283	1,723	0,094
The number of proposed research-development project	0,075	0,273	1,657	0,107
The number of on-line database	0,070	0,265	1,602	0,118
The number of professor	0,067	0,259	1,566	0,127
The number of instructor	0,063	0,251	1,513	0,139
Doctoral student-total students' ratio	0,063	0,250	1,507	0,141
The number of associate professor	0,049	0,221	1,318	0,196
The number of panelist researcher	0,045	0,211	1,260	0,216
The number of industry partnership	0,025	0,157	0,927	0,360
The number of research assistant	0,012	0,111	0,652	0,519
The amount of students’ fee	0,002	0,047	0,271	0,788
The distance of campus location to city center	0,002	0,042	0,245	0,808
Dependent Variable: The Number of Master Graduated				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and educational dimension ($H2_{19}$-$H2_{24}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and educational dimension ($H4_{13}$-$H4_{16}$)
- The sub-hypothesis which is defined the relation between finance dimension and educational dimension ($H6_4$)
- The sub-hypotheses which are defined the relation between technology dimension and educational dimension ($H8_{10}$-$H8_{12}$)
- The sub-hypotheses which are defined the relationship between physical dimension and educational dimension ($H10_{16}$-$H10_{20}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and educational dimension ($H12_{19}$-$H12_{24}$)

are tested by simple regression analysis. $H2_{19}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of master graduates. $H2_{20}$ argues that there is a relationship between the number of PhD enrolments and the number of master graduates. $H2_{21}$ argues that there is a relationship between the number of BA degree programs and the number of master graduates. $H2_{22}$ argues that there is a relationship between the number of MA degree programs and the number of master graduates. $H2_{23}$ argues that there is a relationship between the number of PhD degree programs and the number of master graduates. $H2_{24}$ argues that there is a relationship between doctoral student-total students' ratio and the number of master graduates. $H4_{13}$ argues that there is a relationship between the number of industry partnership and the number of master graduates. $H4_{14}$ argues that there is a relationship between the number of university partnership with ERASMUS and the number of master graduates. $H4_{15}$ argues that there is a relationship between the number of exchange academics and the number of master graduates. $H4_{16}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of master graduates. $H6_4$ argues that there is a relationship between the amount of students' fee and the number of master graduates. $H8_{10}$ argues that there is a relationship between the number of on-line academic journals and the number of master graduates. $H8_{11}$ argues that there is a relationship between the number of distance learning programs and the number of master graduates. $H8_{12}$ argues that there is a relationship between the number of on-line database and the number of master graduates.

$H10_{16}$ argues that there is a relationship between the number of social club and the number of master graduates. $H10_{17}$ argues that there is a relationship between the distance of campus location to city center and the number of master graduates. $H10_{18}$ argues that there is a relationship between the size of campus area and the number of master graduates. $H10_{19}$ argues that there is a relationship between the number of book and the number of master graduates. $H10_{20}$ argues that there is a relationship between the number of laboratory and the number of master graduates. $H12_{19}$ argues that there is a relationship between the number of professor and the number of master graduates. $H12_{20}$ argues that there is a relationship between the number of associate professor and the number of master graduates. $H12_{21}$ argues that there is a relationship between the number of assistant professor and the number of master graduates. $H12_{22}$ argues that there is a relationship between the number of instructor and the number of master graduates. $H12_{23}$ argues that there is a relationship between the number of language instructor and the number of master graduates. $H12_{24}$ argues that there is a relationship between the number of research assistant and the number of master graduates.

Table 4.38 shows that there is a significant and positive relationship between eleven independent variables and the number of master graduates. According to the results, there is not a significant relationship between the following independent variables and the number of master graduates.

- The number of exchange academics ($p = 0,072 > 0,05$)
- The number of social club ($p = 0,090 > 0,05$)
- The number of on-line academic journals ($p = 0,094 > 0,05$)
- The number of proposed research-development project ($p = 0.107 > 0,05$)
- The number of on-line database ($p = 0,118 > 0,05$)
- The number of professor ($p = 0,127 > 0,05$)
- The number of instructor ($p = 0,139 > 0,05$)
- Doctoral student-total students' ratio ($p = 0,141 > 0,05$)
- The number of associate professor ($p = 0,196 > 0,05$)
- The number of panelist researcher in TUBITAK-ARDEB ($p = 0,216 > 0,05$)
- The number of industry partnership ($p = 0,360 > 0,05$)
- The number of research assistant ($p = 0,519 > 0,05$)
- The amount of students' fee ($p = 0,788 > 0,05$)
- The distance of campus location to city center ($p = 0.808 > 0,05$)

As the p-value of the fourteen independent variables are greater than alpha ($p > 0,05$), the hypotheses of $H4_{15}$, $H10_{16}$, $H8_{10}$, $H4_{16}$, $H8_{12}$, $H12_{19}$, $H12_{22}$, $H2_{24}$, $H12_{20}$, $H2_{19}$, $H4_{13}$, $H12_{24}$, $H6_{4}$

and $H10_{17}$ are not accepted; the null hypotheses of them are failed to reject. The eleven sub-hypotheses, that are defined the relation between internal resources and the number of master graduates ($H2_{20}$, $H2_{21}$, $H2_{22}$, $H2_{23}$, $H4_{14}$, $H8_{11}$, $H10_{18}$, $H10_{19}$, $H10_{20}$, $H12_{21}$ and $H12_{23}$) are accepted; the null hypotheses of them are rejected.

4.2.2.1.12. Simple Regression between Internal Sources and Number of International Enrollments

In this table, the dependent variable of study is the number of international enrollments. The each of internal resources is matched with the number of international enrollments. The number of international enrollments is the last variable of the educational dimension. The results of simple regression analysis are shown in Table 4.39.

Table 4.39 Simple Regression between Internal Resources and the Number of International Enrollments

Predictable Variables	**The Number of International Enrollments**			
	R^2	**Beta**	**t-value**	**p-value**
The number of distance learning programs	0,355	0,596	4,327	0,000
The size of campus closed area	0,343	0,586	4,217	0,000
The number of BA degree programs	0,238	0,487	3,255	0,003
The number of PhD degree programs	0,167	0,408	2,609	0,013
The number of MA degree programs	0,143	0,378	2,383	0,023
The number of laboratory	0,101	0,318	1,955	0,059
The number of assistant professor	0,088	0,297	1,816	0,078
The number of on-line academic journals	0,087	0,295	1,803	0,08
The number of PhD enrolments	0,083	0,288	1,753	0,089
The number of exchange academics	0,077	0,277	1,681	0,102
The number of book	0,073	0,271	1,639	0,111
The number of instructor	0,072	0,268	1,621	0,114
The number of on-line database	0,066	0,257	1,549	0,131
The number of social club	0,042	0,206	1,227	0,228
The number of proposed research-development project	0,041	0,202	1,203	0,237
The number of university partnership	0,030	0,174	1,032	0,309
The number of language instructor	0,029	0,171	1,015	0,317
The number of associate professor	0,015	0,121	0,711	0,482
The number of panelist researcher	0,012	0,109	0,639	0,527
The number of professor	0,011	0,103	0,607	0,548
The number of industry partnership	0,005	0,072	0,421	0,676
The number of research assistant	0,004	0,064	0,372	0,712
Doctoral student-total students' ratio	0,002	0,041	0,240	0,812
The distance of campus location to city center	0,001	0,029	0,172	0,864
The amount of students' fee	0,000	0,017	0,097	0,923
Dependent Variable: The Number of International Enrollments				

Note: The results are respectively listed by means of standardized beta coefficients and R squared.

In this table:

- The sub-hypotheses which are defined the relation between teaching-research dimension and educational dimension ($H2_{25}$-$H2_{30}$)
- The sub-hypotheses which are defined the relation between relationship-innovation dimension and educational dimension ($H4_{17}$-$H4_{20}$)
- The sub-hypothesis which is defined the relation between finance dimension and educational dimension ($H6_{5}$)
- The sub-hypotheses which are defined the relation between technology dimension and educational dimension ($H8_{13}$-$H8_{15}$)
- The sub-hypotheses which are defined the relationship between physical dimension and educational dimension ($H10_{21}$-$H10_{25}$)
- The sub-hypotheses, which are, defined the relationship between human resources dimension and educational dimension ($H12_{25}$-$H12_{30}$)

are tested by simple regression analysis. $H2_{25}$ argues that there is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the number of international enrollments. $H2_{26}$ argues that there is a relationship between the number of PhD enrolments and the number of international enrollments. $H2_{27}$ argues that there is a relationship between the number of BA degree programs and the number of international enrollments. $H2_{28}$ argues that there is a relationship between the number of MA degree programs and the number of international enrollments. $H2_{29}$ argues that there is a relationship between the number of PhD degree programs and the number of international enrollments. $H2_{30}$ argues that there is a relationship between doctoral student-total students' ratio and the number of international enrollments. $H4_{17}$ argues that there is a relationship between the number of industry partnership and the number of international enrollments. $H4_{18}$ argues that there is a relationship between the number of university partnership with ERASMUS and The number of international enrollments. $H4_{19}$ argues that there is a relationship between the number of exchange academics and the number of international enrollments. $H4_{20}$ argues that there is a relationship between the number of proposed research-development project until 2012 and the number of international enrollments. $H6_{5}$ argues that there is a relationship between the amount of students' fee and the number of international enrollments. $H8_{13}$ argues that there is a relationship between the number of on-line academic journals and the number of international enrollments. $H8_{14}$ argues that there is a relationship between the number of distance learning programs and the number of international enrollments. $H8_{15}$ argues that there is a relationship between the number of on-line database and the number of international enrollments. $H10_{21}$ argues that there is a relationship between the number of social club and the number of international enrollments. $H10_{22}$ argues that there is a relationship between the distance of campus location to city center and the number of international enrollments. $H10_{23}$ argues that there is a relationship between the size of campus area and the number of international enrollments. $H10_{24}$ argues that there is a relationship between the number of book and the number of international enrollments. $H10_{25}$ argues that there is a relationship between the number of laboratory and the number of international enrollments. $H12_{25}$ argues that there is a relationship between the number of professor and the number of international enrollments. $H12_{26}$ argues that there is a relationship between the number of associate professor and the number of international enrollments. $H12_{27}$ argues that there is a relationship between the number of assistant professor and the number of international enrollments. $H12_{28}$ argues that there is a relationship between the number of instructor and the number of international enrollments. $H12_{29}$ argues that there is a relationship between the number of language instructor and the number of international enrollments. $H12_{30}$ argues that there is a relationship between the number of research assistant and the number of international enrollments.

Table 4.39 shows that there is a significant and positive relationship between five independent variables and the number of international enrollments. As the p-value of the five independent variables are not greater than alpha, we reject the null hypothesis, and it means that the results of them are statistically significant. According to the results, there is not a significant relationship between following independent variables and the number of international enrollments.

- The number of laboratory ($p = 0,059 > 0,05$)
- The number of assistant professor ($p = 0,078 > 0,05$)
- The number of on-line academic journals ($p = 0,08 > 0,05$)
- The number of PhD enrolments ($p = 0,089 > 0,05$)
- The number of exchange academics ($p = 0,102 > 0,05$)
- The number of book ($p = 0,111 > 0,05$)
- The number of instructor ($p = 0,114 > 0,05$)
- The number of on-line database ($p = 0,131 > 0,05$)
- The number of social club ($p = 0,228 > 0,05$)
- The number of proposed research-development project ($p = 0,237 > 0,05$)

- The number of university partnership ($p = 0,309 > 0,05$)
- The number of language instructor ($p = 0,317 > 0,05$)
- The number of associate professor ($p = 0,482 > 0,05$)
- The number of panelist researcher in TUBITAK-ARDEB ($p = 0,527 > 0,05$)
- The number of professor ($p = 0,548 > 0,05$)
- The number of industry partnership ($p = 0,676 > 0,05$)
- The number of research assistant ($p = 0,712 > 0,05$)
- Doctoral student-total students' ratio ($p = 0,812 > 0,05$)
- The distance of campus location to city center ($p = 0,864 > 0,05$)
- The amount of students' fee ($p = 0,923 > 0,05$)

As the p-value of the twenty independent variables are greater than alpha ($p > 0,05$), we fail to reject the null hypothesis of them. That is why, only the five sub-hypotheses ($H8_{14}$, $H10_{23}$, $H2_{27}$, $H2_{26}$ and $H2_{28}$), which are defined the relationship between internal resources and the number of international enrollments, are accepted; the null hypotheses of them are rejected. The other twenty sub-hypotheses ($H2_{25}$, $H2_{29}$, $H2_{30}$, $H4_{17}$, $H4_{18}$, $H4_{19}$, $H4_{20}$, $H6_{5}$, $H8_{13}$, $H8_{15}$, $H10_{21}$, $H10_{22}$, $H10_{24}$, $H10_{25}$, $H12_{25}$, $H12_{26}$, $H12_{27}$, $H12_{28}$, $H12_{29}$, $H12_{30}$), which are defined the relationship between independent variables of study and the number of international enrollments, are not accepted; the null hypotheses of them are failed to reject.

4.2.2.1.13. Summary of Sub-Hypotheses Tests

According to the results:

- As Table 3.5 indicated, H1 has 42 sub-hypotheses. The null hypotheses of 9 of them are failed to reject so they are not accepted. The null hypotheses of 33 of them are rejected so they are accepted.
- As Table 3.6 indicated, H2 has 30 sub-hypotheses. The null hypotheses of 7 of them are failed to reject so they are not accepted. The null hypotheses of 23 of them are rejected so they are accepted.
- As Table 3.7 indicated, H3 has 28 sub-hypotheses. The null hypotheses of 8 of them are failed to reject so they are not accepted. The null hypotheses of 20 of them are rejected so they are accepted.
- As Table 3.8 indicated, H4 has 20 sub-hypotheses. The null hypotheses of 9 of them are failed to reject so they are not accepted. The null hypotheses of 11 of them are rejected so they are accepted.

- As Table 3.9 indicated, H5 has 7 sub-hypotheses. The null hypotheses of 3 of them are failed to reject so they are not accepted. The null hypotheses of 4 of them are rejected so they are accepted.
- As Table 3.10 indicated, H6 has 5 sub-hypotheses. The null hypotheses of all of them are failed to reject so they are not accepted.
- As Table 3.11 indicated, H7 has 21 sub-hypotheses. The null hypotheses of 14 of them are failed to reject so they are not accepted. The null hypotheses of 7 of them are rejected so they are accepted.
- As Table 3.12 indicated, H8 has 15 sub-hypotheses. The null hypotheses of 10 of them are failed to reject so they are not accepted. The null hypotheses of 5 of them are rejected so they are accepted.
- As Table 3.13 indicated, H9 has 35 sub-hypotheses. The null hypotheses of 8 of them are failed to reject so they are not accepted. The null hypotheses of 27 of them are rejected so they are accepted.
- As Table 3.14 indicated, H10 has 25 sub-hypotheses. The null hypotheses of 12 of them are failed to reject so they are not accepted. The null hypotheses of 13 of them are rejected so they are accepted.
- As Table 3.15 indicated, H11 has 42 sub-hypotheses. The null hypotheses of 21 of them are failed to reject so they are not accepted. The null hypotheses of 21 of them are rejected so they are accepted.
- As Table 3.16 indicated, H12 has 30 sub-hypotheses. The null hypotheses of 14 of them are failed to reject so they are not accepted. The null hypotheses of 16 of them are rejected so they are accepted.

It is clear from the above that there are 300 sub-hypotheses in study. The null hypotheses of 120 of them are failed to reject so they are not accepted. The null hypotheses of 180 of them are rejected so they are accepted. Rejected sub-hypotheses of study are listed as follows:

Rejected sub-hypotheses of H1:

1. There is a relationship between the number of BA degree programs and the publication score.
2. There is a relationship between the number of MA degree programs and the publication score.
3. There is a relationship between the number of BA degree programs and the citation score.
4. There is a relationship between the number of MA degree programs and the citation score.
5. There is a relationship between the number of PhD enrolments and the number of supported research-development project.
6. There is a relationship between the number of BA degree programs and the number of supported research-development project.
7. There is a relationship between the number of PhD enrolments and the number of supported research-development project.
8. There is a relationship between the number of BA degree programs and the number of supported research-development project.
9. There is a relationship between the number of PhD degree programs and the number of PhD graduated.

Rejected sub-hypotheses of H2:

10. There is a relationship between the number of panelist researcher in TÜBITAK-ARDEB and the number of master enrolments.
11. There is a relationship between doctoral student-total students' ratio and the number of master enrolments.
12. There is a relationship between the number of panelist researcher in TÜBITAK-ARDEB and the number of master graduated.
13. There is a relationship between doctoral student-total students' ratio and the number of master graduated.
14. There is a relationship between the number of panelist researcher in TÜBITAK-ARDEB and the number of international enrolments.
15. There is a relationship between the number of PhD degree programs and the number of international enrolments.
16. There is a relationship between doctoral student-total students' ratio and the number of international enrolments.

Rejected sub-hypotheses of H3:

17. There is a relationship between the number of university partnership with ERASMUS and the publication score.

18. There is a relationship between the number of university partnership with ERASMUS and the citation score.

19. There is a relationship between the number of university partnership with ERASMUS and the number of supported research-development project.

20. There is a relationship between the number of university partnership with ERASMUS and the amount of research grant from TUBITAK.

21. There is a relationship between the number of exchange academics and the number of supported research-development project.

22. There is a relationship between the number of exchange academics and the amount of research grant from TUBITAK.

23. There is a relationship between the number of exchange academics and the number of PhD graduated.

24. There is a relationship between the number of exchange academics and the number of patent.

Rejected sub-hypotheses of H4:

25. There is a relationship between the number of industry partnership and the number of master enrollments.

26. There is a relationship between the number of proposed research-development project until 2012 and the number of master enrollments.

27. There is a relationship between the number of industry partnership and the number of master graduated.

28. There is a relationship between the number of exchange academics and the number of master graduated.

29. There is a relationship between the number of proposed research-development project until 2012 and the number of master graduated.

30. There is a relationship between the number of industry partnership and the number of international enrolments.

31. There is a relationship between the number of university partnership with ERASMUS and the number of international enrolments.

32. There is a relationship between the number of exchange academics and the number of international enrolments.

33. There is a relationship between the number of proposed research-development project until 2012 and the number of international enrolments.

Rejected sub-hypotheses of H5:

34. There is a relationship between the amount of students’ fee and the citation score.

35. There is a relationship between and the amount of students’ fee and the amount of research grant from TUBITAK.

36. There is a relationship between the amount of students’ fee and the number of patent.

Rejected sub-hypotheses of H6:

37. There is a relationship between the amount of students’ fee and the number of bachelor enrolments.

38. There is a relationship between the amount of students’ fee and the number of bachelor graduated.

39. There is a relationship between the amount of students’ fee and the number of master enrollments.

40. There is a relationship between the amount of students’ fee and the number of master graduated.

41. There is a relationship between and the amount of students’ fee and the number of international enrolments.

Rejected sub-hypotheses of H7:

42. There is a relationship between the number of on-line academic journals and the number of exchange students.

43. There is a relationship between the number of distance learning programs and the number of exchange students.

44. There is a relationship between the number of on-line academic journals and the publication score.

45. There is a relationship between the number of distance learning programs and the publication score.

46. There is a relationship between the number of on-line academic journals and the citation score.

47. There is a relationship between the number of distance learning programs and the citation score.

48. There is a relationship between the number of on-line academic journals and the number of supported research-development project.

49. There is a relationship between the number of distance learning programs and the number of supported research-development project.

50. There is a relationship between the number of on-line academic journals and the amount of research grant from TUBITAK.

51. There is a relationship between the number of distance learning programs and the amount of research grant from TUBITAK.

52. There is a relationship between the number of on-line academic journals and the number of PhD graduated.

53. There is a relationship between the number of distance learning programs and the number of PhD graduated.

54. There is a relationship between the number of on-line academic journals and the number of patent.

55. There is a relationship between the number of distance learning programs and the number of patent.

Rejected sub-hypotheses of H8:

56. There is a relationship between the number of on-line academic journals and the number of bachelor enrolments.

57. There is a relationship between the number of distance learning programs and the number of bachelor enrolments.

58. There is a relationship between the number of on-line academic journals and the number of bachelor graduated.

59. There is a relationship between the number of distance learning programs and the number of bachelor graduated.

60. There is a relationship between the number of on-line academic journals and the number of master enrollments.

61. There is a relationship between the number of on-line database and the number of master enrollments.

62. There is a relationship between the number of on-line academic journals and the number of master graduated.

63. There is a relationship between the number of on-line database and the number of master graduated.

64. There is a relationship between the number of on-line academic journals and the number of international enrolments.

65. There is a relationship between the number of on-line database and the number of international enrolments.

Rejected sub-hypotheses of H9:

66. There is a relationship between the distance of campus location to city center and the number of exchange students.

67. There is a relationship between the distance of campus location to city center and the publication score.

68. There is a relationship between the distance of campus location to city center and the citation score.

69. There is a relationship between the distance of campus location to city center and the number of patent.

70. There is a relationship between the distance of campus location to city center and the amount of research grant from TUBITAK.

71. There is a relationship between the distance of campus location to city center and the number of PhD graduated.

72. There is a relationship between the number of social club and the number of patent.

73. There is a relationship between the size of campus area and the number of patent.

Rejected sub-hypotheses of H10:

74. There is a relationship between the distance of campus location to city center and the number of bachelor enrolments.

75. There is a relationship between the distance of campus location to city center and the number of bachelor graduated.

76. There is a relationship between the number of social club and the number of master enrollments.

77. There is a relationship between the distance of campus location to city center and the number of master enrollments.

78. There is a relationship between the size of campus area and the number of master enrollments.

79. There is a relationship between the number of book and the number of master enrollments.

80. There is a relationship between the number of social club and the number of master graduated

81. There is a relationship between the distance of campus location to city center and the number of master graduated.

82. There is a relationship between the number of social club and the number of international enrolments.

83. There is a relationship between the distance of campus location to city center and the number of international enrolments.

84. There is a relationship between the number of book and the number of international enrolments.

85. There is a relationship between the number of laboratory and the number of international enrolments.

Rejected sub-hypotheses of H11:

86. There is a relationship between the number of language instructor and the number of exchange students.

87. There is a relationship between the number of research assistant and the number of exchange students.

88. There is a relationship between the number of professor and the publication score.

89. There is a relationship between the number of assistant professor and the publication score.

90. There is a relationship between the number of instructor and the publication score.

91. There is a relationship between the number of language instructor and the publication score.

92. There is a relationship between the number of research assistant and the publication score.

93. There is a relationship between the number of professor and the citation score.

94. There is a relationship between the number of instructor and the citation score.

95. There is a relationship between the number of language instructor and the citation score.

96. There is a relationship between the number of research assistant and the citation score.

97. There is a relationship between the number of professor and the number of supported research-development project.

98. There is a relationship between the number of assistant professor and the number of supported research-development project.

99. There is a relationship between the number of language instructor and the number of supported research-development project.

100. There is a relationship between the number of research assistant and the number of supported research-development project.

101. There is a relationship between the number of professor and the amount of research grant from TUBITAK.

102. There is a relationship between the number of assistant professor and the amount of research grant from TUBITAK.

103. There is a relationship between the number of language instructor and the amount of research grant from TUBITAK.

104. There is a relationship between the number of research assistant and the amount of research grant from TUBITAK.

105. There is a relationship between the number of research assistant and the number of PhD graduated.

106. There is a relationship between the number of research assistant and the number of patent.

Rejected sub-hypotheses of H12:

107. There is a relationship between the number of research assistant and the number of bachelor enrolments.

108. There is a relationship between the number of associate professor and the number of master enrollments.

109. There is a relationship between the number of instructor and the number of master enrollments.

110. There is a relationship between the number of research assistant and the number of master enrollments.

111. There is a relationship between the number of professor and the number of master graduated.

112. There is a relationship between the number of associate professor and the number of master graduated.

113. There is a relationship between the number of instructor and the number of master graduated.

114. There is a relationship between the number of research assistant and the number of master graduated.

115. There is a relationship between the number of professor and the number of international enrolments.

116. There is a relationship between the number of associate professor and the number of international enrolments.

117. There is a relationship between the number of assistant professor and the number of international enrolments.

118. There is a relationship between the number of instructor and the number of international enrolments.

119. There is a relationship between the number of language instructor and the number of international enrolments.

120. There is a relationship between the number of research assistant and the number of international enrolments.

In conclusion, 120 sub-hypotheses listed above are not supported. Table 4.40 summarizes the results of sub-hypotheses tests.

Table 4.40 Results of the Sub-Hypotheses Tests

Sub-hypotheses	Accepted sub-hypotheses	Rejected sub-hypotheses
$H1_{1}$-$H1_{42}$	$H1_{1}$ $H1_{2}$ $H1_{3}$ $H1_{4}$ $H1_{5}$ $H1_{6}$ $H1_{7}$ $H1_{8}$ $H1_{11}$ $H1_{12}$ $H1_{13}$ $H1_{14}$ $H1_{17}$ $H1_{18}$ $H1_{19}$ $H1_{20}$ $H1_{23}$ $H1_{24}$ $H1_{25}$ $H1_{26}$ $H1_{29}$ $H1_{30}$ $H1_{31}$ $H1_{32}$ $H1_{33}$ $H1_{34}$ $H1_{36}$ $H1_{37}$ $H1_{38}$ $H1_{39}$ $H1_{40}$ $H1_{41}$ $H1_{42}$	$H1_{9}$ $H1_{10}$ $H1_{15}$ $H1_{16}$ $H1_{21}$ $H1_{22}$ $H1_{27}$ $H1_{28}$ $H1_{35}$
$H2_{1}$-$H2_{30}$	$H2_{1}$ $H2_{2}$ $H2_{3}$ $H2_{4}$ $H2_{5}$ $H2_{6}$ $H2_{7}$ $H2_{8}$ $H2_{9}$ $H2_{10}$ $H2_{11}$ $H2_{12}$ $H2_{14}$ $H2_{15}$ $H2_{16}$ $H2_{17}$ $H2_{20}$ $H2_{21}$ $H2_{22}$ $H2_{23}$ $H2_{26}$ $H2_{27}$ $H2_{28}$	$H2_{13}$ $H2_{18}$ $H2_{19}$ $H2_{24}$ $H2_{25}$ $H2_{29}$ $H2_{30}$
$H3_{1}$-$H3_{28}$	$H3_{1}$ $H3_{2}$ $H3_{3}$ $H3_{4}$ $H3_{5}$ $H3_{7}$ $H3_{8}$ $H3_{9}$ $H3_{11}$ $H3_{12}$ $H3_{13}$ $H3_{16}$ $H3_{17}$ $H3_{20}$ $H3_{21}$ $H3_{22}$ $H3_{24}$ $H3_{25}$ $H3_{26}$ $H3_{28}$	$H3_{6}$ $H3_{10}$ $H3_{14}$ $H3_{15}$ $H3_{18}$ $H3_{19}$ $H3_{23}$ $H3_{27}$
$H4_{1}$-$H4_{20}$	$H4_{1}$ $H4_{2}$ $H4_{3}$ $H4_{4}$ $H4_{5}$ $H4_{6}$ $H4_{7}$ $H4_{8}$ $H4_{10}$ $H4_{11}$ $H4_{14}$	$H4_{9}$ $H4_{12}$ $H4_{13}$ $H4_{15}$ $H4_{16}$ $H4_{17}$ $H4_{18}$ $H4_{19}$ $H4_{20}$
$H5_{1}$-$H5_{7}$	$H5_{1}$ $H5_{2}$ $H5_{4}$ $H5_{5}$	$H5_{3}$ $H5_{6}$ $H5_{7}$
$H6_{1}$-$H6_{5}$		$H6_{1}$ $H6_{2}$ $H6_{3}$ $H6_{4}$ $H6_{5}$
$H7_{1}$-$H7_{21}$	$H7_{3}$ $H7_{6}$ $H7_{9}$ $H7_{12}$ $H7_{15}$ $H7_{18}$ $H7_{21}$	$H7_{1}$ $H7_{2}$ $H7_{4}$ $H7_{5}$ $H7_{7}$ $H7_{8}$ $H7_{10}$ $H7_{11}$ $H7_{13}$ $H7_{14}$ $H7_{16}$ $H7_{17}$ $H7_{19}$ $H7_{20}$
$H8_{1}$-$H8_{15}$	$H8_{3}$ $H8_{6}$ $H8_{8}$ $H8_{11}$ $H8_{14}$	$H8_{1}$ $H8_{2}$ $H8_{4}$ $H8_{5}$ $H8_{7}$ $H8_{9}$ $H8_{10}$ $H8_{12}$ $H8_{13}$ $H8_{15}$
$H9_{1}$-$H9_{35}$	$H9_{1}$ $H9_{3}$ $H9_{4}$ $H9_{5}$ $H9_{6}$ $H9_{8}$ $H9_{9}$ $H9_{10}$ $H9_{11}$ $H9_{13}$ $H9_{14}$ $H9_{15}$ $H9_{16}$ $H9_{17}$ $H9_{18}$ $H9_{19}$ $H9_{20}$ $H9_{21}$ $H9_{23}$ $H9_{24}$ $H9_{25}$ $H9_{26}$ $H9_{28}$ $H9_{29}$ $H9_{30}$ $H9_{34}$ $H9_{35}$	$H9_{2}$ $H9_{7}$ $H9_{12}$ $H9_{22}$ $H9_{27}$ $H9_{31}$ $H9_{32}$ $H9_{33}$
$H10_{1}$-$H10_{25}$	$H10_{1}$ $H10_{3}$ $H10_{4}$ $H10_{5}$ $H10_{6}$ $H10_{8}$ $H10_{9}$ $H10_{10}$ $H10_{15}$ $H10_{18}$ $H101_{19}$ $H10_{20}$ $H10_{23}$	$H10_{2}$ $H10_{7}$ $H10_{11}$ $H10_{12}$ $H10_{13}$ $H10_{14}$ $H10_{16}$ $H10_{17}$ $H10_{21}$ $H10_{22}$ $H10_{24}$ $H10_{25}$
$H11_{1}$-$H13_{42}$	$H11_{1}$ $H11_{2}$ $H11_{3}$ $H11_{4}$ $H11_{8}$ $H11_{14}$ $H11_{15}$ $H11_{20}$ $H11_{22}$ $H11_{26}$ $H11_{28}$ $H11_{31}$ $H11_{32}$ $H11_{33}$ $H11_{34}$ $H11_{35}$ $H11_{37}$ $H11_{38}$ $H11_{39}$ $H11_{40}$ $H11_{41}$	$H11_{5}$ $H11_{6}$ $H11_{7}$ $H11_{9}$ $H11_{10}$ $H11_{11}$ $H11_{12}$ $H11_{13}$ $H11_{16}$ $H11_{17}$ $H11_{18}$ $H11_{19}$ $H11_{21}$ $H11_{23}$ $H11_{24}$ $H11_{25}$ $H11_{27}$ $H11_{29}$ $H11_{30}$ $H11_{36}$ $H11_{42}$
$H12_{1}$-$H12_{30}$	$H12_{1}$ $H12_{2}$ $H12_{3}$ $H12_{4}$ $H12_{5}$ $H12_{7}$ $H12_{8}$ $H12_{9}$ $H12_{10}$ $H12_{11}$ $H12_{12}$ $H12_{13}$ $H12_{15}$ $H12_{17}$ $H12_{21}$ $H12_{23}$	$H12_{6}$ $H12_{14}$ $H12_{16}$ $H12_{18}$ $H12_{19}$ $H12_{20}$ $H12_{22}$ $H12_{24}$ $H12_{25}$ $H12_{26}$ $H12_{27}$ $H12_{28}$ $H12_{29}$ $H12_{30}$

4.2.2.2. Results of Main Hypotheses

To test main hypotheses of study, factor analysis, multiple regression, simple regression, normality test and independent t-test are used. As factor and simple analysis are explained previous part, we will briefly explain the multiple regression, independent t test and normality test before testing the main hypotheses.

A multiple linear regression analysis is carried out to predict the values of a dependent variable, Y, given a set of p explanatory variables ($X_1, X_2, \ldots, X_p$). In multiple linear regressions, the variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, predictor or explanatory variables). There are p explanatory variables, and the relationship between the dependent variable and the explanatory variables is represented by the following equation where: $\boldsymbol{b_0}$ is the constant term and $\boldsymbol{b_1}$ to $\boldsymbol{b_p}$ are the coefficients relating the p explanatory variables to the variables of interest.

$$\boldsymbol{Y_i = b_0 + b_1X_1 + b_2X_2 + \ldots.\ b_pX_{pi} + e_i}$$

Therefore, multiple linear regression can be thought of an extension of simple linear regression, where there are p explanatory variables, or simple linear regression can be thought of as a special case of multiple linear regression, where $p=1$. The term “linear” is used because in multiple linear regressions, we assume that Y is directly related to a linear combination of the explanatory variables.

There are different ways, such as enter, stepwise, forward and backward methods, that the relative contribution of each predictor variable can be assessed. In analysis of study, “enter” and “stepwise” method are selected. In “enter” method, the researcher specifies the set of predictor variables that make up the model that is all independent variables in a single step. In “stepwise” method, the program performs the following calculations: for each variable currently in the model, it computes "F-to-remove" statistic; for each variable not in the model, it computes "F-to-enter" statistic. At the next step, the program automatically enters the variable with the highest F-to-enter statistic, or removes the variable with the lowest F-to-remove statistic. Each predictor is constantly assessed.

Based on the literature, the study has two dependent dimensions with twelve variables. The dimensions of dependent variables are regarded as research and educational dimension. The variables of research dimension are identified as the number of exchange students, the publication score, the citation score, the number of supported research-development project, the amount of research grant from TUBITAK, the number of PhD graduated and the number of patent. The variables of educational dimension are determined as the number of bachelor enrolments, the number of bachelor graduated, the number of master enrolments, the number of master graduated and the number of international enrolments.

Based on the literature, the study has six independent dimensions with twenty-five variables. The dimensions of independent variables are regarded as research and teaching, relationship and innovation, the effective use of technology, financial resources, physical resources and human resources. The variables of research and teaching dimension are determined as the number of panelist researcher, the number of PhD enrolments, the number of BA degree programs, the number of ma degree programs, the number of PhD degree programs and doctoral student-total students' ratio. The variables of relationship and innovation dimension are described as the number of industry partnership, the number of university partnership, the number of exchange academics and the number of proposed R&D project. The variables of the effective use of technology dimension are identified as the number of on-line academic journals, the number of distance learning programs and the number of on-line database. The variable of the financial resource dimension is regarded as the amount of students' fee. The variables of the physical resources dimension are described as the number of social club, the distance of campus location to city center, the size of campus area, the number of book and the number of laboratory. The variables of the human resources dimension are described as the number of professor, the number of associate professor, the number of assistant professor, the number of instructor, the number of language instructor and the number of research assistant.

The variables of all dimensions are identified by factor analysis in previous part. According to the factor analysis results, 12 dependent variables (performance of higher education) of study are grouped in two factors. Each of six independent dimensions (internal resources of higher education) is grouped into two factors except financial resource. As the dimension of financial resource has only one variable, the factor analysis could not be done.

The factors of internal resources that are used in the multiple regression analysis are illustrated as follows:

- The teaching-resources dimension has the two factors. Factor 1 refers that the number of BA degree programs, the number of MA degree programs, the number of PhD degree programs and the number of PhD enrolments. Factor 2 refers that the number of panelist researcher and doctoral student-total students' ratio. In the study, factor 1 is called as Tar1; factor 2 is called as Tar2.

- The relationship-innovation dimension has the two factors. The number of industry partnership and the number of proposed R&D project are substantially loaded on Factor 1 while the number of university partnership and the number of exchange academics are substantially loaded on Factor 2. In the study, factor 1 is called as Rsi1; factor 2 is called as Rsi2.
- The effective use of technology dimension has the two factors. The number of distance learning programs and the number of online-academic journals are substantially loaded on Factor 1 while the number of on-line database is substantially loaded on Factor 2. In the study, factor 1 is called as Tech1; factor 2 is called as Tech2.
- The physical resources dimension has the two factors. The number of social club, the number of book, the number of laboratory and the size of closed area are substantially loaded on Factor 1 while the distance of campus location to city center is substantially loaded on Factor 2. In the study, factor 1 is called as Ph1; factor 2 is called as Ph2.
- The human resources dimension has the two factors. Factor 1 refers that the number of language instructor, the number of assistant professor, the number of professor, the number of associate professor and the number of research assistant. Factor 2 refers that the number of instructor. In the study, factor 1 is called as Staff1 1; factor 2 is called as Staff2.

The factors of performance that are used in the multiple regression analysis are illustrated as follows:

- The performance of higher education as a dependent variable of study has the two factors. The number of supported research-development project, the amount of research grant, the number of PhD graduated, the citation score, the publication score, the number of exchange students and the number of patent are substantially loaded on Factor 1. The number of master enrolments, the number of master graduated, the number of bachelor enrolments, the number of international enrolments and the number of bachelor graduated are substantially loaded on Factor 2. In the study, factor 1 is called as Research; factor 2 is called as Education.

Based on the factor analysis results, multiple regression analysis is used to test main hypotheses of study. The results of multiple regression analysis are shown in the following tables. Important statistics, R squared, Adjusted R Square, Beta, t-value and p-value are illustrated in the tables. R is a measure of the correlation between the observed value and the predicted value of the criterion variable. R Square (R^2) is the square of this measure of correlation and indicates the proportion of the variance in the criterion variable, which is accounted for by our model. However, R square tends to somewhat over-estimate the success of the model when applied to the real world, so an Adjusted R Square value is calculated which takes into account the number of variables in the model and the number of observations (participants) our model is based on.

The independent t-test, also called the two-sample t-test or student's t-test, is an inferential statistical test that determines whether there is a statistically significant difference between the means in two unrelated groups. The null hypothesis for the independent t-test is that the population means from the two unrelated groups are equal. In most cases, we are looking to see if we can show that we can reject the null hypothesis and accept the alternative hypothesis, which is that the population means are not equal. To do this, we need to set a significance level (alpha) that allows us to either reject or accept the alternative hypothesis. Most commonly, this value is set at 0,05.

Many statistical tests require that our data are normally distributed and therefore we should always check if this assumption is violated. In statistics, normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. One such test is the Kolmogorov-Smirnov test which can be used to statistically test for normality. The Kolmogorov-Smirnov test is a nonparametric test that can used to assess whether data has been sampled from a specific distribution. This test is very versatile and can be adapted to test other specified distributional forms. The Kolmogorov-Smirnov test proceeds by comparing the empirical cumulative distribution function from the data against a proposed theoretical cumulative distribution function. In the Kolmogorov-Smirnov test, the maximum discrepancy between the empirical cumulative distribution function and the theoretical distribution function is recorded. If this maximum deviation exceeds a critical value then H0 is rejected; otherwise, we fail to reject H0. The derivation of this test does not focus on highly specific features of the normal distribution and this lack of specificity giving rise to its general versatility means that the test can have comparatively lower power when compared to tests of normality specifically designed to exploit properties of the normal distribution and alternative distributions (WEB_9, 2014).

4.2.2.2.1. Testing of H1

Hypothesis 1 proposes that there is a relationship between research-teaching and research performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.41.

Table 4.41 Multiple Regression between Teaching-Resources Factors and Research Dimension

	Research Dimension		
	Beta	**t-value**	**p-value**
Tar 1	0,114	1,844	0,074
Tar 2	0,927	14,938	0,000
	R^2	**Adjusted R^2**	**Sig.**
Constant: 3,281E-	0,873	0,865	0,000 **

Dependent Variable: Research Performance

Note: * *p is significant at* < 0,05 as measured by t-test
** *p is significant at* < 0,01 as measured by t-test

The R^2 value is 0,873 which means 87,3% of the variation can significantly be explained by the independent variables. The first explanatory variable Tar1, which includes the number of BA degree programs, the number of MA degree programs, the number of PhD degree programs and the number of PhD enrolments, is not statistically significant (β = 0,114, t = 1,844 and p = 0,074 > 0,05). The second independent variable Tar2, which includes the number of panelist researcher and doctoral student-total students' ratio, is statistically significant (β = 0,927, t = 14,938 and p = 0,000 < 0,05). It is associated to the research performance with a greater percentage. The results of multiple regression indicates that only one factor of teaching-research dimension is effective on research performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 86. The first explanatory variable is removed from the model and only the second explanatory variable (p = 0,000 < 0,05) is included to the model.

In the study, Model-1 refers that the impact of teaching-research factors (Tar1 and Tar2) on research performance. β_0 refers that constant term. In the model the intercept (often labeled the constant) is very small, it could not include in model. β_1 refers that coefficient of *Tar1*; β_2 refers that coefficient of *Tar2*. X_1 refers that *Tar1*; X_2 refers that *Tar2.*

The theoretical model is:

Research performance = $\beta_0 + \beta_1$ Tar1+ β_2 Tar2

The estimated model is:

Research performance = 0,927 Tar2

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing. Normality test of the null hypotheses is that H_0 is the observed distribution fits the normal distribution and H_a is the observed distribution does not fit the normal distribution. Kolmogorov-Smirnov test is used to evaluate the normality assumption. The test statistics are as follows:

- K-S statistic = 0,717
- P-value = 0,683

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

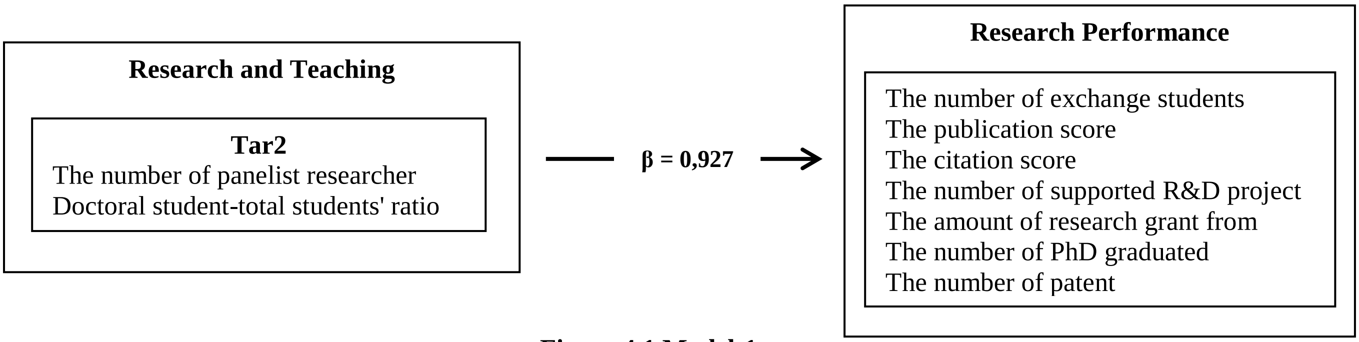

Figure 4.1 Model-1

4.2.2.2.2. Testing of H2

Hypothesis 2 states that there is a relationship between research-teaching and educational performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.42.

Table 4.42 Multiple Regression between Teaching-Resources Factors and Educational Dimension

Predictable Variables	**Educational Dimension**		
	Beta	**t-value**	**p-value**
Tar 1	0,807	7,866	0,000**
Tar 2	-0,035	-0,339	0,736
	R^2	**Adjusted R^2**	**Sig**
Constant: -2,440E-17	0,653	0,632	0,000**

Dependent Variable: Educational Performance

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 65,3 which means 65,3% of the variation can significantly be explained by the independent variables. The first explanatory variable Tar1, which includes the number of BA degree programs, the number of MA degree programs, the number of PhD degree programs and the number of PhD enrolments, is statistically significant and positively related to the educational performance with a greater percentage ($\beta = 0{,}807$, $t = 7{,}866$ and $p = 0{,}000 < 0{,}05$). The second independent variable Tar2, which includes the number of panelist researcher and doctoral student-total students' ratio, is not statistically significant ($\beta = -0{,}035$, $t = -0{,}339$ and $p = 0{,}736 > 0{,}05$). The results of multiple regression indicates that only one factor of teaching-research dimension is effective on educational performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 65,1. The second explanatory variable is removed from the model and only the first explanatory variable ($p = 0{,}000 < 0{,}05$) is included to the model.

In the study, Model-2 refers that the impact of teaching-research factors (Tar1 and Tar2) on educational performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Tar1*; β_2 refers that coefficient of *Tar2*. X_1 refers that *Tar1*; X_2 refers that *Tar2.*

The theoretical model here is:

Educational performance = $\beta_{\mathbf{0}} + \beta_{\mathbf{1}}$ Tar1 + $\beta_{\mathbf{2}}$ Tar2

The estimated model here is:

Educational performance = 0,807 Tar1

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,124
- P-value = 0,160

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

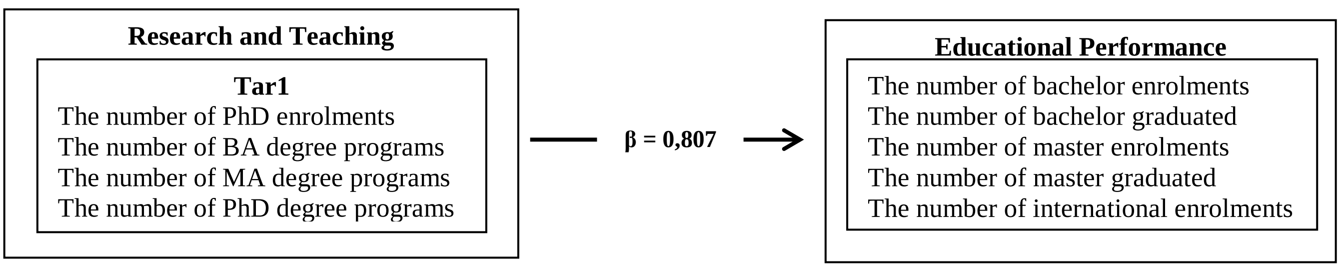

Figure 4.2 Model-2

4.2.2.2.3. Testing of H3

Hypothesis 3 states that there is a relationship between relationship-innovation and research performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.43.

Table 4.43 Multiple Regression between Relationship-Innovation Factors and Research Dimension

Predictable Variable	**Research Dimension**		
	Beta	**t-value**	**p-value**
Rsi1	0,899	13,656	0,000**
Rsi2	0,220	3,335	0,002**
	R^2	**Adjusted R^2**	**Sig.**
Constant: -6,304E-18	0,857	0,848	0,000**

Dependent Variable: Research Performance
Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 85,7 which means 85,7% of the variation can significantly be explained by the independent variables. The first explanatory variable Rsi1, which includes the number of industry partnership and the number of proposed R&D project, is statistically significant and positively related to research performance (β = 0,899, t = 13,656 and p = 0,000 < 0,05). The second independent variable Rsi2, which includes the number of university partnership and the number of exchange academics, is statistically significant and positively related to research performance (β = 0,220, t = 3,335 and p = 0,002 < 0,05).

In the study, Model-3 refers that the impact of relationship-innovation factors (Rsi1 and Rsi2) on research performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Rsi1*; β_2 refers that coefficient of *Rsi2*. X_1 refers that *Rsi1*; X_2 refers that *Rsi2.*

The theoretical model here is:

Research performance = $\beta_0 + \beta_1$ Rsi1 + β_2 Rsi2

The estimated model here is:

Research performance = 0,899 Rsi1 + 0,220 Rsi2

As two of factors explain to the model, the multiple linear regression assumptions will be examined through normality of residuals and collinearity tests. The test statistics are follows:

- K-S statistic = 0,605
- P-value = 0,857

As the p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution.

Collinearity (also called multicollinearity) refers to the assumption that the independent variables are uncorrelated. Multicollinearity can result in misleading and unusual results, inflated standard errors. Widely used procedures examine the correlation matrix of the predictor variables, computing the coefficients of determination, R^2, and measures of the eigenvalues of the data matrix including variance inflation factors (VIF). Tolerance measures the influence of one independent variable on all other independent variables. Tolerance levels for correlations range from zero (no independence) to one (completely independent). The VIF is an index of the amount that the variance of each regression coefficient is increased over that with uncorrelated independent variables. When a predictor variable has a strong linear association with other predictor variables, the associated VIF is large and is evidence of multicollinearity. The rule of thumb for a large VIF value is ten. Small values for tolerance and large VIF values show the presence of multicollinearity. The collinearity test statistics indicates:

- VIF = 1
- It means that VIF < 10.
- Therefore, there is no problem with multicollinearity of model.

The figure of model is illustrated as follow:

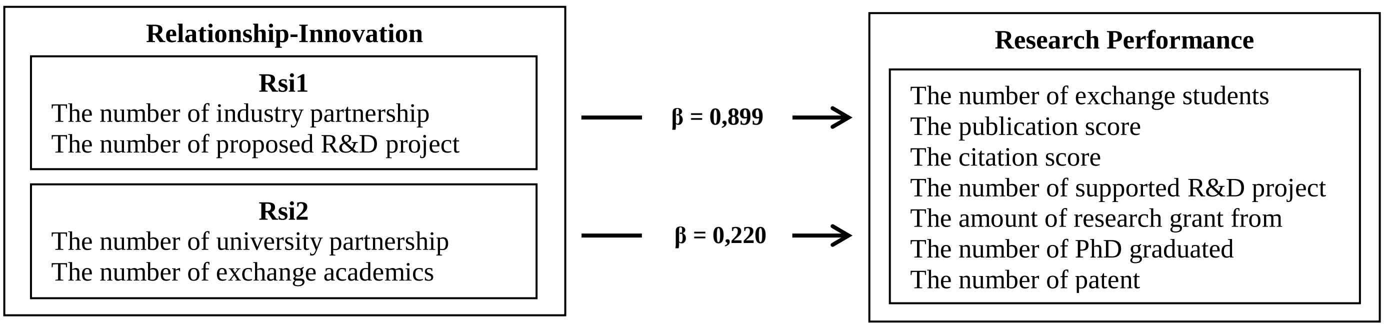

Figure 4.3 Model-3

4.2.2.2.4. Testing of H4

Hypothesis 4 states that there is a relationship between relationship-innovation and educational performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.44.

Table 4.44 Multiple Regression between Relationship-Innovation Factors and Educational Dimension

Predictable Variable	Educational Dimension		
	Beta	**t-value**	**p-value**
Rsi1	0,026	0,187	0,853
Rsi2	0,590	4,200	0,000**
	R^2	**Adjusted R^2**	**Sig**
Constant: 2,438E-17	0,349	0,309	0,001**

Dependent Variable: Educational Performance

Note: **p is significant at* < 0,05 as measured by t-test

***p is significant at* < 0,01 as measured by t-test

The R^2 value is 34,9 which means 34,9% of the variation can significantly be explained by the independent variables. The first explanatory variable Rsi1, which includes the number of industry partnership and the number of proposed R&D project, is not statistically significant (β = 0,026, t = 0,187 and p = 0,853 > 0,05). The second independent variable Rsi2, which includes the number of university partnership and the number of exchange academics, is statistically significant and positively related to educational performance (β = 0,590, t = 4,200 and p = 0,000 < 0,05). The results of multiple regression indicates that only one factor of relationship-innovation dimension is effective on educational performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 34,8. The first explanatory variable is removed from the model and only the second explanatory variable (p = 0,000 < 0,05) is included to the model.

In the study, Model-4 refers that the impact of relationship-innovation factors (Rsi1 and Rsi2) on education performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Rsi1*; β_2 refers that coefficient of *Rsi2*. X_1 refers that *Rsi1*; X_2 refers that *Rsi2.*

The theoretical model here is:

Educational performance = $\beta_0 + \beta_1$ Rsi1 + β_2 Rsi2

The estimated model here is:

Educational performance = 0,590 Rsi2

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,045
- P-value = 0,224

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

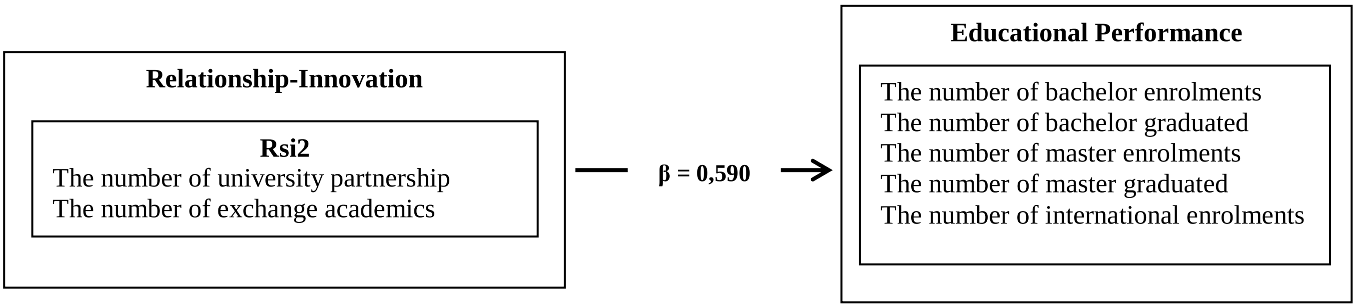

Figure 4.4 Model-4

4.2.2.2.5. Testing of H5

Hypothesis 5 proposes that there is a relationship between financial resources and research performance. As financial resources is only determined as students' fee, the hypothesis was tested by simple regression analysis. The results of simple regression analysis are given in Table 4.45.

Table 4.45 Simple Regression between Financial Resources Dimension and Research Dimension

Predictable Variable	**Research Dimension**		
	Beta	**t-value**	**Sig.**
Students' fee	0,370	2,322	0,026*
	R^2		
Constant: - 4,144E-16	0,137		

Dependent Variable: Research Performance

Note: *p *is significant at* < 0,05 as measured by t-test

**p *is significant at* < 0,01 as measured by t-test

The R^2 value is 13,7 which means 13,7% of the variation can significantly be explained by the independent variables. The explanatory variable Students' Fee is statistically significant ($\beta = 0,370$, $t = 2,322$ and $p = 0,026 < 0,05$) and positively related with research performance. In the study, Model-5 refers that the impact of amount of students' fee on research performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *amount of students' fee*. X_1 refers that *students' fee.*

The theoretical model here is:

Research performance = $\beta_0 + \beta_1$ Students' Fee

The estimated model here is:

Research performance = 0,370 Students' Fee

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,309
- P-value = 0,065

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

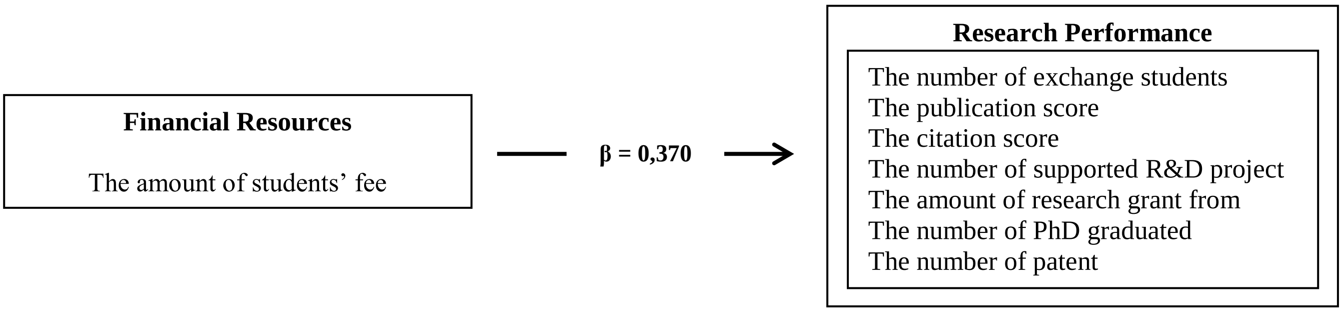

Figure 4.5 Model-5

4.2.2.2.6. Testing of H6

Hypothesis 6 proposes that there is a relationship between financial resources and educational performance. As financial resources is only determined as Students' Fee, the hypothesis was tested by simple regression analysis. The results of simple regression analysis are given in Table 4.46.

Table 4.46 Simple Regression between Financial Resources Dimension and Educational Dimension

Predictable Variable	**Educational Dimension**		
	Beta	**t-value**	**Sig.**
Students' fee	0,016	0,093	0,927
	R^2		
Constant: 1,560E-17	0,000		

Dependent Variable: Educational Performance

Note: **p is significant at* < 0,05 as measured by t-test

***p is significant at* < 0,01 as measured by t-test

The R^2 value is zero. This indicates that educational performance could not explained by financial resources dimension. The explanatory variable students' fee is not statistically significant (β = 0,016, t = 0,093 and p = 0,927 > 0,05). Therefore, Model6, which is proposed in theoretical part, is not statically meaningful and H6 is not supported.

4.2.2.2.7. Testing of H7

Hypothesis 7 proposes that there is a relationship between effective use of technology and research performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.47.

Table 4.47 Multiple Regression between Effective Use of Technology Factors and Research Dimension

Predictable Variables	**Research Dimension**		
	Beta	**t-value**	**p-value**
Tech1	-0,093	-0,738	0,466
Tech2	0,686	5,457	0,000**
	$\mathbf{R^2}$	**Adjusted** $\mathbf{R^2}$	**Sig.**
Constant: 2,811E-17	0,479	0,447	0,000**

Dependent Variable: Research Performance

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 47,9 which means 47,9 % of the variation can significantly be explained by the independent variables. The first explanatory variable Tech1, which includes the number of distance learning programs and the number of online-academic journals, is not statistically significant (β = -0,093, t = -0,738 and p = 0,466 > 0,05). The second independent variable Tech2, which includes the number of on-line database, is statistically significant (β = 0,686, t = 5,457 and p = 0,000 < 0,05). The first of independent variables does not have a significant impact on research performance. The second of explanatory variables, which has a positive coefficient with a greater percentage, is associated with a higher level of research performance. The results of multiple regression indicates that only one factor of effective use of technology dimension is important on research performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 47. The first explanatory variable is removed from the model and only the second explanatory variable (p = 0,000 < 0,05) is included to the model.

In the study, Model-7 refers that the impact of effective use of technology factors (Tech1 and Tech2) on research performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Tech1*; β_2 refers that coefficient of *Tech2*. X_1 refers that *Tech1*; X_2 refers that *Tech2.*

The theoretical model here is:

Research performance = $\beta_0 + \beta_1$ Tech1+ β_2 Tech2

The estimated model here is:

Research performance = 0,686 Tech2

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 0,694
- P-value = 0,722

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

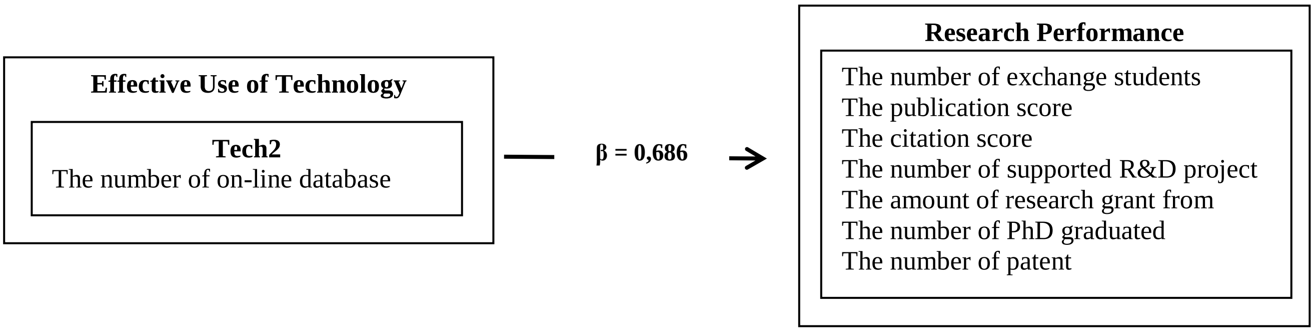

Figure 4.6 Model-7

4.2.2.2.8. Testing of H8

Hypothesis 8 states that there is a relationship between effective use of technology and educational performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.48.

Table 4.48 Multiple Regression between Effective Use of Technology Factors and Educational Dimension

Predictable Variables	**Educational Dimension**		
	Beta	**t-value**	**p-value**
Tech1	0,561	4,104	0,000**
Tech2	0,261	1,907	0,065
	R^2	**Adjusted R^2**	**Sig**
Constant: 4,728E-17	0,383	0,346	0,000**

Dependent Variable: Educational Dimensions

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 38,3 which means 38,3 % of the variation can significantly be explained by the independent variables. The first explanatory variable Tech1, which includes the number of distance learning programs and the number of online-academic journals, is statistically significant ($\beta = 0,561$, $t = 4,104$ and $p = 0,000 < 0,05$). The second independent variable Tech2, which includes the number of on-line database, is not statistically significant ($\beta = 0,261$, $t = 1,907$ and $p = 0,065 > 0,05$). This means that the first of independent variables has positive coefficient and it has a significant impact on educational performance; the second of explanatory variables does not have a significant impact on educational performance. The results of multiple regression indicates that only one factor of effective use of technology dimension is effective on educational performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 31,5. The second explanatory variable is removed from the model and only the first explanatory variable ($p = 0,000 < 0,05$) is included to the model.

In the study, Model-8 refers that the impact of effective use of technology factors (Tech1 and Tech2) on educational performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Tech1*; β_2 refers that coefficient of *Tech2*. X_1 refers that *Tech1*; X_2 refers that *Tech2.*

The theoretical model here is:

Educational performance = $\beta_0 + \beta_1$ Tech1+ β_2 Tech2

The estimated model here is:

Educational performance = 0,561Tech1

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,391
- P-value = 0,042

As p value is smaller than 0,05, the residuals are not normally distributed. The alternative hypothesis cannot be rejected and conclude that the data does not come from a normal distribution. Hence, H8 is again tested in the following part and the result of this hypothesis is assessed with H10. In additions that, as the residuals are not normally distributed, Model-8 that explains the impact of effective use of technology factors on educational performance but it could not be supported by mathematically. That is to say, although, there is a relationship between Tech1 and education performance, the coefficient of Tech1 could not be confirmed. Therefore, the figure of Model 8 is illustrated as follow:

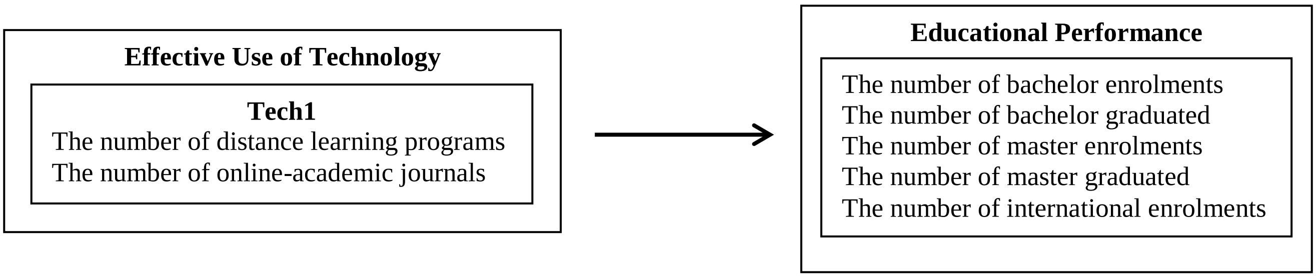

Figure 4.7 Model-8

4.2.2.2.9. Testing of H9

Hypothesis 9 proposes that there is a relationship between physical resources and research performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.49.

Table 4.49 Multiple Regression between Physical Resources Factors and Research Dimension

Predictable Variables	**Research Dimension**		
	Beta	**t-value**	**p-value**
Ph1	0,729	6,172	0,000**
Ph2	0,093	0,789	0,436
	R^2	**Adjusted R^2**	**Sig.**
Constant: 1,808E-17	0,540	0,512	0,000**

Dependent Variable: Research Performance

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 54, which means 54% of the variation can significantly be explained by the independent variables. The first explanatory variable Ph1, which includes the number of social club, the number of book, the number of laboratory and the size of closed area, is statistically significant (β = 0,729, t = 6,172 and p = 0,000 < 0,05). The second independent variable Ph2, which includes the distance of campus location to city center, is not statistically significant (β = 0,093, t = 0,789 and p = 0,436 > 0,05). The first of independent variables has positive coefficient and it has a significant impact on research performance. The second of explanatory variables does not have a significant impact on research performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 53,1. The second explanatory variable is removed from the model and only the first explanatory variable (p = 0,000 < 0,05) is included to the model.

In the study, Model-9 refers that the impact of physical resources factors (Ph1 and Ph2) on research performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Ph1*; β_2 refers that coefficient of *Ph2*. X_1 refers that *Ph1*; X_2 refers that *Ph2.*

The theoretical model here is:

Research performance = $\beta_{\mathbf{0}} + \beta_{\mathbf{1}}$ Ph1+ $\beta_{\mathbf{2}}$ Ph2

The estimated model here is:

Research performance = 0,729 Ph1

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 0,784
- P-value is 0,571

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

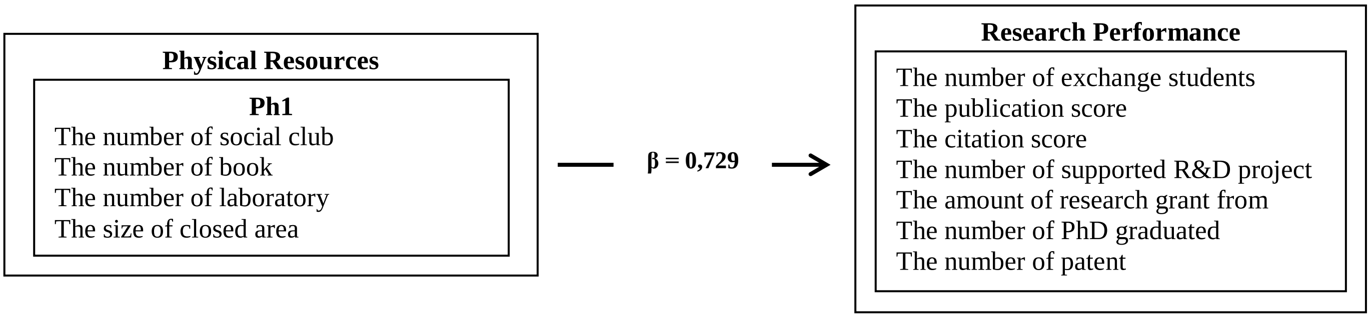

Figure 4.8 Model-9

4.2.2.2.10. Testing of H10

Hypothesis 10 proposes that there is a relationship between physical resources and educational performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.50.

Table 4.50 Multiple Regression between Physical Resources Factors and Educational Dimension

Predictable Variables	**Educational Dimension**		
	Beta	**t-value**	**p-value**
Ph1	0,450	2,901	0,007**
Ph2	0,068	0,439	0,664
	$\mathbf{R^2}$	**Adjusted** $\mathbf{R^2}$	**Sig.**
Constant: 3,812E-17	0,207	0,159	0,022*

Dependent Variable: Educational Performance

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 20,7 which means 20,7% of the variation can significantly be explained by the independent variables. The first explanatory variable Ph1, which includes the number of social club, the number of book, the number of laboratory and the size of closed area, is statistically significant ($\beta = 0{,}450$, $t = 2{,}901$ and $p = 0{,}007 < 0{,}05$). The second independent variable Ph2, which includes the distance of campus location to city center, is not statistically significant ($\beta = 0{,}068$, $t = 0{,}439$ and $p = 0{,}664 > 0{,}05$). The first of independent variables has positive coefficient and it has a significant impact on educational performance. The second of explanatory variables does not have a significant impact on educational performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 20,2. The second explanatory variable is removed from the model and the first explanatory variable ($p = 0{,}006 < 0{,}05$) is only included to the model.

In the study, Model-10 refers that the impact of physical resources factors (Ph1 and Ph2) on educational performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Ph1*; β_2 refers that coefficient of *Ph2*. X_1 refers that *Ph1*; X_2 refers that *Ph2.*

The theoretical model here is:

Educational performance = $\beta_0 + \beta_1$ Ph1+ β_2 Ph2

The estimated model here is:

Educational performance = 0,450 Ph1

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,430
- P-value = 0,034

As p value is smaller than 0,05, the residuals are not normally distributed. The alternative hypothesis cannot be rejected and conclude that the data does not come from a normal distribution. That is why, H8 and H10 tested by Independent Sample T-test. According to the education dimension scores, the observations are divided into two groups. The observations that have the greater education dimension score than average of scores coded as 1, and lower ones coded as 0 respectively. Independent sample t-test are performed to find whether the differences between two groups' (higher education scores and lower education scores) means – the scores of Ph1 and Tech1– are significant or not. The results are shown in Table 4.51.

Table 4.51 Independent Samples Test

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Standardized Residual EDU-TECH1	Equal variances assumed	42,261	0,000	-4,474	34	0,000
	Equal variances not assumed			-3,167	10,867	0,009
Standardized Residual EDU-PH1	Equal variances assumed	23,483	0,000	-4,704	34	0,000
	Equal variances not assumed			-3,284	10,706	0,008

The null hypothesis of Levene's Test for Equality of Variance statistics says that the groups variances are equal. In this case, groups' variances are not equal for both Tech1 (F= 42,261, p=0,000) and Ph1 (F= 23,483, p=0,000) factors respectively. Therefore, the row "equal variances not assumed" will be considered. The null hypothesis of Independent Sample T-test says that the means of two independent groups are equal. Tests statistics show that the means of Tech1 factor of two independent education dimension groups are not equal. Similarly, the means of ph1 factor of two independent education dimension groups are not equal. That is why, the means of Tech1 factor scores are differ by education dimension groups (t = -3,167, df = 10,867, p = 0,009); the means of Ph1 factor scores are differ by education dimension groups (t = -3,284, df = 10,706, p = 0,008). At the end of analysis, the null hypothesis of H8 is rejected (sig < 0,005) and accepts H8 because of sufficient evidence in favor of H8 and the null hypothesis of H10 is rejected (sig < 0,005) and accepts H10 because of sufficient evidence in favor of H10.

Moreover, as the residuals are not normally distributed, Model-10 that explains the impact of effective use of technology factors on educational performance but it could not be supported by mathematically. This means that, although, there is a relationship between Ph1 and education performance, the coefficient of Ph1 could not be certainly determined. Therefore, the figure of Model 10 is illustrated as follow:

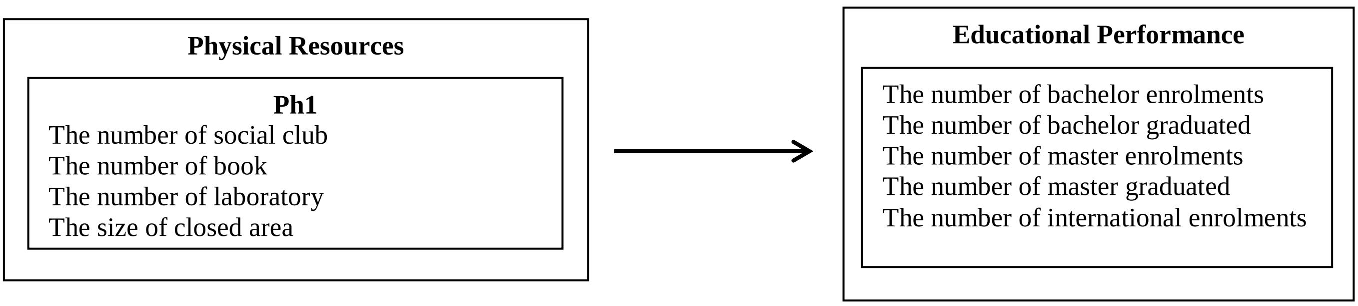

Figure 4.9 Model-10

4.2.2.2.11. Testing of H11

Hypothesis 11 proposes that there is a relationship between human resources and research performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.52.

Table 4.52 Multiple Regression between Human Resources Factors and Research Dimension

Predictable Variable	Research Dimension		
	Beta	**t-value**	**p-value**
Staff1	0,211	1,362	0,182
Staff2	0,405	2,615	0,013*
	R^2	**Adjusted R^2**	**Sig.**
Constant: 3,489E-17	0,208	0,161	0,021*

Dependent Variable: Research Performance
Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 20,8 which means 20,8% of the variation can significantly be explained by the independent variables. The first explanatory variable Staff1, which includes the number of language instructor, the number of assistant professor, the number of professor, the number of associate professor and the number of research assistant, is not statistically significant ($\beta = 0{,}211$, $t = 1{,}362$ and $p = 0{,}182 > 0{,}05$). The second independent variable Staff2, which includes the number of instructor, is statistically significant ($\beta = 0{,}405$, $t = 2{,}615$ and $p = 0{,}013 < 0{,}05$). The first of independent variables does not have a significant impact on research performance. The second of explanatory variables has a positive coefficient and it has a significant impact on research performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 16,4. The first explanatory variable is removed from the model and only the second explanatory variable ($p = 0{,}014 < 0{,}05$) is included to the model.

In the study, Model-11 refers that the impact of human resources factors (Staff1 and Staff2) on research performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Staff1*; β_2 refers that coefficient of *Staff2*. X_1 refers that *Staff1*; X_2 refers that *Staff2.*

The theoretical model here is:

Research performance = $\beta_0 + \beta_1$ Staff1+ β_2 Staff2

The estimated model here is:

Research performance = 0,405 Staff2

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 0,957
- P-value = 0,318

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

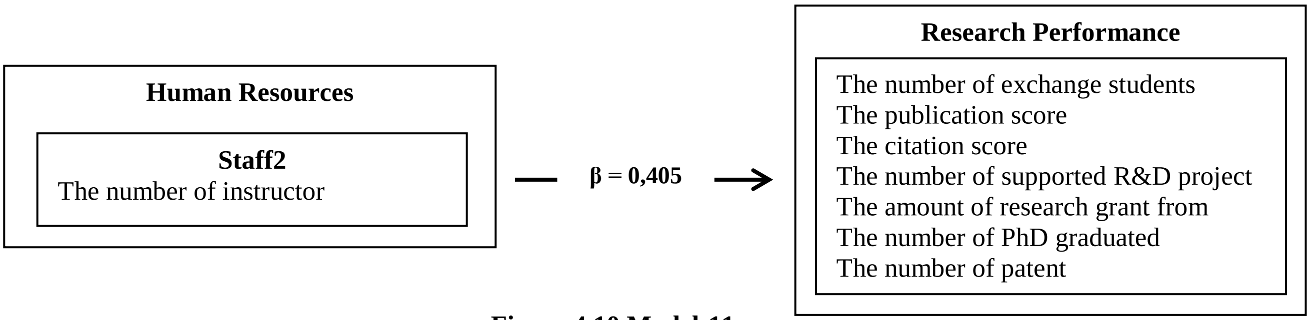

Figure 4.10 Model-11

4.2.2.2.12. Testing of H12

Hypothesis 12 states that there is a relationship between human resources and educational performance. Firstly, the hypothesis was tested by multiple regression analysis with enter method. The results of analysis are given in Table 4.53.

Table 4.53 Multiple Regression between Human Resources Factors and Educational Dimension

Predictable Variable	Educational Dimension		
	Beta	**t-value**	**p-value**
Staff1	0,410	2,671	0,012*
Staff2	0,237	1,546	0,132
	R^2	**Adjusted R^2**	**Sig**
Constant: 4,978E-17	0,224	0,177	0,015*

Dependent Variable: Educational Performance

Note: **p is significant at* < 0,05 as measured by t-test
***p is significant at* < 0,01 as measured by t-test

The R^2 value is 22,4 which means 22,4 % of the variation can significantly be explained by the independent variables. The first explanatory variable Staff1, which includes the number of language instructor, the number of assistant professor, the number of professor, the number of associate professor and the number of research assistant, is statistically significant (β = 0,410, t = 2,671 and p = 0,012 < 0,05). The second independent variable

Staff2, which includes the number of instructor, is not statistically significant (β = 0,237, t = 1,546 and p = 0,132 > 0,05). The first of independent variables has positive coefficient and it has a significant impact on educational performance. The second of explanatory variables does not have a significant impact on educational performance. Therefore, the previous analysis is run again using stepwise methods. According to the results of second analysis, R square value decreased to 16,8. The second explanatory variable is removed from the model and only the first explanatory variable (p = 0,013 < 0,05) is included to the model.

In the study, Model-12 refers that the impact of human resources factors (Staff1 and Staff2) on educational performance. β_0 refers that constant term. In the model the intercept is very small, it could not include in model. β_1 refers that coefficient of *Staff1*; β_2 refers that coefficient of *Staff2*. X_1 refers that *Staff1*; X_2 refers that *Staff2.*

The theoretical model here is:

Educational performance = $\beta_0 + \beta_1$ Staff1+ β_2 Staff2

The estimated model here is:

Educational performance = 0,410 Staff1

As the linear regression model is explained with one factor, the model should be tested by the normality of residuals. The test statistics are as follows:

- K-S statistic = 1,25
- P-value = 0,088

As p value is greater than 0,05, the residuals are normally distributed. We can reject the alternative hypothesis and conclude that the data comes from a normal distribution. The figure of model is illustrated as follow:

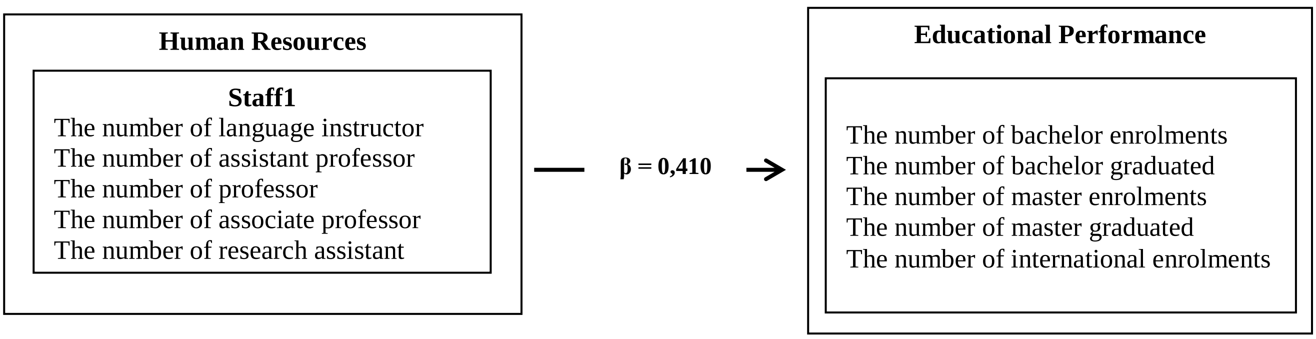

Figure 4.11 Model-12

4.2.2.2.13. Summary of Main Hypotheses Tests

The test results of main hypotheses of study are given in Table 4.54.

Table 4.54 Results of the Main Hypotheses Tests

Hypotheses number	Main Hypotheses of Study	Testing Results	Accepted/Rejected
H1	There is a relationship between research-teaching and research performance.	Simple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H1 because of sufficient evidence in favor of H1
H2	There is a relationship between research-teaching and educational performance.	Simple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H2 because of sufficient evidence in favor of H2
H3	There is a relationship between relationship-innovation and research performance.	Multiple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H3 because of sufficient evidence in favor of H3
H4	There is a relationship between relationship-innovation and educational performance.	Simple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H4 because of sufficient evidence in favor of H4
H5	There is a relationship between financial resources and research performance.	Simple Regression Analysis, p = 0,026 < 0,05	Reject H0 and accept H5 because of sufficient evidence in favor of H5
H6	There is a relationship between financial resources and educational performance.	Simple Regression Analysis, p = 0,927 > 0,05	Do not reject H0 because of insufficient evidence to support H6
H7	There is a relationship between the effective use of information technology and research performance.	Simple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H7 because of sufficient evidence in favor of H7
H8	There is a relationship between the effective use of information technology and educational performance.	Independent Sample T-test, p = 0,009 < 0,05	Reject H0 and accept H8 because of sufficient evidence in favor of H8
H9	There is a relationship between physical resources and research performance.	Simple Regression Analysis, p = 0,000 < 0,05	Reject H0 and accept H9 because of sufficient evidence in favor of H9
H10	There is a relationship between physical resources and educational performance.	Independent Sample T-test, p = 0,008 < 0,05	Reject H0 and accept H10 because of sufficient evidence in favor of H10
H11	There is a relationship between human resources and research performance.	Simple Regression Analysis, p = 0,014 < 0,05	Reject H0 and accept H11 because of sufficient evidence in favor of H11
H12	There is a relationship between human resources and educational performance.	Simple Regression Analysis, p = 0,013 < 0,05	Reject H0 and accept H12 because of sufficient evidence in favor of H12

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

In strategic management literature, there are two main ideas that have explained the concept of competitive advantage. One of them is Industry-Based View, which is generally represented by Porter Theory. It suggests that the source of competitive advantage of a firm should be investigated within its industrial environments. The second is Resource-Based View. It underlines the strategic resources and capabilities as main sources of competitive advantage. According to Porter Theory, to obtain above average profits taking right decisions and choosing suitable strategy must be main tool with managing Five Competitive Forces. To use and develop resources must be main tool getting above average profits in Resource-Based View. While Five Forces Theory sees the industry as the starting point of analysis, the Resource-Based View sees the firm.

In our study, Five Forces Theory and Resource-Based Views are accepted as complementary with each other to determine competitive advantage factors like many previous studies. Through this idea:

- The research identified the external competitive forces of higher education in the context of literature.
- The research identified the internal resources affecting to higher education in the context of literature.
- The research specified the performance indicators to obtain competitive advantage in the context of literature.
- The research presented the perception of academics about (i) the effect of external competitive forces on higher education performance; (ii) the relationship between internal resources and higher education performance.
- Lastly, the study analyzed the relationship between internal resources and performance indicators of higher education. As the identified external competitive forces are constant for all Turkish foundation universities, they only examined according to the academics' perception. Therefore, the effects of them were excluded of study models.

Therefore, the following research questions were clarified through the analysis of study.

a. What do academics think about the effect of external competitive forces on higher education performance?

b. What do academics think about the relationship between internal resources and higher education performance?

c. What is the relationship between internal resources and higher education performance?

To reveal academics' perception about the effect of external competitive forces on higher education performance, descriptive analysis is used. The results of descriptive analysis can be summarized as follows:

- The perception of academics about the effect of rivalry among existing competitors to the performance of higher education is demonstrated with mean value of 3,43.
- The perception of academics about the effect of buyers to the performance of higher education is demonstrated with mean value of 3,11.
- The perception of academics about the effect of suppliers to the performance of higher education is demonstrated with mean value of 3,06.
- The perception of academics about the effect of the threat of new entrants to the performance of higher education is demonstrated with mean value of 3.
- The perception of academics about the effect of substitutes to the performance of higher education is demonstrated with mean value of 2,88.

According to the results of descriptive analysis, the most important dimension is the effect of rivalry among existing competitors; the least important dimension is the threat of substitutes. The results support previous findings of Pringle and Huisman (2011). They say that Porter's Five Forces framework helps to delineate the effects of supplier power and rivalry as powerful forces in the higher education industry. In addition, the findings are the parallel with study of Huang (2012). His study refers that "level of competition" is rated the most important external factor affecting the competitive advantage of higher education, whereas "threat of substitutes" is rated the lowest.

Moreover, the most crucial points in analysis must be emphasized. They are:

- The effect of the power of academics, which is in dimension of the bargaining power of suppliers, on identified higher education performance is the most important item with mean value of 3,65 in all dimensions.

- The effect of the power of high school teachers, which is in dimension of the bargaining power of suppliers, on identified higher education performance is the least important item with mean value of 2,19 in all dimensions.
- The most important expression is that the power of academics to higher education area affects the number of supported research-development project of a university with mean value of 4,11. Almost with the same value, the other significant expression is that the power of students to higher education area affects the number of bachelor and master graduated of a university with mean value of 4,03. This result is supported by study of Dobni and Dobni (1996). Their studies propose that the students must play a salutary role. In addition, they say that the balance of power can be seen to be shifting toward the student in higher education area.
- The least significant expression is that the power of high schools teachers to higher education area affects the number of bachelor and master graduated of a university with mean value of 1,5.
- The overall mean value of external competitive forces and their items is 3,09. The average mean of all dimensions indicates that the academics slightly agree on the impact of external environment forces to the identified higher education performance.

To reveal academics' perception about the relationship between internal resources and higher education performance, descriptive analysis is used. The results of descriptive analysis can be summarized as follows:

- The perception of academics about the relationship between human resources and higher education performance is demonstrated with mean value of 3,53.
- The perception of academics about the relationship between teaching and research and higher education performance is demonstrated with mean value of 3,50.
- The perception of academics about the relationship between relationship and innovation and higher education performance is demonstrated with mean value of 3,22.
- The perception of academics about the relationship between financial resources and higher education performance is demonstrated with mean value of 3,01.
- The perception of academics about the relationship between effective use of technology and higher education performance is demonstrated with mean value of 2,92.

- The perception of academics about the relationship between physical resources and higher education performance is demonstrated with mean value of 2,92.

According to the results of descriptive analysis, the most important dimension is the human resources; the least important dimensions are the physical and technological resources. The respondent academics agree on the human resources and teaching-research items. Nevertheless, they slightly agree on the other items of internal resources.

In addition that the most crucial points in analysis must be emphasized. For respondent academics, the most important expressions are:

- There is a relationship between the number of proposed research-development project and the number of supported research-development project with mean value of 4,12. There is a relationship between the number of panelist researcher in TUBITAK-ARDEB and the amount of research grant from TUBITAK with mean value of 4,1. There is a relationship between the number of university partnership with ERASMUS and the number of exchange students with mean value of 4,06. These results also parallel with the results of simple regression. The regression results show that there is a high correlation between these independent and dependent variables. R^2 value of the relation between the number of proposed research-development project and the number of supported research-development project is 0,893 and R^2 value of the relation between number of panelist researcher in TUBITAK-ARDEB and amount of research grant from TUBITAK is 0,890.
- The least significant expression is that there is a relationship between the number of social club and the number of patent with mean value of 2,09 and there is a relationship between the number of exchange academics and the number of patent with mean value of 1,81. The simple regression result also supports this view of academics. R^2 value of the relation between these variables is very low with value of 0,099 and 0,035 respectively.
- The overall mean value of the academics' perception about the relationship between internal resources and higher education performance is 3.18. The average mean of all dimensions indicates that the academics slightly agree on the relationship between internal resources and higher education performance.

When the results of descriptive statistic of external competitive five forces and internal resources are compared, it can be observed that internal resources are more important than external competitive five forces. The findings of analysis illustrate that the academics believe that the internal sources of a higher education are more effective than external environment forces on its performance. This result is the same as previous study of Huang (2012). The study of Huang proposes that the resources and capabilities are more important in achieving competitive advantage regardless of industry or sector type.

All of these descriptive analyses help enriching the interpretation of the study hypotheses. As these results based on the academics' perception; they cannot be used in model of study. To emerge the relationship between the internal resources of higher education and performance, 12 main-hypotheses and 300 sub-hypotheses are established. Factor analysis, simple regression, multiple regression analysis and independent t-test are applied to investigate this relationship. According to the results of testing main hypotheses, 11 models, which are explained the impacts of internal resources on higher education performance, are obtained.

Model-1 refers that the impact of teaching-research on research performance of higher education. According to simple regression result, $p = 0,000 < 0,05$, this means that reject H0 and accept H1 because of sufficient evidence in favor of H1. The hypothesis of there is a relationship between research-teaching and research performance is supported by analysis.
Model-2 presents that the impact of teaching-research on educational performance of higher education. According to simple regression result, $p = 0,000 < 0,05$, this means that reject H0 and accept H2 because of sufficient evidence in favor of H2. The hypothesis of there is a relationship between research-teaching and educational performance is supported by analysis. These findings are parallel the study of Huang (2012). His study says that higher education institutions are likely to achieve competitive advantage and superior performance if they are equipped with a pool of highly qualified teaching staff with excellent performance in teaching and research, together with the most comprehensive range of high quality degree programs and courses.

Model-3 refers that the impact of relationship-innovation on research performance of higher education. According to multiple regression result, $p = 0,000 < 0,05$, this means that reject H0 and accept H3 because of sufficient evidence in favor of H3. The hypothesis of there is a relationship between relationship-innovation and research performance is supported. Model-4 refers that the impact of relationship-innovation on educational performance of higher education. According to simple regression result, $p = 0,000 < 0,05$, this means that reject H0 and accept H4 because of sufficient evidence in favor of H4. The hypothesis of there is a relationship between relationship-innovation and education performance is supported. These results support the findings of Lynch and Baines (2004).

They say that the network of relationship, contracts, and government is a kind of competitive advantage for higher education. Also, Mazzarol and Soutar (1999) and Huang's (2012) studies' are the parallel with findings. Mazzarol and Soutar (1999) propose that the importance of possessing international strategic alliances or coalitions has featured in the literature as a source of competitive advantage for higher education. R&D capabilities have proven to influence positively institutional performance in Huang's (2012) research. The study of Chang et al. (2005) has the parallel outcomes with our research. They say that to compete with those prestigious public educational institutions and increase the barriers to entry, one solution is to form strategic alliances in order to share and exchange scarce resources.

Model-5 refers that the impact of financial resources on research performance of higher education. According to simple regression result, $p = 0{,}026 < 0{,}05$, this means that reject H0 and accept H5 because of sufficient evidence in favor of H5. The hypothesis of there is a relationship between financial resources and research performance is supported. The findings of Huang (2012) and Lindong (2007) researches' are parallel with our study. According to their studies, the financial resources are regarded as one of the important internal resource in achieving competitive advantage for a university.

Model-7 refers that the impact of the effective use of information technology on research performance of higher education. According to simple regression result, $p = 0{,}000 < 0{,}05$, this means that reject H0 and accept H7 because of sufficient evidence in favor of H7. The hypothesis of there is a relationship between effective use of information technology and research performance is supported. Model-8 refers that the impact of the effective use of information technology on educational performance of higher education. According to independent simple t-test result, $p = 0{,}009 < 0{,}05$, this means that reject H0 and accept H8 because of sufficient evidence in favor of H8. The hypothesis of there is a relationship between effective use of information technology and educational performance is supported. Nevertheless, as the residuals of model are not normally distributed, the coefficient of independent variable (Tech1) cannot be confirmed in this model. This means that, although there is a theoretical relationship between Techn1 (the number of distance learning programs and the number of online-academic journals) and education; the mathematical relationship cannot be shown in the study. These conclusions of study support the findings of Mazzarol research (1998). This research states that the effective use of information technology is considered as a potential source of competitive advantage. Porter & Millar (1985), Parsons

(1983) and Gerstein & Reisman (1982) highlight the importance of information technology as a source of competitive advantage for universities.

Model-9 refers that the impact of physical resources on research performance of higher education. According to simple regression result, p = 0,000 < 0,05, this means that reject H0 and accept H9 because of sufficient evidence in favor of H9. The hypothesis of there is a relationship between physical resources and research performance is supported. Model-10 refers that the impact of physical resources on educational performance of higher education. According to independent simple t-test result, p = 0,008 < 0,05, this means that reject H0 and accept H10 because of sufficient evidence in favor of H10. The hypothesis of there is a relationship between physical resources and educational performance is supported. Nevertheless, as the residuals of model are not normally distributed, the coefficient of independent variable (Ph1) cannot be confirmed in this model. This means that, although there is a theoretical relationship between Ph1 (the number of social club, the number of book, the number of laboratory and the sized of closed area) and education; the mathematical relationship cannot be shown in the study. These findings of study are parallel with the research of Price, Matzdorf, Smith and Agahi (2003) who claim that the quality of campus facilities is perceived as having an important influence on students' choice of institution. The role of physical facilities and infrastructure in supporting institutional performance and competitive advantage has been widely acknowledged (Beynon, 1997; Flemining & Storr, 1999; Price et al., 2003). Moreover, Russo and Fouts (1997) examine the relationship between physical resources and organizational performance. Their research results suggest that the available quantity of physical resources would facilitate the distribution system and improve the power of operation systems, thus allowing a further increase of productivity.

Model-11 refers that the impact of human resources on research performance of higher education. According to simple regression result, p = 0,014 < 0,05, this means that reject H0 and accept H11 because of sufficient evidence in favor of H11. The hypothesis of there is a relationship between human resources and research performance is supported. Model-12 refers that the impact of human resources on educational performance of higher education. According to simple regression result, p = 0,013 < 0,05, this means that reject H0 and accept H12 because of sufficient evidence in favor of H12. The hypothesis of there is a relationship between human resources and educational performance is supported. According to Huang (2012), human resources are related positively to the performance of higher education institutions. Mazzarol and Soutar (1999) emphasize the importance of quality staff obtaining competitive advantage. In addition, the research results of Lindong (2007) prove the effect of human resources on higher education performance.

According to the results, H6 has the p value of 0,927, which is bigger than p value of 0,05. This means that do not reject H0 because of insufficient evidence to support H6. In the study, the hypothesis of there is a relationship between financial resources and educational performance is not supported. Model-6 cannot be proved through the results of study's analysis.

As indicated the results, research performance is respectively explained according to standardized beta coefficient as follows: Tar2, which includes the number of panelist researcher and doctoral student-total students' ratio, with standardized beta coefficient of 0,927. Rsi1 which includes the number of industry partnership and the number of proposed R&D project, with standardized beta coefficient of 0,899. Ph1, which includes the number of social club, the number of book, the number of laboratory and the size of closed area, with standardized beta coefficient of 0,729. Tech2 which includes the number of on-line database, with beta coefficient of 0,686. Staff2, which includes the number of instructor, with standardized beta coefficient of 0,405. Students' Fee with standardized beta coefficient of 0,37. Rsi2, which includes the number of university partnership and the number of exchange academics, with standardized beta coefficient of 0,22.

According to the results, educational performance is respectively accounted for according to standardized beta coefficient as follows: Tar1, which includes the number of BA degree programs, the number of MA degree programs, the number of PhD degree programs and the number of PhD enrolments, with standardized beta coefficient of 0,807. Rsi2, which includes the number of university partnership and the number of exchange academics, with standardized beta coefficient of 0,59. Tech1 which includes the number of distance learning programs and the number of online-academic journals, with standardized beta coefficient of 0,561. Ph1, which includes the number of social club, the number of book, the number of laboratory and the size of closed area, with standardized beta coefficient of 0,45. Staff1, which includes the number of language instructor, the number of assistant professor, the number of professor, the number of associate professor and the number of research assistant, with standardized beta coefficient of 0,41.

The results indicate that the research performance is respectively explained through teaching-resources, relationship-innovation, physical resources, and effective use of technology, human resources and financial resources. Internal resources respectively explain the educational performance with teaching-resources, effective use of technology, relationship-innovation, human resources and physical resources. The educational performance only could not be explained by financial resources dimension.

According to the results of analyses, all of main-hypotheses are accepted except H6, which is represented the relationship between financial resources and educational performance. This shows that the internal resources of higher education are important in achieving competitive advantage for a university. The result supports the assertion of Resource-Based View that an organization’s resources and capabilities has a greater potential to achieve competitive advantage and enjoy superior performance (Wernerfelt, 1984; Barney,1991; Grant, 1991; Amit & Schoemaker, 1993).

The research certainly provides an opinion for Turkish higher education and a platform for further studies. However, the study has some restrictions. One of them is that as it undertaken in a given period, it always has its limitations. The data of the study were collected in 2012-2013. The conditions in which the analyses are done may not be same in the following period. This situation has created its constraints by means of currency.

The research emerged a series of indicators for measuring higher education performance. It offers some models for Turkish foundation universities to measure performance creating competitive advantage. As the defined performance measurements are selected through measurable data, they are not included some performance criteria such as motivation and satisfaction of academics. Other researches can examine the performance of universities in terms of academics’ satisfaction and motivation.

In this study, the respondents were selected only in foundation universities. Since this particular sample is limited, a wider survey may be more valuable for the further research. In addition, the study has been restricted to limited educational institutions. The selected universities for other studies can be expanded. The state universities can be included in other studies with discussion and comparing viewpoints among state and foundation universities. Such a study might obtain a more precise identification of successful Turkish higher education system.

The effect of external environment factors by Porter Theory might also have an influence on universities’ success and achieving best performance. Future research should further explore these aspects to gather new insightful to the results of study.

Identifying and prioritizing the factors determining the competitive advantage of Turkish foundation universities has assisted in providing an enhanced understanding of strategic planning and management of them. The models developed in the study have created a theoretical basis to explore competitive advantage for universities. These models show that internal resources serve to contribute to the performance with varying degrees of importance. It is expected that the models will be applicable to the higher education at all levels in Turkey and in other countries.

It can be say that there is no single factor for achieving performance. The importance of factors of competitive advantage for universities may vary over time. The most important current issue may be the least important in the future. Therefore, it is recommended that a longitudinal or periodical study should be undertaken to examine the changes in the relative effects of each source on competitive advantage both within and outside the higher education. This means that there could be new factors considered as important contributors to the competitive advantage and within the nature of the study, many questions have been raised for further studies.

The proposed models of competitive advantage will assist Turkish foundation universities related government policy-makers to identify the challenges and opportunities that they have, and set broad directions and policies in response to these. The results of this study will also assist managers of Turkish foundation universities in examining their internal resources and identifying external environment. With dynamic changes, university managers must be sensitive to new trends and developments with students' demands and they should effort for decreasing all threats of external competitive forces as well as increasing internal competitive resources.

REFERENCES

Abbott, M., & Doucouliagos, C. (2003). The efficiency of Australian universities: a data envelopment analysis. *Economics of Education review*, *22*(1), 89-97.

Abramo, G., Cicero, T., & D'Angelo, C. A. (2012). The dispersion of research performance within and between universities as a potential indicator of the competitive intensity in higher education systems. *Journal of Informetrics*, *6*(2), 155-168.

Adams, G. L., & Lamont, B. T. (2003). Knowledge management systems and developing sustainable competitive advantage. *Journal of knowledge management*, *7*(2), 142-154.

Advanced Education and Career Development (1997). *Key performance indicators reporting manual for Alberta post-secondary institutions.* Edmonton, AB: Author.

Albanese, M. (1999). Students are not customers: a better model for medical education. *Academic Medicine*, *74*(11), 1172-86.

Alderson (1965). "The Search for Differential Advantage"

Altbach, P. G. (2006). Globalization and the University: Myths and Realities in an Unequal World [J]. *Peking University Education Review*, *1*, 008.

Altbach, P. G., & Knight, J. (2007). The internationalization of higher education: Motivations and realities. *Journal of studies in international education*, *11*(3-4), 290-305.

Altbach, P. G., Reisberg, L., & Rumbley, L. E. (2009). Trends in global higher education: Tracking an academic revolution.

Altbach, P. G. (2011). The Research University. *Economic & Political Weekly*,*46*(16), 65.

Altinsoy, S. (2011). A review of university facilities in Turkey. *CELE Exchange. Centre for Effective Learning Environments*, *2011*.

Altunay E. (2010). Profile of students and the reasons why they prefer private universities in Turkey. MSc Thesis. Boğaziçi Univ., Inst. for Graduate Studies in Educational Sciences. Istanbul, Turkey.

Alves, A. R., & Vieira, A. (2006, May). SERVQUAL as a marketing instrument to measure service quality in higher education institutions. In *Second International Conference: Product Management Challenges of the Future, Poznan, Poland-May* (pp. 18-20).

Alves, H., & Raposo, M. (2007). Conceptual model of student satisfaction in higher education. *Total Quality Management*, *18*(5), 571-588.

Amaratunga, D., Baldry, D. and Sarshar, M. (2000). "Performance evaluation infacilities management: Using the balanced scorecard approach." *Proceedings of COBRA 2000,* Greenwich, U.K., 1-15.

Amit, R., & Schoemaker, P. J. (1993). Strategic assets and organizational rent. *Strategic management journal*, *14*(1), 33-46..

Apple, M. W. (2001). Comparing neo-liberal projects and inequality in education. *Comparative education*, *37*(4), 409-423.

Armstrong, C. E., & Shimizu, K. (2007). A Review of Approaches to Empirical Research on the Resource-Based View of the Firm†. *Journal of management*,*33*(6), 959-986.

Arokiasamy, A. R. A., & Nagappan, K. (2012). An Analysis of Globalization and Higher Education in Malaysia. *Business Intelligence Journal (19182325)*, *5*(1).

Arokiasamy, A. R. A. (2012). Literature Review: Service Quality in Higher Education Institutions in Malaysia. *Contemporary Business Studies*.

Asaad, Y. (2011). An investigation into export market orientation in UK universities from the international marketing managers' perspective: A mixed-method approach.

Asad, M., & Adedoyin, F. O. (2011). Porter's Five Forces vs Resource Based View-a Comparison. *Available at SSRN 1945217*.

Atakan, M. S., & Eker, T. (2007). Corporate identity of a socially responsible university–a case from the Turkish higher education sector. *Journal of Business Ethics*, *76*(1), 55-68.

Babacan, A., Kartal, M., & Bircan, H. (2007). Cumhuriyet Üniversitesi'nin Etkinliğinin Kamu Üniversiteleri ile Karşılaştırılması: Bir VZA Tekniği Uygulaması. *CU İktisadi ve İdari Bilimler Fakültesi Dergisi*, *8*(2), 97-114.

Băcilă, M. F. (2008). 12Th grade student's behavior in the decision making process of educational choices. *Management and Marketing*, *3*(4), 81-92.

Basheka (2008), Value for Money and Efficiency in Higher Education': Resources Management and Management of Higher Education in Uganda and its Implications for Quality Education Outcomes. Outcomes of higher education: Quality relevance and impact. Paris, France

Bain, J. S. (1959). Industrial organization. New York: Wiley.

Baker, M. J., & Balmer, J. M. (1997). Visual identity: trappings or substance? *European Journal of marketing*, *31*(5/6), 366-382.

Balderston, F. (1995). Managing today's University: Strategies for viability, change and excellence. San Francisco: Jossey-Bass Publishers.

Baraskova, J. (2010). *Strategic Positioning and Sustainable Competitive Advantage in Food Industry* (Doctoral dissertation, Master Thesis. Aarhus School of Business. Denmark).

Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management science*, *32*(10), 1231-1241.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Barney, J. B. (1994). Bringing managers back in: a resource-based analysis of the role of managers in creating and sustaining competitive advantages for firms. *Does management matter*, 1-36.

Barney, J. B., & Hansen, M. H. (1994). Trustworthiness as a source of competitive advantage. *Strategic management journal*, *15*(S1), 175-190.

Barney, J. B. (1995). Looking inside for competitive advantage. *The Academy of Management Executive*, *9*(4), 49-61.

Barney, J. B. (2001). Is the resource-based “view” a useful perspective for strategic management research? Yes. *Academy of management review*, *26*(1), 41-56.

Barney, J. B., & Arikan, A. M. (2001). The resource-based view: Origins and implications. *The Blackwell handbook of strategic management*, 124-188.

Barney, Jay B. (2002). Gaining and Sustaining Competitive Advantage, 2nd ed. Reading, Mass.:Addison-Wesley

Barney, J. B., & Clark, D. N. (2007). *Resource-based theory: Creating and sustaining competitive advantage*. Oxford: Oxford University Press.

Bay, D., & Daniel, H. (2001). The student is not the customer: An alternative perspective. *Journal of Marketing for Higher Education*, 11, 1–19.

Baysal, M. E., Alçılar, B., Çerçioğlu, H., & Toklu, B. (2005). Türkiye’deki Devlet Üniversitelerinin 2004 Yılı Performanslarının, Veri Zarflama Analizi Yöntemiyle Belirlenip Buna Göre 2005 Yılı Bütçe Tahsislerinin Yapılması. *SAÜ Fen Bilimleri Enstitüsü Dergisi*, *9*(1), 67-73.

Beasley J. E., (1995). Determining Teaching and Research Efficiencies. *Journal of The Operational Research Society, 46* (4), 441-452.

Becerra, M. (2008). A resource-based analysis of the conditions for the emergence of profits. *Journal of management*, *34*(6), 1110-1126.

Belfield, C. R. & Levin, H. M. (2002) Education privatization: causes, consequences and planning implications, Paris: UNESCO. Retrieved December 12, 2009 from http://www.unesco.org/iiep

Belfield, C. R., & Levin, H. M. (2002). The effects of competition between schools on educational outcomes: A review for the United States. *Review of Educational research*, *72*(2), 279-341.

Bellamy, S., Morley, C., & Watty, K. (2003). Why business academics remain in Australian universities despite deteriorating working conditions and reduced job satisfaction: an intellectual puzzle. *Journal of Higher Education Policy and Management*, *25*(1), 13-28.

Besanko, D., Dranove, D., Shanley, M., & Schaefer, S. (2009). *Economics of strategy*. John Wiley & Sons.

Beynon, J. (1997). *Physical facilities for education: what planners need to know*. Paris: United Nation Educational, Scientific and Cultural Organization, International Institute for Educational Planning.

Bharadwaj, S. G., Varadarajan, P. R., & Fahy, J. (1993). Sustainable competitive advantage in service industries: a conceptual model and research propositions. *The Journal of Marketing*, 83-99.

Bititci, U. S., Carrie, A. S. and McDevitt, L. (1997). “Integrated performance measurement systems.” *International Journal of Operational Product Management*, 17(5), 522–534.

Bleiklie, I. (2005). Organizing higher education in a knowledge society. *Higher Education*, *49*(1-2), 31-59.

Bleiklie, I. (2006). Policy regimes and policy making. In *Transforming higher education* (pp. 39-67). Springer Netherlands.

Blight, D. (1995) International Education: Australia’s potential demand and supply. Canberra: IDP Education Australia.

Blustain, H., Goldstein, P., & Lozier, G. (1998). Assessing the New Competitive Landscape. *Cause/Effect*, *21*(3), 19-27.

Bogt, H. J., & Scapens, R. W. (2012). Performance management in universities: Effects of the transition to more quantitative measurement systems. *European Accounting Review*, *21*(3), 451-497.

Bonfiglio, R. A. (1990). The history of public relations in American higher education in the twentieth century: From self-interest to national interest. Unpublished Dissertation, Columbia University, New York.

Brandenburger, A. and G. Stuart (1996). “Value-based business strategy”, Journal of Economics and Management Strategy, 5, pp. 5-24.

Brandenburger, A. M., & Nalebuff, B. J. (1997). Co-Opetition: A Revolution Mindset That Combines Competition And Cooperation: The Game Theory Strategy That's Changing. *Currency Doubleday*.

Bridoux, F. (1997). A resource-based approach to performance and competition: An overview of the connections between resources and competition. *Strategic Management Journal*, *18*(1), 1-21.

Briggs, S. (2006). An exploratory study of the factors influencing undergraduate student choice: the case of higher education in Scotland. *Studies in Higher Education*, *31*(6), 705-722.

Brown, R. (2008). Higher education and the market. *Perspectives*, *12*(3), 78-83.

Burden, R., & Proctor, T. (2000). Creating a sustainable competitive advantage through training. *Team Performance Management*, *6*(5/6), 90-97.

Carayannis, E. G., Alexander, J., & Ioannidis, A. (2000). Leveraging knowledge, learning, and innovation in forming strategic government–university–industry (GUI) R&D partnerships in the US, Germany, and France. *Technovation*, *20*(9), 477-488.

Camelo-Ordaz, C., Martín-Alcázar, F., & Valle-Cabrera, R. (2003). Intangible resources and strategic orientation of companies: An analysis in the Spanish context. *Journal of Business Research*, *56*(2), 95-103.

Carballeria, A., & Galand, J. (1980). *Test equipment simulating the operation of relay contacts*. Paper presented to 9th International Conference on Electric Contact Phenomena, Chicago, IL.

Carroll, A. B. (1991). The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders. *Business horizons*, *34*(4), 39-48.

Castanias, R. P., & Helfat, C. E. (1991). Managerial resources and rents. *Journal of management*, *17*(1), 155-171.

Castells M, (1994). European cities, the informational society and the global economy. *New Left Review, March-April*, 18-32.

Cemmell, J. (2002). Public vs. Private Higher Education: Public Good, Equity, Access: Is Higher Education a Public Good? In *First Global Forum on International Quality Assurance, Accreditation and the Recognition of Quality in Higher Education, United Nations Educational, Scientific and Cultural Organization* (17-18).

Chan, L. L., Shaffer, M. A., & Snape, E. (2004). In search of sustained competitive advantage: the impact of organizational culture, competitive strategy and human resource management practices on firm performance. *The International Journal of Human Resource Management*, *15*(1), 17-35.

Chang, Y-M., Chen, Y-C., & Huang, W-C. (2005). *Transformation and development of higher technical education in Taiwan*. Paper presented to International Conference of Engineering Education and Research, 2005, Exploring Innovation in Education Research Conference, Tinan, Taiwan.

Chen, L-S. (1998). The distance learning program for vocational education and training. Retrieved from http://pnclink.org/annual/annual1998/1998pdf/chen.pdf

Cheng, Y. C., & Tam, W. M. (1997). Multi-models of quality in education.*Quality assurance in Education*, *5*(1), 22-31.

Cheung, W. M., & Cheng, Y. C. (1996). A multi-level framework for self-management in school. *International Journal of Educational Management*, *10*(1), 17-29.

Cinoglu, M. (2006). Private education as a policy tool in Turkey. *International Educational Journal*, *7*(5), 676,687

Clemons, E. K. (1986). Information systems for sustainable competitive advantage. *Information & Management*, *11*(3), 131-136.

Cloutier, M., & Richards, J. (1994). Examining customer satisfaction in a big school. *Quality Progress, 9,* 117–119.

Coates, T. T., & McDermott, C. M. (2002). An exploratory analysis of new competencies: a resource based view perspective. *Journal of Operations Management*, *20*(5), 435-450.

Collins, J. C., & Porras, J. I. (1998). Organizational vision and visionary organizations. *Leading organizations–Perspectives for a new era*, 234-249.

Collis, D. J. (1999). When industries change: scenarios for higher education. In D. J.

Collis (Ed.), *Exploring the future of higher education*, 47-70. New York, NY:
Forum Publishing.

Collis, D. J. and Montgomery, C. A., (1995). Competing on resources: strategy in the 1990s. *Harvard Business Review*, July-August, 118-128.

Commission of the European communities. New Skills for New Jobs Anticipating and matching labor market and skills needs. Brussels, 2008.

Conner, K. R. (1991). A historical comparison of resource-based theory and five schools of thought within industrial organization economics: do we have a new theory of the firm? *Journal of management*, *17*(1), 121-154.

Conner, K. R., & Prahalad, C. K. (1996). A resource-based theory of the firm: Knowledge versus opportunism. *Organization science*, *7*(5), 477-501.

Connor, T. (2002). The resource-based view of strategy and its value to practising managers. *Strategic Change*, *11*(6), 307-316.

Conway, T., Mackay, S. and Yorke, D. (1994), "Strategic planning in higher education: Who are the customers?, International Journal of Educational Management, Vol. 8 No. 6, pp. 29-36.

Coyne, K. P. (1986). Sustainable competitive advantage—What it is, what it isn't. *Business horizons*, *29*(1), 54-61.

Coyne, K.P. and Subramaniam, S. (1996). Bringing Discipline to Strategy. *The McKinsey Quarterly, 4,* 61-70.

Cutlip, S. M., & Center, A. H. 8: Broom, GM (1985). *Effective public relations (6th ed.). Englewood Cliffs, N]: Prentice-Hall.*

Cutt, J., Trotter, L., & Lee, C. E. (1993). Performance measurement and accountability in Canadian Universities: making a start in the area of teaching.*Financial Accountability & Management*, *9*(4), 255-266.

Çınar, Y. (2013). Türkiye'de kamu üniversitelerinin eğitim-araştirma etkinlikleri ve etkinlik artişinda stratejik önceliklerin rolü: çok-aktiviteli vza uygulamasi. *Ankara Üniversitesi SBF Dergisi*, *68* (2), 27-62

Dahan, G. S., & Senol, I. (2012). Corporate Social Responsibility in Higher Education Institutions: Istanbul Bilgi University Case. *American International Journal of Contemporary Research Vol. 2 No. 3, March*, 95-103.

Danjuma, I., & Rasli, A. (2012). Imperatives of service innovation and service quality for customer satisfaction: Perspective on higher education. *Procedia-Social and Behavioral Sciences*, *40*, 347-352.

Davies, S. W., & Glaister, K. W. (1996). Spurs to higher things? Mission statements of UK universities. Higher Education Quarterly, 50(4), 261–294.

Day and Nedungadi (1994) "Managerial Representations of Competitive Advantage."

Day, G. S., & Wensley, R. (1988). Assessing advantage: a framework for diagnosing competitive superiority. *The Journal of Marketing*, 1-20.

De Boer, H., Enders, J., & Jongbloed, B. (2009). Market governance in higher education. In B. M. Kehm, J. Huisman, & B. Stensaker (Eds.), The European higher education area: Perspectives on a moving target (61–78). Rotterdam: Sense.

De Vaus, D. (2002). *Surveys in social research.* Australia: Allen & Unwin.

De Wit, H. (2002). Internationalization of Higher Education in the United States and Europe. Westport CT: Greenwood.

Deardorff, A. V. (2006). *Terms of trade: glossary of international economics* (p. 154). Hackensack, NJ: World Scientific.

Deardorff, D., Pysarchik, D. T., & Yun, Z. S. (2009). Towards effective international learning assessment: principles, design and implementation. *Measuring the Success of the Internationalisation of Higher Education*, 23-38.

Dierickx, I. and K. Cool (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science, 35*,1504-11.

Dill, D. (2003). Allowing the market to rule: The case of the United States. Higher Education Quarterly, 57(2), 136–157.

Dill, D. D. and Soo, M. (2005). Academic quality, league tables, and public policy: a cross-national analysis of university ranking systems, Higher Education, 49(4), 49-533.

Dincer, I. & Rosen, M.A. (2001). The roles of science and technology in energy and environment research and development, International Journal of Energy Research 25(13), 1165-1187.

Dobni, D., & Dobni, B. (1996). Canadian business schools: going out of business? *Journal of Education for Business*, *72*(1), 28-36.

Donaldson, B., & McNicholas, C. (2004). Understanding the postgraduate education market for UK-based students: a review and empirical study.*International Journal of Nonprofit and Voluntary Sector Marketing*, *9*(4), 346-360.

Downes, L. (1997). Beyond Porter. *Context Magazine. Available at*.

Downey, C. J., Frase, L. E., & Peters, J. J. (1994). The quality education challenge. Thousand Oaks, CA: Corwin Press, Sage Publications.

Duczmal, W. (2006). The rise of private higher education in Poland: Policies, markets and strategies. Enschede, the Netherlands: CHEPS.

Elliott, K. M., & Healy, M. A. (2001). Key factors influencing student satisfaction related to recruitment and retention. *Journal of marketing for higher education, 10*(4), 1-11.

Enders, J. (2004). Higher education, internationalization, and the nation-state: Recent developments and challenges to governance theory. Higher Education, 47, 361-382.

Etzkowitz, H. (2009). Normative change in science: From entrepreneurial science to social Entrepreneurship. *Advances in the Study of Entrepreneurship, Innovation & Economic Growth*, *19*, 29-50.

Etzkowitz, H, Leydesdorff, L. (2000). The Dynamics of Innovation: from National Systems and "Mode 2" to a Triple Helix of University-industry-government Relations. Research Policy, 29 (2), 109-123.

Etzkowitz, H. (2003). The norms of entrepreneurial science: Cognitive effects of the new university-industry linkages', Research Policy 27 (8), 823-833.

Etzkowitz, H. Webster, A. Gebhardt, C. Cantisano Terra, B.R. (2000). The Future of the University and the University of the Future: Evolution of Ivory Tower to Entrepreneurial Paradigm. Research Policy, 29 (2), 313-330.

European University Association. European Universities' Charter on Lifelong Learning, Brussels. 2008.

Evangelidizs, K. (1983). "Performance measured performance gained." *The Treasurer*, February, 45–47.

Faganel, A., & Macur, M. (2005). Competing through quality in higher education: the case of faculty of management Koper, Intellectual capital and knowledge management. In *Proceedings of the 5th International Conference of the Faculty of Management*.

Fahy, J., Hurley, S., Hooley, G., & DeLuca, L. M. (2009). Resources, capabilities and competition in higher education. Australian & New Zealand Marketing Academy Conference (ANZMAC), Melbourne, Australia.

Fahy, J., & Smithee, A. (1999). Strategic marketing and the resource based view of the firm. *Academy of Marketing Science Review*, *10*(1), 1-21.

Farahat, M. F. (2011). Competitive Analysis of the Higher Education Sector in the Gaza Strip by Adapting Porter's Five Forces Model.

Finkelstein, S., & Hambrick, D. (1996). Strategic leadership: Top executives and their effects on organizations. Minneapolis/St Paul: West.

Fiol, C. M. (2001). Revisiting an Identity-Based View of Sustainable Competitive Advantage. Journal of Management, 27: 691-699.

Flegg, A. T., Allen, D. O., Field, K., & Thurlow, T. W. (2004). Measuring the efficiency of British universities: a multi-period data envelopment analysis.*Education Economics*, *12*(3), 231-249.

Fleming, D., & Storr, J. (1999). The impact of lecture theatre design on learning experience. *Facilities*, *17*(7/8), 231-236.

Foss, N. J. (1996). Research in strategy, economics, and Michael Porter. Journal of Management Studies, 33(1), 1-24.

Foss, N. J., & Knudsen, T. (2003). The Resource-Based Tangle: Towards a Sustainable Explanation of Competitive Advantage. Managerial and Decision Economics, 24: 291-307.

Foss, N. J., Klein, P. G., Kor, Y. Y., & Mahoney, J. T. (2008). Entrepreneurship, Subjectivism, and the Resource-Based View: Toward a New Synthesis. Strategic Entrepreneurship Journal, 2: 73-94.

Franz, R.S. (1998). Whatever you do, don’t treat your students like customers! Journal of Management Education, 22, 63–69.

Garvin, D. A. (1984). What does “product quality” really mean. *Sloan management review*, *26*(1).

Gerstein, M., & Reisman, H. (1982). Strategic selection: matching executives to business conditions. *Sloan management review*, *24*(2), 33-49.

Ghemawat, P. (1986). Sustainable advantage. *Harvard business review*, *64*(5), 53-58.

Ghemawat and Rivkin (1999). Strategy and the Business Landscape. Addison-Wesley, Reading, PA.

Gibbons, M., Limogenes, C., Nowotny, H., Schwartzman, S., Scot, P. and Trow, M. (1994) The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies. London: Sage.

Giertz, B. (2000). The quality concept in higher education. *TQM for Higher Education Institutions II*, *Verona Italy*, 30-31.

Gioia, D. A. and Thomas, J. B. (1996). Institutional Identity, Image, and Issue Interpretation: Sensemaking during Strategic Change in Academia. Administrative Science Quarterly 41(3), 370–403.

Global Leadership Skills and Reputational Capital: Intangible Resources for Sustainable Competitive Advantage. The Academy of Management Executive, 13 (1), 58-69.

Grant, R. M. (1991). A resources-based perspective of competitive advantage. California Management Review, 33(3), 114-135.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17 (Winter Special Issue), 109–122.

Grant, R. M. (1996). Prospering in Dynamically-Competitive Environments: Organizational Capability as Knowledge Integration. Organization Science, 7: 375-387.

Gronroos C. (1984). A Service quality model and its marketing implications. *European Journal of Marketing 18*, 36-44.

Gronroos, C. (2000). *Service management and marketing: a customer relationship management approach*. John Wiley & Sons Incorporated.

Grundy, T. (2006). Rethinking and reinventing Michael Porter’s five forces model. Strategic Change, 15(5), 213-229.

Grunig, J. E., & Repper, F. C. (1992). Strategic management, publics, and issues. In J. E. Grunig (Ed.), Excellence in public relations and communcation management (pp.117-157). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Guolla, M. (1999). Assessing the teaching quality to student satisfaction relationship: applied customer satisfaction research in the classroom. *Journal of Marketing Theory and Practice*, 87-97.

Gumport, P. J. (2000). Academic Restructuring: Organizational Change and Institutional Imperatives. Higher Education 39, 67–91.

Guri-Rosenblit, S., & Sebkova, H. (2004). Diversification of higher education systems: Patterns, trends and impacts. *The Increasing Complexity of Underlying Forces*, 40.

Guri-Rosenblit, S. (2006). Access and equity: National report of Israel. *An internal paper, New Century Scholars Program of Fulbright*.

Günay, D., & Günay, A. (2011). 1933'den Günümüze Türk Yükseköğretiminde Niceliksel Gelişmeler. *Journal of Higher Education & Science/Yüksekögretim ve Bilim Dergisi*, *1*(1).

Hacifazlioglu, O., & Ozdemir, N. (2010). Undergraduate Students' Expectations of Foundation Universities and Student Profile: Suggestions for University Administrators. *Egitim ve Bilim-Education and Science*, *35*(155), 118-130.

Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., and Black, W. C. (1998). *Multivariate data analysis*, Prentice-Hall, Upper Saddle River, N.J.

Hall, W. K. (1980). Survival strategies in a hostile environment. *Harvard Business Review*, *58*(5), 75-85.

Hall, L. A., & Bagchi-Sen, S. (2002). A study of R&D, innovation, and business performance in the Canadian biotechnology industry. *Technovation*, *22*(4), 231-244.

Hamel, G., & Prahalad, C. K. (1989). To revitalize corporate performance, we need a whole new model of strategy. *Harvard business review*, 63-76

Hamel, G., & Prahalad, C. K. (1994). *Competing for the future: Breakthrough strategies for seizing control of your industry and creating the markets of tomorrow*. Harvard business school press.

Hamer, G. A. (1993). The use of technology to deliver higher education in the workplace.

Harley, S. (2002). The impact of research selectivity on academic work and identity in UK universities. Studies in Higher Education, 27(2), 187–205.

Harrison, J. S., Hitt, M. A., Hoskisson, R. E., & Ireland, R. D. (2001). Resource complementarity in business combinations: Extending the logic to organizational alliances. *Journal of Management*, *27*(6), 679-690.

Harvey, L., & Green, D. (1993). Defining quality. *Assessment & Evaluation in Higher Education*, *18*(1), 9-34.

Harvey, L. (1998), "An assessment of past and current approaches to quality in higher education", Australian Journal of Education, Vol. 42 No. 3, pp. 237-55.

Harvey, L. (2001). Defining and measuring employability. *Quality in higher education*, *7*(2), 97-109.

Harvey, L. (2002), "Evaluation for what?" Teaching in Higher Education, Vol. 7 No. 3, pp. 245-63.

Hawkins, D. I., Best, R. J., & Coney, K. A. (1998). *Consumer behavior*. Irwin

Hedman, J., & Kalling, T. (2003). The business model concept: theoretical underpinnings and empirical illustrations. *European Journal of Information Systems*, *12*(1), 49-59.

Helfat, C. E., & Lieberman, M. B. (2002). The Birth of Capabilities: Market Entry and the Importance of Pre-History. Industrial and Corporate Change, 11: 725-760.

Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic management journal*, *24*(10), 997-1010.

Helgessen O. and Nasset E. (2007). "What accounts for students' loyalty?Somr field evidence." International Journal of Educational Management 21(2): 126-143.

Henderson, B. D. (1983). The anatomy of competition. *The Journal of Marketing*, 7-11.

Hill, C. W. (1988). Differentiation versus Low Cost or Differentiation and Low Cost: A Contingency Framework. The Academy of Management Review , 13 (3), 401-412.

Hill, C. W. L., & Deeds, D. L. (1996). The importance of industry structure for the determination of firm profitability: a Neo-Austrian perspective. Journal of Management Studies, 33(4), 429-451.

Hill, F. M. (1995). Managing service quality in higher education: The role of the student as primary consumer. Quality Assurance in Education, 3, 10–21.

Hill, Y., Lomas, L. and McGregor, J. (2003), “Student’s perceptions of quality in higher education”, Quality Assurance in Education, Vol. 11 No. 1, 15-20.

Ho, S. K., & Wearn, K. (1996). A higher education TQM excellence model: HETQMEX. *Quality assurance in education*, *4*(2), 35-42.

Hofer, C. W., & Schendel, D. (1978). *Strategy formulation: Analytical concepts*(Vol. 1986). St. Paul, MN: West Publishing Company.

Hoffman, N. P. (2000). An examination of the" sustainable competitive advantage" concept: past, present, and future. *Academy of marketing science review*, *4*(2000), 1-16.

Hoopes, D. G., Madsen, T. L., & Walker, G. (2003). Guest editors' introduction to the special issue: why is there a resource‐based view? Toward a theory of competitive heterogeneity. *Strategic Management Journal*, *24*(10), 889-902.

Hoskisson, R. E., Hitt, M. A., Wan, W. P., & Yin, D. (1999). Theory and research instrategic management: swings of a pendulum. Journal of Management, 25(3), 417-456.

Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding student college choice. In J.C. Smart (Ed.) Higher education: handbook of theory and research, Vol.5, 231-288. New York: Agathon Press.

Houston, D., Robertson, T. & Prebble, T., 2008, ‘Exploring quality in a university department: perspectives and meanings’, Quality in Higher Education, 14(3), 209–23.

Hua, L. T. (2011). Sustainable Competitive Advantage For Market Leadership Amongst The Private Higher Education Institutes In Malaysia. *Journal of Global Management*, *2*(1), 216-226.

Huang, H. I. (2012). *An empirical analysis of the strategic management of competitive advantage: a case study of higher technical and vocational education in Taiwan* (Doctoral dissertation, Victoria University).

Huisman, J., & Currie, J. (2004). Accountability in higher education: Bridge over troubled water? Higher Education, 48, 529–551.

Hunger, D. J., & Wheelen, T. L. (2008). Concepts on Strategic Management and Business Policy.

Hunt, S. D., & Morgan, R. M. (1995). The comparative advantage theory of competition. *Journal of marketing*, *59*(2).

Hurtado, S., & Dey, E. L. (1997). Achieving the goals of multiculturalism and diversity. *Planning and management for a changing environment: A handbook on redesigning postsecondary institutions*, 405-431.

Hutton, J. G., Goodman, M. B., Alexander, J. B., & Genest, C. M. (2001). Reputation management: the new face of corporate public relations?. *Public Relations Review*, *27*(3), 247-261.

Irwin, D. A., & Klenow, P. J. (1996). High-tech R&D subsidies Estimating the effects of Sematech. *Journal of International Economics*, *40*(3), 323-344.

Itami, H., & Roehl, T. W. (1987). Mobilizing invisible assets. *Harvard Business School Press, Cambridge, MA*.

Javalgi, R. R. G., Radulovich, L. P., Pendleton, G., & Scherer, R. F. (2005). Sustainable competitive advantage of internet firms: a strategic framework and implications for global marketers. *International Marketing Review*, *22*(6), 658-672.

Johnes, J. (2006). Data envelopment analysis and its application to the measurement of efficiency in higher education. *Economics of Education Review*, *25*(3), 273-288.

Jones, G.R. (2007). *Organizational Theory, Design, and Change: Fifth Edition*. Upper Saddle River, New Jersey: Pearson Prentice Hall.

Johnes, J., & Yu, L. (2008). Measuring the research performance of Chinese higher education institutions using data envelopment analysis. *China Economic Review*, *19*(4), 679-696.

Johnstone, D. B., & Bain, O. (2002). Universities in transition: Privatization, decentralization, and institutional autonomy as national policy with special reference to the Russian Federation. *DW Chapman y A. Austin. Higher Education in the Developing World. Changing Contexts and Institutional Responses*, 47-68.

Jongbloed, B. (2003). Marketisation in higher education, Clark's triangle and the essential ingredients of markets. Higher Education Quarterly, 57(2), 110–135.

Jongbloed, B. (2004). Regulation and competition in higher education. In*Markets in Higer Education* (pp. 87-111). Springer Netherlands.

Jongbloed, B., & Vossensteyn, H. (2001). Keeping up performances: An international survey of performance-based funding in higher education. Journal of Higher Education Policy and Management, 23(2), 127–145.

Joseph, M., & Joseph, B. (2000). Indonesian students' perceptions of choice criteria in the selection of a tertiary institution: strategic implications. *International Journal of Educational Management, 14*(1), 40-44.

Kagioglou, M., Cooper, R. and Aouad, G. (2001). Performance management in construction: A conceptual framework. *Construction Management and Economics, 19*(1), 85–95.

Kalayci, N., Watty, K., & Hayirsever, F. (2012). Perceptions of quality in higher education: a comparative study of Turkish and Australian business academics. *Quality in higher education*, *18*(2), 149-167

Kan, A. (2009). Ölçme sonuçları üzerinde istatistiksel işlemler. H. Atılgan (Ed.), Eğitimde Ölçme ve Değerlendirme (ss.397–456), Ankara: Anı Yayıncılık.

Kaplan, R. S. and Norton, D. P. (2000). *The strategy-focused organization: how balance scorecard companies thrive in the new business environment?* Harvard Business School Press, Boston, MA, US.

Kay, J. (1993). *Foundations of corporate success: how business strategies add value*. Oxford University Press.

Kay, J. (2000). Strategy and the delusion of grand designs. InMastering strategy (Sect. 1: 5-10) History/State of Strategy. London: Financial Times.

Kaynama, S. A., & Smith, L. W. (1996). Using consumer behavior and decision models to aid students in choosing a major. *Journal of Marketing for Higher Education*, *7*(2), 57-73.

Kehm B.M., (2011), International Centre for Higher Education Research (INCHER), Uluslararası Yükseköğretim Kongresi: Yeni Yönelişler ve Sorunlar, İstanbul, Turkey, 27-29 May.

Kelly B., (2011), The Role of Higher Education in the Context of Lifelong Learning, Uluslararası Yükseköğretim Kongresi: Yeni Yönelişler ve Sorunlar, İstanbul, Turkey, 27-29 May.

Kemenade V., Pupius E., & Hardjono T. (2008). More value to defining quality. *Quality in Higher Education*, *14*(2), 175-185.

Kettunen, J. (2002). Competitive strategies in higher education. *Journal of Institutional Research*, *11*(2), 38-47.

Khandekar, A., & Sharma, A. (2005). Managing human resource capabilities for sustainable competitive advantage: An empirical analysis from Indian global organisations. *Education and Training*, *47*(8/9), 628-639.

Kısabacak G. (2011). Private Universities as a Working Place through the Eyes of Academics, MSc Thesis. Boğaziçi Univ., Inst. for Graduate Studies in Educational Sciences. Istanbul, Turkey.

Kim, D. (2002). What do high school students and their parents expect from higher education? A case study of South Korea. *Journal of Higher Education Policy and Management*, *24*(2), 183-196.

Kim, J. K., & Gasman, M. (2011). In Search of a" Good College": Decisions and Determinations Behind Asian American Students' College Choice. *Journal of College Student Development*, *52*(6), 706-728.

Kinnear Thomas, C., & Taylor, J. R. (1996). Marketing Research: an Applied Approach.

Kitagawa, F., & Oba, J. (2010). Managing differentiation of higher education system in Japan: connecting excellence and diversity. *Higher Education*, *59*(4), 507-524.

Kolasin´ski, M., Kulig, A., & Lisiecki, P. (2003). The strategic role of public relations in creating the competitive advantages of private higher education in Poland: The example of the school of banking in Poznan. *Higher Education in Europe, Vol. XXVIII, No. 4, December 2003*, *28*(4), 433-447.

Knight, J. (2004). Internationalization Remodeled: Definition, Approaches, and Rationales. In Journal of Studies in International Education, 8(1).

Knight, D. J. (2008). *Higher education in turmoil: The changing world of internationalization*. Sense Publishers.

Kogan, M (2003) University Mission and Research Platform, Paper delivered at a special conference of the National Conference of University Professors, Kings College, London, May.

Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization science*, *3*(3), 383-397.

Kotelnikov, (2004). Sustainable competitive advantage: How to survive against your competition over a long period of time.

Kotler, P., & Fox, K. F. A. (1985). Strategic marketing for educational institutions. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Kotze, T. G., & Du Plessis, P. J. (2003). Students as “co-producers” of education: a proposed model of student socialisation and participation at tertiary institutions. *Quality Assurance in Education*, *11*(4), 186-201.

Kumar V., (2011). Technology Enabled Open Education for Innovative Universities, Uluslararası Yükseköğretim Kongresi: Yeni Yönelişler ve Sorunlar. İstanbul, Turkey, 27-29 May.

Kutlar, A., & Kartal, M. (2004). Cumhuriyet üniversitesinin verimlilik analizi: fakülteler düzeyinde veri zarflama yöntemiyle bir uygulama. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *8*(2), 49-79.

Kutlar, A., & Babacan, A. (2008). Türkiye’deki Kamu Üniversitelerinde CCR Etkinliği-Ölçek Etkinliği Analizi: DEA Tekniği Uygulaması. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *15*(1), 148-172.

Lagrosen, S., Seyyed-Hashemi, R., & Leitner, M. (2004). Examination of the dimensions of quality in higher education. *Quality assurance in education*, *12*(2), 61-69.

Lee, M. N. (2008). Restructuring higher education: Public–private partnership.*Journal of Asian Public Policy*, *1*(2), 188-198.

Leydesdorff, L. (2003). The mutual information of university-industry-government relations: An indicator of the Triple Helix dynamics. *Scientometrics*, *58*(2), 445-467.

Leydesdorff, L., & Meyer, M. (2006). Triple Helix indicators of knowledge-based innovation systems: introduction to the special issue. *Research policy*, *35*(10), 1441-1449.

Lengnick-Hall, C. A. (1996). Customer contributions to quality: a different view of the customer-oriented firm. *academy of Management review*, *21*(3), 791-824.

Levin, H. M. (1999). The public-private nexus in education. *American behavioral scientist*, *43*(1), 124-137.

Lindelöf, P., & Löfsten, H. (2004). Proximity as a resource base for competitive advantage: University–industry links for technology transfer. *The Journal of Technology Transfer*, *29*(3-4), 311-326.

Lindsay, G., & Rodgers, T. (1998). Market Orientation in the UK Higher Education Sector: the influence of the education reform process 1979-1993.*Quality in Higher Education*, *4*(2), 159-171.

Lindong, L. A. (2007). *A Cross-Case Study Of The Competitive Advantage Of Private Higher Educational Institutions In Kuching, Sarawak [LB2328. 52. S2 L219 2007 f rb]* (Doctoral dissertation, Universiti Sains Malaysia).

Little, B. (2001). Reading between the lines of graduate employment. *Quality in Higher Education*, *7*(2), 121-129.

Liu, K. L., & Chang, C. C. (2012). Assessing university research performance with multiple constituencies. International Journal of Cyber Society and Education 5 (111-126).

Lockett, A., Thompson, S., & Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International Journal of Management Reviews*, *11*(1), 9-28.

Lomas, L. (1997). The decline of liberal education and the emergence of a new model of education and training. *Education and Training*, *39*(3), 111-115.

Love, P. E. D. and Holt, G. D. (2000). Construction business performance measurement: the stakeholder perspective measurement alternative. *Process Management Journal*, 6(5), 408-416.

Lynch, R., & Baines, P. (2004). Strategy development in UK higher education: towards resource-based competitive advantages. *Journal of Higher Education Policy and Management*, *26*(2), 171-187.

Mahoney, J. T., & Pandian, J. R. (1992). The resource-based view within the conversation of strategic management. *Strategic management journal*, *13*(5), 363-380.

Maringe, F. (2006). University and course choice: Implications for positioning, recruitment and marketing. *International Journal of Educational Management*,*20*(6), 466-479.

Mason, E. S. (1939). Price and production policies of large-scale enterprise. *American Economic Association*, *29*(1), 61-74.

Martinez, M., & Wolverton, M. (2009). Enriching planning through industry analysis. *Planning for Higher Education*, *38*(1), 23-30.

Massay, L. L., Udoka, S. J., & Ram, B. (1995). Industry-University Partnerships: a model for engineering education in the 21st century. *Computers & Industrial Engineering*, *29*(1), 77-81.

Mazzarol, T. W. (1994) A Model of Sustainable Competitive Advantage of Service Exports: the example of Australian education, Institute for Research into International Competitiveness Discussion Paper Series, (94)11. Perth: Curtin University of Technology.

Mazzarol, T. W. (1996) International Education Marketing – critical success factors for institutions. Paper presented at the First Annual Asia-Pacific Economic Cooperation Conference on International Trade, Education and Research, University of Melbourne, 5-6 December 1996.

Mazzarol, T. W. (1997) An examination of the factors critical to the establishment and maintenance of competitive advantage for education services enterprises within international markets, Ph.D. Thesis, School of Management, Curtin University of Technology, Perth.

Mazzarol, T. W., Kemp, S. & Savery, L. (1996) International Students Who Choose Not to Study in Australia: an examination of Taiwan and Indonesia. Canberra: Australian International Education Foundation.

Mazzarol, T., Hosie, P., & Jacobs, S. (1998). Information technology as a source of competitive advantage in international education. *Journal of Information Technology for Teacher Education*, *7*(1), 113-130.

Mazzarol, T. (1998). Critical success factors for international education marketing. *International Journal of Educational Management*, *12*(4), 163-175.

Mazzarol, T., & Soutar, G. N. (1999). Sustainable competitive advantage for educational institutions: A suggested model. International Journal of Educational Management, 13(6), 287–300.

Mazzarol, T., Soutar, G. N., & Sim Yaw Seng, M. (2003). The third wave: Future trends in international education. International Journal of Educational Management, 17(3), 90–99.

McAlister, D. T., & Ferrell, L. (2002). The role of strategic philanthropy in marketing strategy. *European Journal of Marketing*, *36*(5/6), 689-705.

Meek, V. L., Goedegebuure, L., Kivinen, O., & Rinne, R. (1996). The Mockers and the Mocked: Comparative perspectives on differentiation, convergence, and diversity in higher education. Oxford: Pergamon Press.

Melewar, T. C., & Jenkins, E. (2002). Defining the corporate identity construct.*Corporate Reputation Review, 5*(1), 76-90.

Melewar, T. C. and S. Akel (2005). The Role of Corporate Identity in the Higher Education Sector A Case Study. Corporate Communications: *An International Journal 10*(1), 41–57.

Mizikaci, F. (2006). Higher education in Turkey. *Bucharest: UNESCO-CEPES*.

Michael, R. K., Sower, V. E., & Motwani, J. (1997). A comprehensive model for implementing total quality management in higher education. Benchmarking: *An International Journal*, *4*(2), 104-120.

Middlehurst, R. (2000). The business of borderless education. *London: Committee of Vice Principals and Chancellors*.

Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). Organizational strategy, structure, and process. *Academy of management review*, *3*(3), 546-562.

Milliken, F. J. (1990). Perceiving and interpreting environmental change: An examination of college administrators' interpretation of changing demographics. *Academy of management Journal*, *33*(1), 42-63.

Miller, D. (2003). An Asymmetry-Based View of Advantage: Towards an Attainable Sustainability. *Strategic Management Journal, 24*: 961-976.

Mintzberg, H. (1978). Patterns in strategy formation. *Management Science, 24*(9), 934- 948.

Motwani, J., & Kumar, A. (1997). The need for implementing total quality management in education. *International Journal of Educational Management*,*11*(3), 131-135.

Milgate, M. (1987). Goods and commodities. *The New Palgrave: A Dictionary of Economics*, *2,* 546-548

Murray, A. I. 1988. A contingency view of Porter’s Generic Strategies. *Academy of Management Review, 13*(3):390-400

NAFSA (2003). Internationalizing the Campus: Profiles of Success at Colleges and Universities.

Naude, P., & Ivy, J. (1999). The marketing strategies of universities in the United Kingdom. *International Journal of Educational Management*, *13*(3), 126-136.

Neely, A. (1999). “The performance revolution: Why now and what next?” *International Journal of Operations and Production Management,* 19(2), 205–228.

Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: an assessment and suggestions for future research. *Strategic Management Journal*, *28*(2), 121-146.

Nicholls, J., Harris, J., Morgan, E., Clarke, K., & Sims, D. (1995). Marketing higher education: the MBA experience. *International Journal of Educational Management*, *9*(2), 31-38

Nowotny, H., Scott, P., & Gibbons, M. (2001). *Re-thinking science: knowledge and the public in an age of uncertainty (12).* Cambridge: Polity.

Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw Hill

OECD (1996). Internationalization of Higher Education. Paris: OECD.

OECD (2001). Education at a glance 2001. Paris: OECD.

OECD (2003). Changing Patterns of Governance in Higher Education, Education Policy Analysis.

OECD (2004). Internationalization and Trade in Higher Education. Paris: OECD.
OECD Observer (2004). Policy Brief: Lifelong Learning.

OECD (2007). Education at a glance 2007. Paris: OECD.

OECD (2008). Education at a Glance 2008. Paris: OECD.

OECD (2012). Education at a Glance 2012. Paris: OECD.

Olins, W. (1995). The new guide to corporate identity. *Aldershot, UK: Gower*.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, 460-469.

Oliver, C. (1997). Sustainable Competitive Advantage: Combining Institutional and Resource-Based Views. *Strategic Management Journal , 18* (9), 697-713.

Oruç, K. O., Güngör, İ., & Demiral, M. F. (2009). Üniversitelerin Etkinlik Ölçümünde Bulanık Veri Zarflama Analizi Uygulaması. *Selcuk University Social Sciences Institute Journal*, (22).

Owlia, M. S., & Aspinwall, E. M. (1996). A framework for the dimensions of quality in higher education. *Quality Assurance in Education*, *4*(2), 12-20.

ÖSYM. (2007). 2006-2007 Öğretim Yılı Yükseköğretim İstatistikleri. Ankara: ÖSYM Yayınları.

Özcan Y.Z. (2011), 22nd International Conference on Higher Education, Bilkent University, Ankara June 17-19.

Özdem, G. (2011). The role of foundation universities in the higher education policies after 1980. *Bulgarian Journal of Science & Education Policy, 5*(2).

Pampaloni, A. M. (2010). The influence of organizational image on college selection: What students seek in institutions of higher education. *Journal of Marketing for Higher Education, 20*(1), 19-48.

Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, Vol. 49, No. 4 *Performance Management 53*(2), 143–166.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual. *Journal of retailing*, *64*(1), 12-37.

Parasuraman, A, Zeithaml, V. A., & Berry, L. L. (1994). Alternative scales for measuring service quality: A comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing, 70*(3), 201.

Parnell, J. A., & Wright, P. (1993). Generic strategy and performance: an empirical test of the Miles and Snow Typology. *British Journal of Management, 4*(1), 29-36.

Parsons, G. L. (1983) Information technology: a new competitive weapon. *Sloan Management Review, 25*, 120-135.

Pasternack, P., Bloch, R., Gellert, C., Hölscher, M., Kreckel, R., Lewin, D., ... & Schildberg, A. (2007). Current and Future Trends in Higher Education.

Patterson, G. (2001). The applicability of institutional goals to the university organisation. *Journal of Higher Education and Management, 23*(2), 159–169.

Penrose, E. T. (1995). The theory of the growth of the firm, 1959. *Cambridge, MA*.

Perkmann, M., King, Z. & Pavelin, S. (2011). Engaging excellence? Effects of faculty quality on university engagement with industry. *Research Policy 40*, 539–552.

Persson, A. (2007) Strategic Management of Higher Education Enterprises. Diss. Linköping.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal, 14*, 179–191.

Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle.*Managerial and decision economics*, *24*(4), 309-323.

Peterson, M. W., Dill, D. D., & Mets, L. A. (1997). *Planning and management for a changing environment: A handbook on redesigning postsecondary institutions*. Jossey-Bass Publishers.

Petrick, J. A., Scherer, R. F., Brodzinski, J. D., Quinn, J. F., & Ainina, M. F. (1999). Global leadership skills and reputational capital: Intangible resources for sustainable competitive advantage. *The Academy of Management Executive,13*(1), 58-69.

Pettigrew, A., & Whipp, R. (1991). *Managing change for competitive success*. Blackwell Publishing.

Pimpa, N., & Suwannapirom, S. (2008). Thai students’ choices of vocational education: Marketing factors and reference groups. *Educational Research for Policy and Practice, 7*(2), 99-107.

Porter, M. E. (1980). Competitive strategy: techniques for analyzing industries and competitors. New York: Free Press.

Porter, M. E. (1981). The contributions of industrial organization to strategic management. Academy of Management Review, 6(4), 609-620.

Porter, M. E. (1985). Competitive advantage: creating and sustaining superior performance. New York: Free Press.

Porter, M. E. & Millar, V. E. (1985) How information gives you competitive advantage, *Harvard Business Review, 63*, 149-160.

Porter, M. E., & Kramer, M. R. (2002). The competitive advantage of corporate philanthropy. *Harvard business review*, *80*(12), 56-68.

Porter, M. E. (2008). The five competitive forces that shape strategy. *Harvard business review*, *86*(1), 25-40.

Powell, T. C. (1995). Total Quality Management as Competitive Advantage: A Review and Empirical Study. *Strategic management Journal, 16* (1), 15-37.

Prahalad, C.K. and Bettis, R.A. (1986). The Dominant Logic: A New Linkage between Diversity and Performance. *Strategic Management Journal, 7(*6): 485-501.

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. Harvard Business Review, May/June, 79–91.

Prahalad, C. K., & Hamel, G. (1994). Strategy as a field of study: why search for a new paradigm?. *Strategic management journal*, *15*(S2), 5-16.

Price, I. F., Matzdorf, F., Smith, L., & Agahi, H. (2003). The impact of facilities on student choice of university. *Facilities*, *21*(10), 212-222.

Priem, R. L., & Butler, J. E. (2001). Is the resource-based “view” a useful perspective for strategic management research?. *Academy of management review*, *26*(1), 22-40.

Pringle, J., & Huisman, J. (2011). Understanding Universities in Ontario, Canada: An Industry Analysis Using Porter's Five Forces Framework. *Canadian Journal of Higher Education*, *41*(3).

Race, J. (1997). Regional Cooperation in Higher Education: A Background and Overview. Strasbourg: Council of Europe.

Raines, J. P., & Leathers, C. G. (2003). *The Economic Institutions of Higher Education: Economic Theories of University Behaviour*. Edward Elgar Publishing.

Rasli A., Danjuma I., Yew L.K. and Igbal J. (2011). "Service quality, customer satisfaction in technology-based universities." African Journal of Business Management 5(15): 6541-6553.

Rhoades, G. (1995). Rethinking Restructuring in Universities. *Journal for higher education management*, *10*(2), 17-30.

Rich, P. (1992). The organizational taxonomy: definition and design. Academy of Management Review, 17(4), 758-781.

Robbins, S. P., Decenzo, D. A., & Coulter, M. A. R. Y. (2013). *Fundamentals of management*. Pearson Educational.

Robinson, A. W., & Long, G. (1988). Substance v. Trappings in the Marketing of Non-Advanced FE. *Journal of Further and Higher Education*, *12*(1), 42-53.

Rolfe, H. (2002). Students' demands and expectations in an age of reduced financial support: The perspectives of lecturers in four English universities. *Journal of Higher Education Policy and Management*, *24*, 171–182.

Rosenblit, S., Šebková, H., & Teichler, U. (2007). Massification and diversity of higher education systems: Interplay of complex dimensions. *Higher Education Policy*, *20*(4), 373-389.

Ronquillo, T. A. (2012). Analysis of competitiveness of Batangas State University College of engineering using porter's five competitive forces model. In *Profession of Engineering Education: Advancing Teaching, Research and Careers: 23rd Annual Conference of the Australasian Association for Engineering Education 2012, The* (p. 875). Engineers Australia.

Rossi, F. (2009). Increased competition and diversity in higher education: An empirical analysis of the Italian university system. *Higher Education Policy, 22*, 389–413.

Rossi, F. (2010). Massification, competition and organizational diversity in higher education: Evidence from Italy. Studies in Higher Education, 35(3), 277–300.

Rumelt, R. P. (1984). Towards a strategic theory of the firm. In R. B. Lamb (Ed.), Competitive strategic management (pp.556-570). Engelwood Cliffs, NJ: Prentice-Hall.

Russell Group Papers (2010), Staying on top: The challenge of sustaining world-class higher education in the UK.

Russo, M. V., & Fouts, P. A. (1997). A resources-based perspective on corporate environmental performance and profitability. *Academy of Management Journal, 40*(3), 534-559.

Quinn, J. B. (1985). Managing innovation: controlled chaos. *Harvard business review*, *63*(3), 73-84.

Quinn J., Andersen P. and Finkelstein S. (1996). Managing Professional Intellect: Making the most of the best. *Harvard Business Review* (March-April).

Quinn, J. B., Anderson, P., & Finkelstein, S. (1996). New forms of organizing. *The strategy process*, 350-362.

Sadlak, J. (2001). Globalization in Higher Education. *International Educator, 10* (4), 3-5.

Sadri, G., & Lees, B. (2001). Developing corporate culture as a competitive advantage. *Journal of Management Development*, *20*(10), 853-859.

Salant, P., & Dillman, D. A. (1994). *How to conduct your own survey*. New York, NY: John Wiley & Sons.

Sallis, E., & Hingley, P. (1991). *College quality assurance systems*. Staff College.

Saloner, Garth, Andrea Shepard, and Joel Podolny (2001). Strategic Management. John Wiley& Sons, New York.

Samson, M. and Lema, N.M. (2002). "Development of construction contractors performance measurement framework." *The 1st Int. Conference of CIB*, South Africa.

Sánchez, C. M. (2000). Motives for corporate philanthropy in El Salvador: Altruism and political legitimacy. *Journal of Business Ethics*, *27*(4), 363-375.

Savatsomboon, G. (2006). The liberalization of Thai education: Point of no return. *International Higher Education*, *43*.

Schertzer C. B. and Schertzer S.M.B. (2004). Student satisafcation and retention: A concptual model. Journal of Marketing for Higher Education 14(1): 79-91.

Schultz, T. W. (1971). Investment in Human Capital. The Role of Education and of Research.

Scott, S. (1999). The academic as service provider: Is the customer 'always right'? Journal of Higher Education Policy and Management, 21, 193–202.

Scott, P. (2000). "Globalization and Higher Education: Challenges for the 21st Century." *Journal of Studies in International Education*, 4(1).

Scrabec, Q. Jr. (2000). A quality education is not customer driven. *Journal of Education for Business, 75* (5), 298-300.

Selznick, P. (1957). Leadership in administration: A sociological interpretation. Berkeley. *Cal*.

Sezgin, A., Binatlı, A. (2011). Determinants of University Choice in Turkey. *International Higher Education Congress Proceedings, 3*(12), 1651-1657.

Shale, D., & Gomes, J. (1998). Performance Indicators and University Distance Education Providers. *Journal of Distance Education*, *13*(1).

Sharkie, R. (2003). Knowledge creation and its place in the development of sustainable competitive advantage. *Journal of Knowledge Management*, *7*(1), 20-31.

Shrikanthan, G., & Dalrymple, J. F. (2003). Developing a holistic model for quality in higher education. *Quality in Higher Education, 8,* 215-224.

Simões, C., Dibb, S., & Fisk, R. P. (2005). Managing corporate identity: an internal perspective. *Journal of the Academy of Marketing Science*, *33*(2), 153-168.

Smart, D. (1986) The financial crisis in Australian higher education and the inexorable push towards privatization. *Australian Universities Review, 29*(2), pp. 25-48

Snow, C. C., & Hrebiniak, L. G. (1980). Strategy, distinctive competence, and organizational performance. *Administrative Science Quarterly, 25*(2), 317-336.

Sohail, M. S., Rajadurai, J., & Rahman, N. A. A. (2003). Managing quality in higher education: a Malaysian case study. *International Journal of Educational Management*, *17*(4), 141-146.

Soutar, G. N., & Turner, J. P. (2002). Students' preferences for university: a conjoint analysis. *International Journal of Educational Management*, *16*(1), 40-45.

Spanos, Y. E., & Lioukas, S. (2001). An examination into the causal logic of rent generation: contrasting Porter's competitive strategy framework and the resource-based perspective. *Strategic Management Journal, 22*(10), 907-934.

Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-Based Assets and Shareholder Value: A Framework for Analysis. *Journal of marketing*, *62*(1).

Stage, F., & Hossler, D. (1989). Differences in family influences on college attendance plans for male and female ninth graders. *Research in Higher Education, 30*(3), 301-315

Stensaker, B., Frolich, N., Gornitzka, Å., & Maassen, P. (2008). Internationalisation of higher education: the gap between national policy-making and institutional needs. *Globalisation, Societies and Education, 6*(1), 1-11.

Stilwell, F. (2003). Higher education, commercial criteria and economic incentives. *Journal of Higher Education and Policy Management, 25*(1), 51–61.

Stonehouse, G., & Snowdon, B. (2007). Competitive advantage revisited: Michael Porter on strategy and competitiveness. *Journal of Management Inquiry*, *16*(3), 256-273.

Strasser, S. E., Ozgur, C., & Schroeder, D. L. (2002). Selecting a business college major: An analysis of criteria and choice using the analytical hierarchy process. *American Journal of Business, 17*(2), 47-56.

Sullivan, A., & Sheffrin, S. M. (2003). Economics: Principles in action. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall.

Takeuchi, H., & Nonaka, I. (1986). The new new product development game. *Harvard business review*, *64*(1), 137-146.

Tatar, E., & Oktay, M. (2006). Search, choice and persistence for higher education: a case study in Turkey. *Eurasia Journal of Mathematics, Science & Technology Education*, *2*(2).

Taticchi, P., & Balachandran, K. R. (2008). Forward performance measurement and management integrated frameworks. *International Journal of Accounting and Information Management*, *16*(2), 140-154.

Tavitiyaman, P. (2009). *The impact of industry forces on resource competitive strategies and hotel performance* (Doctoral dissertation, Oklahoma State University).

Taylor, R. (2001). Lifelong learning in higher education in Western Europe: myth or reality? *Adult education and development*, 127-146.

Taylor, J. (2002). Changes in teaching and learning in the period to 2005: The case of postgraduate higher education in the UK. *Journal of Higher Education Policy and Management*, *24*(1), 53–73.

Thune, T. (2010). The training of "triple helix workers"? doctoral students in university–industry–government collaborations. *Minerva*, *48*(4), 463-483.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic management journal, 18(7), 509-533.

Teichler, U. (2003). The future of higher education and the future of higher education research. *Tertiary Education & Management*, *9*(3), 171-185.

Teichler, U. (2005). Research on Higher Education in Europe. In. European Journal of Education, 40(4), 447-469.

Teichler, U. (2009). Internationalisation of higher education: European experiences. *Asia Pacific Education Review*, *10*(1), 93-106.

Teixeira, P. N., Rocha, V., Biscaia, R., & Cardoso, M. F. (2012). Competition and diversity in higher education: an empirical approach to specialization patterns of Portuguese institutions. *Higher Education*, *63*(3), 337-352.

Teker, S., & Özer, B. (2012). Yeni Vakıf Üniversiteleri Kuruluş Yeri Seçimi ve Akademik Alan Odaklanma Önerileri. *Isletme Arastirmalari Dergisi/Journal of Business Research-Turk*, *4*(2).

Thomas, H. G. (2001). Funding mechanism or quality assessment: Responses to the Research Assessment Exercise in English institutions. Journal of Higher Education Policy and Management, 23(2), 171–179.

Thompson, K. N., & Coe, B. J. (1997). Gaining sustainable competitive advantage through strategic pricing: selecting a perceived value price. *Pricing Strategy and Practice*, *5*(2), 70-79.

Tilak, J. B. (1989). Education and its relation to economic growth, poverty and income distribution. *World Bank Discussion Paper, 46*.

Tilak, J. B. (2003). Higher education and development. *Handbook on Educational Research in the Asia Pacific Region*, 809-26.

Tilak, J. B. (2005). Are we marching towards Laissez-faireism in higher education development?*Journal of international cooperation in education, 8*(1), 153-165.

Tilak, J. B. (2009). Commitment to higher education or commitment of higher education to trade. *Public Responsibility for Higher Education, 14.*

Tomkins, C., & Green, R. (1988). An experiment in the use of data envelopment analysis for evaluating the efficiency of UK university departments of accounting. *Financial Accountability & Management*, *4*(2), 147-164.

Ulrich, D., & Lake, D. (1991). Organizational capability: creating competitive advantage. *The Executive*, *5*(1), 77-92.

Ulucan, A. (2011). Measuring the Efficiency of Turkish Universities Using Measure-Specific Data Envelopment Analysis. *Sosyoekonomi*, *7*(1).

Ulutas, B. (2011). Assessing the relative performance of university departments: teaching vs. Research. *İstanbul University Econometrics & Statistics e-journal*, *13*(1).

Urry, J. (1998). Locating HE in the global landscape. *SRHE: Lancaster University*.

Usang B, Basil A, Lucy U (2007). Academic staff research productivity: a study of universities in south-south zone of Nigeria. *Educational Research and Review, 2*(5):103-08.

Ustasüleyman, T. (2007). Veri zarflama analizini kullanarak Türkiye'deki devlet üniversitelerinin etkinliğinin ölçümü. *Iktisat Isletme ve Finans*, *22*(259), 24-43.

Välimaa, J. (2011). The Roles of Higher Education Institutions in Networked Knowledge Societies.

Van der Wende, M.C. (1996): Internationalizing the Curriculum in Higher Education: Report on a OECD/CERI Study. *Tertiary Education and Management*, 2(2), 186-195.

Van der Wende, M.C. (2001). The International Dimension in National Higher Education Policies: What Has Changed in Europe in the Last Five Years? *European Journal of Education, 36*(4), 431-441.

Van der Wende, M.C. (2001). Internationalization Policies: About New Trends and Contrasting Paradigms. *Higher Education Policy 14*, 249–259.

Van Gils, A. E. J. (2000). *Cooperative behavior in small and medium-sized enterprises: The role of strategic alliances* (Doctoral dissertation, Rijksuniversiteit Groningen).

Vazzana, G., Elfrink, J., & Bachmann, D. P. (2000). A longitudinal study of total quality management processes in business colleges. *Journal of Education for Business*, *76*(2), 69-74.

Verdin, P., & Williamson, P. (1994). Successful strategy: stargazing or self-examination?. *European Management Journal*, *12*(1), 10-19.

Verona, G. (1999). A resource-based view of product development. *Academy of Management Review, 24*(1), 132-142.

Wang, X. (2010). *Performance analysis for public and nonprofit organizations*. Jones & Bartlett Learning.

Warning, S. (2004). Performance differences in German higher education: Empirical analysis of strategic groups. *Review of Industrial Organization*, *24*(4), 393-408.

WEB_1, 2014, http://en.wikipedia.org/wiki/Business.

WEB_2 and 3, 2014, http://en.wikipedia.org/wiki/Good_(economics).

WEB_4, 2014, http://en.wikipedia.org/wiki/Commodity.

WEB_5, 2014, http://en.wikipedia.org/wiki/Consumer.

WEB_6, 2014, http://www.urapcenter.org/2011/methodology.php?q=3

WEB_7, 2014, http://www.ryerson.ca/upo/performance/indicators/

WEB_8, 2014, https://statistics.laerd.com/statistical-guides/descriptive-statistics.php

WEB_9, 2014, http://www.nbt.nhs.uk/sites/default/files/filedepot/incoming/

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171-181.

Weymans, W. (2010). Democracy, knowledge and critique: rethinking European universities beyond tradition and the market. *London Review of Education*, *8*(2), 117-126.

Wilcox, D. L., Ault, P. H., Agee, W. K., & Cameron, G. T. (1998). *Public relations: Strategies and tactics* (p. 79). New York: Longman.

Wilson, T. A. (2009). The role of communication messages and public relations strategies in the higher education" public good" debate: a study of four public research universities.

Williams, J. & Cappuccini-Ansfield, G., 2007, ‘Fitness for purpose? National and institutional approaches to publicising the student voice’, Quality in Higher Education, 13(2), 160–72.

Woodhall, M., (1997). Public versus private education: changing perceptions of boundaries and roles. University of Wales, Department of Education, Aberyswyth (unpublished).

Worasinchai, L., Ribière, V., & Arntzen Bechina, A. A. (2009). The Role of Knowledge Flow in the Thai GUIN Version of the Triple Helix Model.

Worthington, A.C. & B.L. Lee (2008). Efficiency, technology and productivity change in Australian universities 1998–2003. *Economics of Education Review*, 27(3), 285-298.

Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of management*, *27*(6), 701-721.

Wulfson, M. (2001). The Ethics of Corporate Social Responsibility and Philanthropic Ventures. *Journal of Business Ethics, 29*, 135–145.

Yalcintan, M. C., & Thornley, A. (2007). Globalisation, higher education, and urban growth coalitions: Turkey's foundation universities and the case of Koç University in Istanbul. *Environment and Planning C*, *25*(6), 822.

Yamamoto, G. T. (2006). University evaluation-selection: a Turkish case.*International Journal of Educational Management*, *20*(7), 559-569.

Yarbrough, A. K., & Powers, T. L. (2006). A resource-based view of partnership strategies in health care organizations. *Journal of hospital marketing & public relations*, *17*(1), 45-65.

Yavuz, M. (2012) Yükseköğretim Yönetiminde Dönüşüm ve Türkiye İçin Alternatif Yönetim Modeli Önerisi. Ankara: T.C. Kalkınma Bakanlığı.

Yorke, M. and Knight, P (2003). Employability in Higher Education. Learning and Employability Series. ESECT: LTSN Generic Centre.

YÖK. (2007). Türkiye’nin Yükseköğretim Stratejisi. Ankara: YÖK Yayınları.

YÖK. (2007). Vakıf Üniversiteleri Raporu. Ankara: YÖK Yayınları.

Zainab (1999). Personal academic and departmental correlates of research productivity: *A Review of Literature. Malaysian Journal of Library and Information Science*, *4*(2):73-110

Zeithaml, V. A, Mary, Jo, Bitner, (2000). *Service Marketing, Integrating Customer Focus Across The Firm*.

Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). Delivering quality service: Balancing customer perceptions and expectations. Simon and Schuster.

Zikopoulos, M. (1994) Open Doors 1992/93, Report on International Education Exchange. New York: Institute of International Education.

Zineldin, M. (2000). TRM and total quality management (TQM). *Managerial Auditing Journal*, *15*(1/2), 20-28.

Zineldin, M., Akdag, H. C., & Vasicheva, V. (2011). Assessing quality in higher education: new criteria for evaluating students’ satisfaction. *Quality in higher education*, *17*(2), 231-243.

APPENDICES

Appendix A- Questionnaire

Dear Academics,

I am Oya Aydın, a Ph.D. student under the direction of Professor Enar Tunç in the degree of doctorate of business administration at Okan University. I would like to take this opportunity to invite you to participate in a research survey entitled “to determine and analyze factors providing competitive advantage to Turkish foundation universities”. The purpose of this study is to explore the relationships between external competitive forces and internal resources with university performance. The questionnaire will take approximately 40 minutes of your valuable time to complete. Your participation is voluntary and your answers will be kept anonymous and confidential. While I would like you to answer all questions, you have the right to not respond to any or some parts of the questions, for whatever personal reasons you may have.

If you have any questions regarding the survey, you may contact me directly by email at oyatamtekin@gmail.com. I would like to thank you in advance for your participation and for volunteering your precious time.

Sincerely,

Oya AYDIN

RESEARCH QUESTIONNAIRE

To evaluate the perception of academics, a survey is prepared and applied to the academics in foundation universities. The questionnaire captured the external industry forces, internal resources and performance indicators. A questionnaire is developed based on the review of literature. The survey of research consisted of two parts. The first part of questionnaire is prepared to explore the demographic profiles of academics. This part consists of three questions. The second part consists of two sections. The first section of questionnaire is about external environment of universities. Porter Five Forces theory and its application on higher education are used to prepare to the first section of questionnaire. The impact of the Five Forces theory on performance of higher education institutions is examined in this part. It has 99 questions that are related with perception of academics. The second section is prepared to reveal the views of academics about the relationship between internal sources and university performance. This section of survey includes 162 questions.

SECTION I

Please check (□) the number that best describes your demographic characteristics.

1. Your gender: □ Male □ Female

2. Your age: □ 20-30 years old □ 31-40 years old □ 41-50 years old □51-60 years old

3. Your Academic Title:

SECTION II

This section includes two parts. First part examines the perception of academics about the effect of five competitive forces on foundation universities performance. Second part examines the perception of academics about the relationship between internal resources and performance of foundation universities. Please indicate your level of agreement with the following statements by circling the appropriate number (1 = strongly disagree to 5 = strongly agree).

A. THE EFFECT OF FIVE COMPETITIVE FORCES ON PERFORMANCE

The threat of new entrants to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The threat of new entrants to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The new entrants to higher education area affect the number of bachelor and master graduated of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the amount of research grant of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of exchange students of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the publication and citation score of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The intensity of rivalry in higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5

The power of state (CoHE) to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of state (CoHE) to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The power of foundation to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of foundation to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of foundation to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of high schools teachers to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5

The power of academics to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of academics to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of academics to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The power of students to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of students to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of students to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of students to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of students to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of students to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The power of students to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of students to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of students to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The power of employers to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The power of employers to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of the number of patent of a university	1	2	3	4	5
The power of employers to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The power of employers to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The number of online programs to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of exchange students of a university.	1	2	3	4	5

The number of online programs to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of supported R&D project of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The number of online programs to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of supported research-development project of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The number of international educational opportunities to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5
The number of state universities to higher education area affects the amount of research grant of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of exchange students of a university.	1	2	3	4	5
The number of state universities to higher education area affects the publication and citation score of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of supported research-development project of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of PhD graduated of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of the number of patent of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of bachelor and master enrolments of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of international enrolments of a university.	1	2	3	4	5
The number of state universities to higher education area affects the number of bachelor and master graduated of a university.	1	2	3	4	5

B. THE RELATIONSHIP BETWEEN INTERNAL RESOURCES AND PERFORMANCE

There is a relationship between the number of panelist researcher and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of patent.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of panelist researcher and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of patent.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of PhD enrolments and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of patent.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of BA, MA, PhD degree programs and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the amount of research grant	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the number of exchange students.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the publication and citation score.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the number of supported R&D project.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the number of PhD graduated.	1	2	3	4	5

There is a relationship between doctoral student-total students' ratio and the number of patent.	1	2	3	4	5
There is a relationship between the number of exchange students and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the number of international enrolments.	1	2	3	4	5
There is a relationship between doctoral student-total students' ratio and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of industry partnership and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of industry partnership and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of patent.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of industry partnership and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of university partnership and the amount of research grant	1	2	3	4	5
There is a relationship between the number of university partnership and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of university partnership and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of patent.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of university partnership and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of exchange academics and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of exchange academics and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of patent.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of exchange academics and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the amount of research grant.	1	2	3	4	5

There is a relationship between the number of proposed R&D project and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of patent	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of proposed R&D project and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the amount of students' fee and the amount of research grant.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of exchange students.	1	2	3	4	5
There is a relationship between the amount of students' fee and the publication and citation score.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of patent.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between and the amount of students' fee and the number of international enrolments.	1	2	3	4	5
There is a relationship between the amount of students' fee and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of patent.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of on-line academic journals and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of supported R&D project.	1	2	3	4	5

There is a relationship between the number of distance learning programs and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of patent.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of distance learning programs and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of on-line database and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of on-line database and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of patent.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of on-line database and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of social club and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of social club and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of social club and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of social club and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of social club and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of social club and the number of patent.	1	2	3	4	5
There is a relationship between the number of social club and the number of bachelor and master enrollments.	1	2	3	4	5
There is a relationship between the number of social club and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of social club and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of book and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of book and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of book and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of book and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of book and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of book and the number of patent.	1	2	3	4	5
There is a relationship between the number of book and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of book and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of book and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of laboratory and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of laboratory and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of PhD graduated.	1	2	3	4	5

There is a relationship between the number of laboratory and the number of patent.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of laboratory and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the amount of research grant.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of exchange students.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the publication and citation score.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of patent.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of international enrolments.	1	2	3	4	5
There is a relationship between the distance of campus location to city center and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the size of campus area and the amount of research grant.	1	2	3	4	5
There is a relationship between the size of campus area and the number of exchange students.	1	2	3	4	5
There is a relationship between the size of campus area and the publication and citation score.	1	2	3	4	5
There is a relationship between the size of campus area and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the size of campus area and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the size of campus area and the number of patent.	1	2	3	4	5
There is a relationship between the size of campus area and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the size of campus area and the number of international enrolments.	1	2	3	4	5
There is a relationship between the size of campus area and the number of bachelor and master graduated.	1	2	3	4	5
There is a relationship between the number of professor and the amount of research grant.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of exchange students.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the publication and citation score.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of supported R&D project.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of PhD graduated.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of patent.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of bachelor and master enrolments.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of international enrolments.	1	2	3	4	5
There is a relationship between the number of total teaching staff and the number of bachelor and master graduated.	1	2	3	4	5

Appendix B- Questionnaire (Turkish Version)

ANKET FORMU

"Vakıf üniversitelerinde rekabet üstünlüğü sağlayacak olan faktörlerin belirlenmesi ve analizi" konulu doktora tez çalışması için hazırlanan bu anket, akademisyenlerin algısını ölçmeye yönelik olup iki ana bölümden oluşmaktadır. Birinci bölüm, anketi dolduranların demografik özelliklerini tespite yönelik olup direk çalışmada kullanılmayacaktır. İkinci bölüm ise üniversitelere rekabet üstünlüğü sağlayacak olan faktörlerin, üniversitenin ***dış çevre koşullarına*** mı yoksa ***kendine özgü iç kaynaklarına*** mı bağlı olduğunu ortaya çıkarmaya yöneliktir. Aşağıdaki soruları cevaplandırmanız bilimsel bir araştırmaya çok önemli katkılar sağlayacaktır. Anketi eksiksiz doldururken gösterdiğiniz sabır ve titizlik için şimdiden teşekkür eder, saygılarımı sunarım.

1. BÖLÜM

Aşağıdaki sorular ankete katılanların demografik özelliklerini tespite yönelik olup çalışmada birebir kullanılmayacaktır.

1. Cinsiyetiniz:

( ) Kadın ( ) Erkek

2. Yasınız:

( ) 20–30 ( ) 31–40 ( ) 41–50 ( ) 51–60

4. Unvanınız:

( ) Dr. ( ) Yrd. Doç. ( ) Doç. ( ) Prof.

2. BÖLÜM

Anketin ikinci bölümü iki ana başlık halinde sunulmuştur. İlk başlık, **"beş rekabet gücü"** teorisi ile ilgilidir. Bir endüstride faaliyet gösteren firmaların rekabet güçleri; piyasaya yeni girecek firmaların oluşturduğu tehditler, endüstrideki rekabet düzeyi, tedarikçilerin pazarlık güçleri, alıcıların pazarlık güçleri ve ikame ürünlerden kaynaklanan tehditler olmak üzere beşe ayrılır. Bu başlık altında ***"beş güç faktörünün, üniversiteye rekabet avantajı kazandıracak olan performans ölçütlerine olan etkisi konusunda akademisyen algılarını"*** ölçmeyi hedefledik. İkinci başlık, üniversitelere rekabet üstünlüğü sağlayan **"iç kaynaklar"** ile ilgilidir. Bu başlık altında ise "***üniversitenin sahip olduğu iç kaynaklarının, üniversiteye rekabet avantajı kazandıracak olan performans ölçütlerine olan etkisi konusunda akademisyen algılarını"*** ölçmeyi hedefledik. ***Aşağıdaki anketi cevaplarken 1–5 Likert Skalası aralığı kullanılacaktır.*** Cevap seçeneklerinin anlamı, sorunun şekline göre aşağıdaki ifadeler halinde değişiklik gösterecektir: ***5- çok yüksek oranda, büyük ölçüde; 1- çok düşük oranda, hiç etkili değil.***

A. BEŞ GÜÇ FAKTÖRÜ İLE VAKIF ÜNİVERSİTELERİNE REKABET AVANTAJI PERFORMANS ÖLÇÜTLERİ ARASINDAKİ İLİŞKİ

Yükseköğretim sektörüne yeni girecek olan üniversiteler,

sektördeki vakıf üniversitelerine, TÜBİTAK tarafından, araştırmalar için ödenen destek miktarını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
sektördeki vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Yükseköğretim kurumları arasındaki rekabet yoğunluğu,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

YÖK'ün vakıf üniversiteleri üzerindeki gücü,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Üniversitenin kurucusu olan vakfın finansal gücü,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Öğrencilerin üniversite seçimlerini etkileyerek üniversiteye öğrenci kaynağı sağlayan lise öğretmenleri,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5

vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Üniversiteye bilgi sağlayan akademisyenler,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Üniversiteden hizmet alan öğrenciler,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Üniversitenin yetiştirdiği insan gücünden faydalanan işverenler,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Vakıf üniversitelerine ikame olabilecek online yükseköğretim fırsatları,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Vakıf üniversitelerine ikame olabilecek uluslararası yükseköğretim fırsatları,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

Vakıf üniversitelerine ikame olabilecek devlet üniversiteleri,

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin yayın ve alıntı sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin TÜBİTAK tarafından kabul edilmiş proje sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin doktora mezun sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin patent sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü kayıt sayılarını etkiler.	1	2	3	4	5
vakıf üniversitelerinin uluslararası öğrenci kayıt sayısını etkiler.	1	2	3	4	5
vakıf üniversitelerinin lisans ve lisans-üstü mezun sayılarını etkiler.	1	2	3	4	5

B. İÇ KAYNAKLAR İLE VAKIF ÜNİVERSİTESİNE REKABET AVANTAJI OLUŞTURACAK PERFORMANS ÖLÇÜTLERİ ARASINDAKİ İLİŞKİ

Üniversitenin TÜBİTAK-ARDEB'teki araştırmacı sayısı ile

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5

Üniversitenin doktora öğrenci sayısı ile

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5

Üniversitenin lisans, mastır ve doktora program sayıları-çeşitliliği ile

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5

TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin endüstri ile SAN-TEZ ve TEKNOGİRİŞİM yoluyla yaptığı işbirliklerinin sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin yurtdışındaki üniversitelerle yaptığı, ERASMUS işbirlikleri sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin TÜBİTAK'a sunduğu, araştırma-geliştirme proje sayıları ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin öğrencilerden aldığı eğitim ücreti ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5

TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin uzaktan öğretim programlarının sayısı-çeşitliliği ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin kütüphanesinde kullanılan online veri tabanı sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin öğrenci kulüplerinin sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin kütüphanesinde bulunan basılı kitap sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5

uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin laboratuvar sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin şehir merkezine olan uzaklığı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin kampüs kullanım alanının büyüklüğü ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5
Üniversitenin akademisyen sayısı ile					
TÜBİTAK'ın üniversiteye araştırmalar için ödediği destek miktarı arasında ilişki vardır.	1	2	3	4	5
ERASMUS programıyla yurtdışına gönderdiği öğrenci sayısı arasında ilişki vardır.	1	2	3	4	5
yayın ve alıntı sayıları arasında ilişki vardır.	1	2	3	4	5
TÜBİTAK tarafından kabul edilmiş proje sayısı arasında ilişki vardır.	1	2	3	4	5
doktora mezun sayısı arasında ilişki vardır.	1	2	3	4	5
patent sayısını arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü kayıt sayıları arasında ilişki vardır.	1	2	3	4	5
uluslararası öğrenci kayıt sayısı arasında ilişki vardır.	1	2	3	4	5
lisans ve lisans-üstü mezun sayıları arasında ilişki vardır.	1	2	3	4	5