KURAM VE UYGULAMADA EĞİTİM BİLİMLERİ EDUCATIONAL SCIENCES: THEORY & PRACTICE

Received: January 11, 2016
Revision received: January 5, 2016
Accepted: May 29, 2017
OnlineFirst: November 25, 2017

www.estp.com.tr
DOI 10.12738/estp.2017.6.0031 • December 2017 • 17(6) • 1911–1933

Research Article

An Analysis of the Expansion of Higher Education in Turkey Using the New Institutional Theory*

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Abstract

Like many other countries around the world, Turkey faces challenges in answering the global demand for expanding higher education. In order to do so, Turkey has promoted a rapid expansion of universities since 2006, establishing 58 universities throughout the country at a growth rate of 109%. The purpose of this study is to investigate the structural imperatives of Turkish public universities to determine their organizational model according to the perception of academic faculty members. Using the perspective known as new institutionalism to form the conceptual framework, the study also draws attention to the issues of quality versus quantity and diversity versus homogeneity within Turkey's higher education system. This study uses mixed methods. Aside from the method of descriptive statistics, the data analysis process also uses the methods of factor analysis, hierarchical cluster analysis, and multi-dimensional scaling (MDS) analysis. Our analysis shows that, although the number of universities has increased, the quality of universities does not parallel to the growth in Turkey's higher education system. Regarding the issues of diversity versus homogeneity, new universities represent a highly bureaucratic university model, which makes Turkey's higher education system isomorphic.

Keywords

New institutional theory • Isomorphism • Higher education • Public universities

* This research is a part of the doctoral dissertation titled "An Analysis of the Expansion of Higher Education in Turkey Using the New Institutional Theory," which was presented by Ebru Karataş Acer at Gazi University, Institute of Educational Sciences in 2015.

This study also received funding from the Council of Higher Education in Turkey through a visiting-scholar position at the University at Albany (SUNY), Albany, New York, US.

An earlier version was presented at the 2nd International Eurasian Educational Research Congress, held by Hacettepe University in Ankara, Turkey on June 8-10, 2015.

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Citation: Karataş Acer, E., & Güçlü, N. (2017). An analysis of the expansion of higher education in Turkey using the new institutional theory. *Educational Sciences: Theory & Practice, 17,* 1911−1933. http://dx.doi.org/10.12738/estp.2017.6.0031

Throughout the world, institutional and cultural trends (Altbach, Reisberg, & Rumbley, 2009; Drori, Meyer, Ramirez, & Schofer, 2003; Frank & Gabler, 2006; Torres & Morrow, 2000), internationalization (Altbach et al., 2009; Beerkeens, 2008; Mızıkacı, 2006), national development planning, and institutional restructuring (Schofer & Meyer, 2005, p. 903) have pushed higher education institutions into a more strategic position. Specific to Turkey, restructuring universities in a global market economy, reports from the Council of Higher Education on higher education strategies in 2007 and 2014, national development planning activities, public demand for higher education access, a youth population of 16.4% (12,899,667[3]), and the current government policy have enabled higher education to expand throughout the country.

Additionally, Laws 5467 and 2809 on the higher education system mandate at least one higher education institution in every province, which has prompted an expansion of universities. As of 2016, the number of universities has grown to 181, which includes 111 public, 63 private (foundations), and seven private vocational universities. After 2006, the number of universities grew from 77 to 181 (135%), and the number of public universities grew from 53 to 111(109%). However, due to the coup attempt on July 15, 2016, 15 private (foundation) universities have been closed, and the number of private universities has decreased to 63 (see Figure 1).

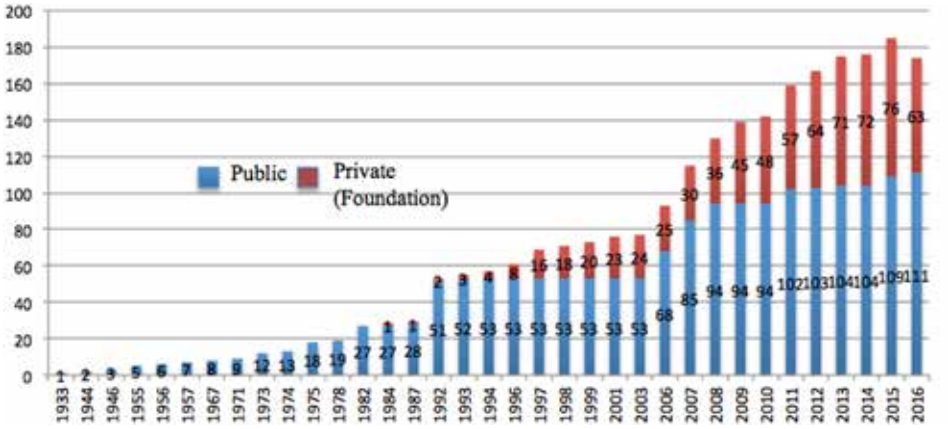

Figure 1. The number of universities in Turkey chronologically (1933-2016).

Stating the Problem

The policy and regulations through higher educational expansion have led to discussions on issues such as quality versus quantity and diversity versus homogeneity. Quality versus quantity (Mızıkacı, 2010; Şimşek, 1999) is an important key issue in understanding the expansion of higher education institutions. Mızıkacı (2006, p. 21) stated, "Rapid and unplanned expansion made some universities' educational and

3 Retrieved from the study *Statistics with Youth 2015* by the Turkish Statistical Institute.

academic qualities vulnerable." A vast volume of literature exists in Turkey on the issue of quality versus quantity (Altınsoy, 2011; Arap, 2010; Çetinsaya, 2014; Doğan, 2013; Ergüder, Şahin, Terzioğlu, & Vardaroglu, 2009; Gök, 2016; Gül & Gül, 2014; Günay & Günay, 2011; Gürlesel, 2004; Karadağ & Yücel, 2016, 2017; Kavak, 2010; Mızıkacı, 2006, 2010; Özoğlu, Gür, & Gümüş, 2016; Tosun, 2015).

According to Kavak (2010), a huge difference exists among universities and even departments regarding quality of education in terms of the teachers/student ratio. Ergüder et al. (2009, p. 21) claimed Turkey to has a large inequality in the educational quality of its old and new universities and the government to be unable to either finance new universities or meet the needs of older ones. In an interview study by Özoğlu et al. (2016), some presidents of new universities stated having difficulties in filling quotas and thus achieving low placement ratios. Many participants found financial support from the central government generous but insufficient at covering the wide range of infrastructural needs required for establishing a new university. These studies implied that the quality of universities is not parallel to their growth. On the other hand, current studies have yet to address the organizational structures of universities with respect to this issue.

Schofer and Meyer (2005) also indicted that the expansion of higher education in institutions shows a large amount of isomorphism around the world. In the global market economy, while market forces lead universities to expand worldwide through their policies and regulations, the prevalent structure and character of the field in which they operate may push them toward isomorphic adaptations where they imitate each other (DiMaggio & Powell, 1991). Limited experience with higher educational regulatory and coercive pressures (Aypay, 2003) causes universities to imitate other ones. These kinds of isomorphic pressures on higher education systems indicate the problems regarding diversity versus homogeneity, and analyzing this problem helps one understand the rapid expansion of universities.

New universities often experience problems with insufficient academic staff, physical infrastructure, sustainable financial aid, and more. Imitating the older institutionalized public universities and wanting to resemble one another can be a reasonable behavior for them (Mızıkacı, 2010). This leads to a limited number of diverse institutions, which makes Turkish higher education institutions highly homogenous. Within this context, new institutionalism can help one understand the isomorphism associated with the rapid expansion of higher education. Isomorphism refers to a process of taking adaptive changes from within organizations where a successful model has been copied in order to become legitimized and survive in the global market environment (DiMaggio & Powell, 1991; Meyer & Rowan, 1977). How institutionalized isomorphic pressures restructure Turkish higher education

has been studied in several works (Aypay, 2003; Erden, 2006; Karatas-Acer, 2015; Mızıkacı, 2010; Sert, 2008; Üsdiken, Topaler, & Koçak, 2013).

The current study addresses the isomorphic pressures that shape the organizational structures of Turkey's public university expansion and also determines the organizational model of these universities according to the perceptions of academic faculty members. By using the perspective known as new institutionalism (neo-institutionalism) in drawing the conceptual framework, the study also draws attention to the issues of quality versus quantity and diversity versus homogeneity within the Turkish higher education system. To understand these issues, the following research questions are pertinent: (*a*) According to academic performance (i.e., total number of articles, citations, scientific documents, etc.), what are the similarities/dissimilarities among public universities in Turkey? (*b*) According to the perceptions of academic faculty members, what organizational models (collegiate, bureaucratic, symbolic, systematic, or political) are represented in public universities in Turkey? (*c*) In terms of their size, age, and geographical distribution, what are the differences/similarities in their organizational models? (*d*) How are these universities clustered in terms of organizational model, and is there an evidence of growing isomorphism or a divergence in their organizational model?

Theoretical Background

The rapid, worldwide, higher educational expansion has been a key issue in public debates on higher education. The 21st century expansion of higher education is a worldwide concern and phenomenon (Schofer & Meyer, 2005), and some comparative researchers (Frank & Meyer, 2006; Meyer, Ramirez, Rubinson, & Boli-Bennet, 1977; Riddle, 1990; Schofer & Meyer, 2005; Teichler, 2008) have made critical contributions to this discussion. To understand this phenomenon, a theory-based approach is needed, and this study focuses on the concept of isomorphism, which can be associated with the rapid expansion of higher education in Turkey, by using the perspective of new institutionalism in drawing the conceptual framework. DiMaggio and Powell (1983, p. 150) have identified three mechanisms of isomorphic institutional pressure: (*a*) coercive isomorphism that stems from political forces and legitimacy issues, (*b*) mimetic isomorphism that stems from uncertainty in responses, and (*c*) normative isomorphism that stems from professionalization (see Figure 2).

Coercive isomorphism in organizations stems from both formal and informal compulsion by other organizations and from cultural and social pressures within the society where organizations function. Such pressures can be understood as coercion or as an invitation to collaborate (DiMaggio & Powell, 1983, p. 150). In order to obtain resources and social support, organizations are in harmony with the "state" which is

defined by Levy (2004, p. 4) as the main coercive force in the new institutionalism. Also, Clark (1963) gave the state a central role in shaping the market and academic network of higher education, while Aypay (2003, p. 110) claimed that states and higher education systems are closely related. In his study, Aypay (2003) described the mutual relationship between the state and higher education in Turkey in a case study in Mulkiye College at Ankara University. This study focused on how organizational factors play a role in the process of institutionalization. Tolbert (1985) claimed that public institutions have typically relied heavily on governmental sources of support, especially from state legislature. Regarding Clark (1963), Tolbert (1985), and Aypay (2003), the state plays a large role in supporting public universities and shaping the field of higher education.

A second source of isomorphic pressure is mimetic and stems primarily from uncertainty in organizational responses; this is also a powerful pressure that encourages imitation. Imitating and modeling can be used to respond to uncertainty. One example of modeling is the effort of Japan's modernizers made in the late 19th century based on modeling new governmental initiatives over successful Western prototypes. A third source of isomorphic organizational pressure is normative and stems mainly from professionalization. Professionals need to interact with nonprofessional clients and bosses or with organizations' regulators, managers, and specialized staff (DiMaggio & Powell, 1983, pp. 151−152).

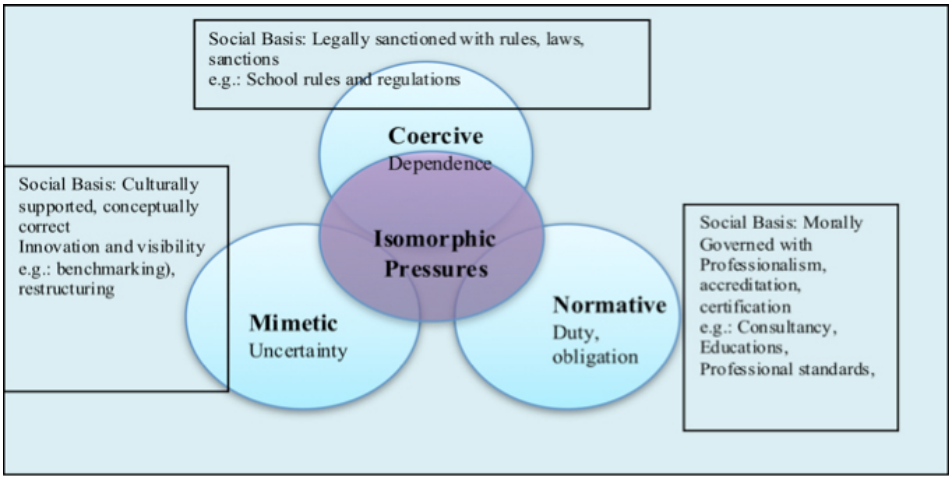

Figure 2. Isomorphic pressures (adapted from DiMaggio & Powell [1983])

Empirical work on isomorphism shows that much of the emphasis has been on mimetic isomorphism (Mizruchi & Fein, 1999). One can analyze the three mechanisms of institutional isomorphism in Turkish public universities, but in the related literature much of the emphasis has been on coercive isomorphism. In Turkey, due to the state's financial support for public universities and the Council of

Higher Education's (CoHE) governance and supervisory role, coercive pressures are easily identified in the common regulations, curriculum, programs, annual reports, teaching-learning processes, and research in public universities. Erden's (2006) study showed that homogeneity in higher education was shown for the first time with the entrance of CoHE in 1981, and the later stages of coercive power were analyzed over 75 universities in the higher education system in 2002. Also, most studies on isomorphism have investigated the diffusion of only a single structure and indicated homogeneity for a particular characteristic within an organizational field (Han, 1994; Haveman, 1993). One must study whether universities' academic cores, course designs, curricula, exchange programs, scholarships, web sites, visions, and mission statements can be copied through mimetic pressures. In addition, more studies are required on the normative pressures that stem from the norms created by national and international quality assurance systems, academic networks, professional certification boards, the Bologna process, and some mobility programs like Erasmus (Mızıkacı, 2010), as well as from some agencies like UNESCO and the World Bank.

The basic policy documents on higher education also indicate the need to diversify and differentiate higher education so as to provide competitiveness in the system to meet students' changing needs (Altınsoy, 2011). Gök's (2016, p. 159) study showed an interviewed participant's suggestion that the departments of international affairs and universities in southern Turkey should integrate courses related to the Middle East, while northeastern Turk universities should teach more on the Caucasus and northwestern Turk universities on Balkan States. This example emphasizes the regional specializations and differentiations of universities. The president of one university, in a study by Özoğlu et al. (2016), stated that universities should have regional knowledge. They need to open programs that adhere to the needs of the region in which they are located. For instance, in a city where tourism is the major economic activity, the university should focus on tourism. A new university should be established with a specific theme (of subjects/ majors) that can reveal its regional potentials, branding it to a specific theme. According to Ergüder et al. (2006), a university model is needed that functions as an interactive center to refer projects for specific themes/disciplines and university/industry collaborations and expertise on these themes.

Gür's (2016) study by province on the location of old and new universities before and after 2006 showed that new universities had been established more in less-developed regions compared to old universities. However, establishing in a short time so many universities in less-developed cities without the required infrastructure has been argued to lower their quality, causing them to face significant academic, financial, and administrative problems (Arap, 2010). However, Karayalçın (1988) suggested a higher education planning policy, specializing universities with key

campuses as centers of excellence in well-developed cities, whereas Gök (2016) claimed that universities should be established in cities with populations of around 1 to 1.5 million. According to Altınsoy (2011), new universities should have higher educational externalities. A higher educational planning policy should not legitimize having the same faculties in most universities. Having at least one prestigious research and graduate university for each discipline diversifies the higher education system in the competitive market environment.

This study stresses Turkish higher education through the isomorphic pressures that shape policy, as well as the implications of the rapid expansion of universities and the diversification of Turkish higher education. To holistically understand the restructuring and diversification of the system, this study also investigates the structural imperatives of universities that use specific organizational models.

Many comparative and applied studies exist on organizational structures (Bergquist, 1992; Birnbaum, 1988; Bolman & Deal, 2003; Handy, 1993; Morgan, 1986). This study adapts the organizational models of not just Birnbaum (1988) concerning how colleges work, but also the organizational framework developed by Bolman and Deal (2003) on organizational structure. This study represents a model-based approached by combining these two models that define the five dimensions of organizational models. Berger (2002, p. 45) described these dimensions as:

> The *bureaucratic* dimension emphasizes rationality in organizational decision-making through an emphasis on the use of formal structure manifested in rules, regulations, hierarchy, and goals. The *collegial* dimension describes organizational structure in terms of collaboration, equal participation, concern for human resources, and the use of consensus to establish goals and make other important decisions. *From a political perspective,* organizational structure emerges from competition for resources and the existence of varied interests among individuals and groups within an organization. The *symbolic* dimension focuses on the role of symbols (e.g., stories, myths, logos, seals, ceremonies, traditions, artifacts) in creating meaning within organizations. The *systemic* dimension provides an open-systems view of the organization, which suggests that what happens inside an organization can be best understood by recognizing how the organizational system and its component subsystems interact with and relate to broader systems in the external environment (see Figure 3).

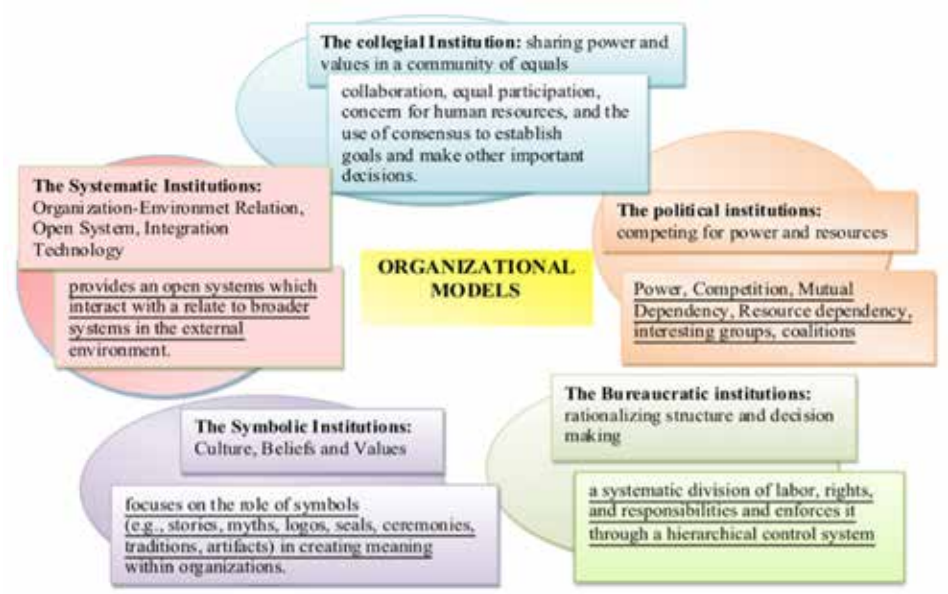

Figure 3. The organizational models of universities (adapted from Birnbaum [1988]).

Methodology

This study uses mixed methods, combining qualitative and quantitative methods. We have conducted the phases sequentially using an equal status design. Mixed methodologies allow us to (*a*) generate deeper and broader insights, (*b*) extend the data sources using different methods for different research components, and (*c*) combine both the quantitative and qualitative approaches to answer different research questions.

In this paper, we compare universities established during two periods: those universities established prior to 1983 and those established since the beginning of 2006. This analysis is based on a key assumption: universities established prior to 1983 are institutionalized organizations in terms of their academic scores, teaching staff-to-student ratios, and university rankings. We have taken 2006 as a starting point due to the political, ideological, and sociological background of universities' expansion. Turkey's current government, which has been in power since 2002, started an initiative in 2006 to establish at least one university in every province. Since then, 58 new public universities have been established, mostly in the less-developed regions of the country. Our study mainly focuses on the public universities that have been founded under this policy. The sample of the study is 51 public universities chosen using the stratified purposeful sampling method from the 83 public universities established prior to 1983 and after 2006. We used the stratified purposeful sampling method to obtain major variations rather than to identify a common core (Patton, 1990, p. 174). Table 1 and Figure 4 represent the universe/samples of the study, as well as the geographical distribution of universities.

Table 1
The Universe/Sample of the Study

	Regions	Before 1983	After 2006	1933-2015	Universe/Sample
	Marmara	8	9	21	17/8
	Central Anatolia	8	11	21	19/10
	Aegean	2	2	11	4/4
	Black Sea	2	13	18	15/10
	Mediterranean	2	6	10	8/5
	Eastern Anatolia	4	12	18	16/10
1.	Southeastern An.	1	3	5	4/4
Total	Turkey	27	56	109	83/51

* Due to an insufficient response ratio, some universities such as Boğaziçi and Istanbul have been left out of the analysis. This is a limitation for the study in terms of sampling from the Marmara region.

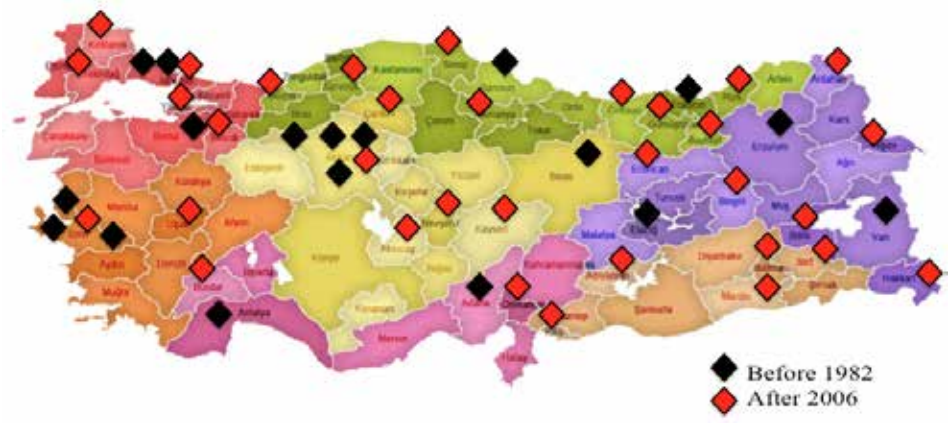

Figure 4. Geographical dispersion of the sample of this study (1982 is included in this period).

The data collection and analysis process of this study is summarized in Table 2. Data obtained from university ranking by academic performance (URAP) statistics for universities' academic quality have been analyzed using the criteria shown in Table 3. All qualitative data used in this study is available on public websites. We used the document analysis method to obtain information about universities' institutional perspectives in their structural dimensions. The documents selected for this process have been chosen according to the research questions and theoretical background of the study. As discussed by Yıldırım and Şimşek (2004, pp. 155−157), "document analysis is used for various advantages: enabling access to unreachable sources or informants, preventing sample bias, providing longitudinal data and a wide range of data sources, costing less than other methods, and yielding qualified data."

Table 2
Data Collection and Analysis Process

Research questions	Data sources	Type of data	Data collection methods	Type of analysis	Analytical methods
Universities' academic productivity (total scores for articles, citations, scientific documents, etc.).	URAP statistics	Qualitative	Document analysis	Quantitative	Descriptive statistics & MDS*
Public universities' organizational models according to the views of the academic staff.	Questionnaire	Quantitative	Survey	Quantitative	Descriptive statistics and FA**, MDS, HCA***, & Linear Regression

* Multi-dimensional scaling analysis. **Factor analysis. *** Hierarchical cluster analysis.

Table 3
Criteria Using URAP Statistics for Universities' Academic Quality

No.	Criteria	Goal	Source	Justification
1	Number of articles	Research	WoS*	Number of articles* *
2	Teaching Staff/ article ratio	Research	WoS & SSPS**	Number of articles* *Number of teaching staff in 2014.
3	Citation	Research	WoS	Total citations between 2013-2015.
4	Teaching Staff/ citation ratio	Research	WoS & SSPS	Total citations between 2013-2015. Number of teaching staff in 2014.
5	Total scientific reports	Research	WoS	Total scientific documents (articles, presented papers, etc.) between 2013-2015.
6	Teaching Staff/ Total scientific report ratio	Research	WoS & SSPS	Total scientific documents (articles, presented papers, etc.) between 2013-2015. Number of teaching staff in 2014.
7	Number of PhD Students	Education & Research	SSPS	Number of doctoral students between 2014-2015.
8	PhD Student Ratio	Education & Research	SSPS	Number of doctoral students between 2014-2015. Total number of students in 2014-2015.
9	Teaching Staff/ Student Score)	Education	SSPS	Total number of students in 2014-2015. Number of teaching staff in 2014

*Data obtained by Thomson Reuters Scientific's Web of Science database, including many documents such as articles, conference proceedings, book chapters, reviews, editorial letters, and reviews of poems, literature, and art. ** Indexed in SCI, SSCI, and AHCI in 2015.
***Student Selection and Placement System data obtained from the Higher Education Statistics Book for the 2014-2015 academic year (www.osym.gov.tr/).

To investigate public universities' organizational models, the Survey of Organizational Dimensions (SOD) was conducted by e-mail during the 2014-2015 academic year. Using the stratified sampling method, 1,072 faculty members were selected according to their disciplines and teaching staff-to-student ratios. SOD, first developed by Berger (1997) and finally redesigned and checked by the authors, is composed of 30 items in five sub-dimensions: symbolic, bureaucratic, collegial, political, and systematic. For reliability, a pilot study was conducted over 140 faculty members in July 2014, and Cronbach's alpha was calculated as .896 for internal consistency. For validity issues, four experts from Turkey investigated the qualitative data that was collected through document analysis. As a quantitative data reduction

process, factor analysis was used to reduce the 30 items to 26 and the five dimensions to four (see Table 4).

Table 4
Dimensions of Organizational Behavior

	Dimensions			
Items	1	2	3	4
item23	.725			
item30	.713			
item16	.695			
item14	.668			
item2	.660			
item4	.654			
item5	.639			
item8	.638			
item3	.603			
item9	.528			
item12	.489			
item7		.693		
item13		.678		
item19		.630		
item17		.610		
item21		.602		
item20		.597		
item26		.472		
item28			.623	
item25			.541	
item27			.495	
item15			.457	
item24			.450	
item10				.793
item1				.607
item22				.469
Eigenvalue	8.634	1.966	1.283	1.171
% of Variance	21.213	35.490	42.213	48.344
α	.928	.886	.741	.523

When analyzing the data, qualitative data obtained from annual reports, strategic development plans, and URAP statistics for investigating the structural imperatives and academic performance of universities were analyzed using the analytical methods of descriptive statistics and multi-dimensional scaling (MDS). MDS spatially represents the proximities between numbers of stimuli and provides a picture of the similarities between objects by mapping the distances between them with estimates of the position/location of the variables/objects from their distance matrices (Kruskall & Wish, 1986). MDS is an alternative to cluster and factor analyses (Dunn-Rankin, Knezek, Wallece, & Zhang, 2004).

Furthermore, quantitative data obtained from the questionnaire for investigating public universities' organizational models were analyzed through the methods of

factor analysis, MDS, and hierarchical cluster analysis. These methods allow us to (*a*) use series of data clusters that show the closest relations to each other (Rencher, 2002), (*b*) provide a method of organizing cases based on the similarities among variables (Bowers, 2010), and (*c*) see the distances among objects to represent their location to each other and the differences/similarities among them (Johnston, 1978).

Findings

In the MDS analysis, six recently established universities had no scientific documents and were thus removed from the analysis. While clustering the remaining 45 universities, in order to interpret universities' dissimilarities (distance measures), their academic productivity obtained from URAP statistics (http://www.urapcenter.org) were used. This led to seven clusters measured from their academic scores. The most productive universities, numbered between 1−18 (Hacettepe), are clustered in the same part of the matrix, and the least productive universities, numbered between 18−45 (Mardin A), are clustered in the same part of the matrix (see Figure 5).

For scaling metaphors, we interpreted the dimensions regarding universities' scores for academic performance (horizontal axis) and number of PhD students (vertical axis). Figure 5 shows that while universities established prior to 1983 are typically more successful in terms of academic performance, Aksaray University's (VAR20) PhD score is as high as these. Erzincan University (VAR23), on the other hand, has the lowest PhD score. For academic performance, Hacettepe University (VAR7) and Mardin A. University (VAR37) have the highest and lowest scores, respectively.

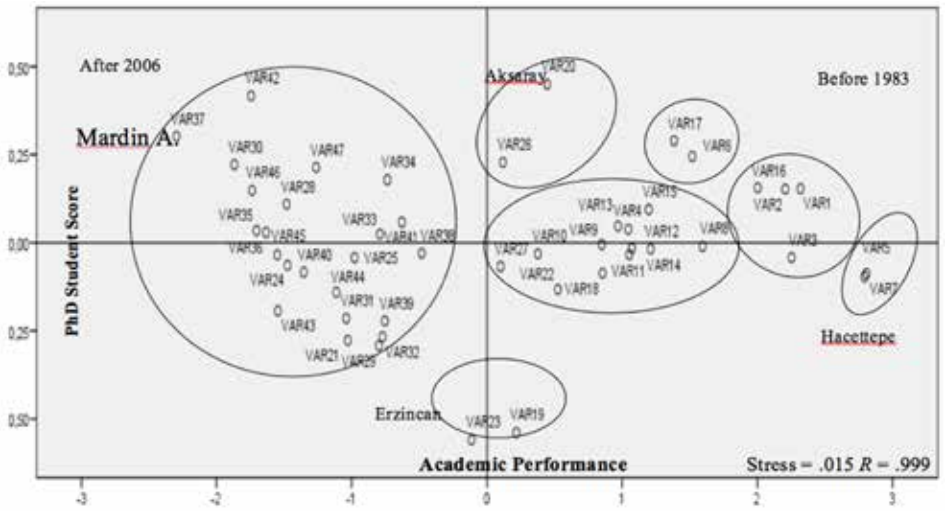

Figure 5. An interpretation of academic performance* in the MDS quadrant using the Euclidean distance model
*URAP statistics include universities' scores for the numbers of articles, citations, total scientific reports, PhD students, and teaching staff per student.

According to the means for organizational models of public universities established prior to 1983, the most prevalent model is the symbolic model ($\overline{X}$ = 3.35), and the least prevalent is the collegial-bureaucratic model ($\overline{X}$ = 2.72). According to the means for organizational models of public universities established after 2006, the most prevalent model is the bureaucratic model ($\overline{X}$ = 3.35) and the least prevalent is the collegial-bureaucratic model ($\overline{X}$ = 2.76). According to the means for Turkey's public universities' organizational models, the most prevalent is the bureaucratic model ($\overline{X}$ = 3.33), while the least prevalent is the collegial-bureaucratic model ($\overline{X}$ = 2.74; see Tables 5 and 6).

Table 5
Descriptive Statistics for the Organizational Models of Universities Established prior to 1983 (n = 18)

	Universities	Collegial-Bureaucratic	Symbolic	Bureaucratic	Systematic Political
		$\overline{X}$	$\overline{X}$	$\overline{X}$	$\overline{X}$
1.	İSTANBUL	2.76	3.66	3.44	2,91
2.	ANKARA	2.91	**3.86**	3.26	2.82
3.	EGE	2.72	**3.70**	3.30	3.06
4.	KTU	2.76	3.27	3.09	3.15
5.	ODTU*	3.56	**4.24**	3.12	2.43
6.	ATATÜRK	2.88	3.48	3.41	2.88
7.	HACETTEPE	2.91	**3.80**	3.31	3.10
8.	ÇUKUROVA	2.67	3.34	3.40	3.04
9.	DİCLE	2.36	2.95	2.96	3.17
10.	CUMHURİYET	2.59	3.17	**3.69**	3.13
11.	FIRAT	2.46	2.86	3.22	2.89
12.	ONDOKUZ M.	2.48	2.87	3.38	2.83
13.	ULUDAĞ	2.94	3.42	3.38	2.95
14.	AKDENİZ	2.51	2.96	3.26	3.01
15.	DOKUZEYLÜL	2.62	3.34	3.27	2.82
16.	GAZİ	2.54	3.24	3.29	3.18
17.	MARMARA	2.75	3.22	3.36	2.91
18.	YÜZÜNCÜYİL	2.63	3.06	3.26	2.98
	Mean	**2.72**	**3.35**	**3.23**	**2.95**
	Total	**2.74**	**3.20**	**3.33**	**3.00**

* Orta Doğu Teknik Üniversitesi, also known as Middle Eastern Technical University.

Table 6
*Descriptive Statistics for the Organizational Models of Universities Established after 2006 (*n = *33)*

	Universities	Collegial-Bureaucratic	Symbolic	Bureaucratic	Systematic Political
		$\overline{X}$	$\overline{X}$	$\overline{X}$	$\overline{X}$
1.	ADIYAMAN	2.55	3.21	**3.26**	3.13
2.	AKSARAY	3.12	3.37	**3.47**	3.15
3.	AMASYA	2.88	3.27	**3.48**	3.20
4.	DÜZCE	3.12	3.54	**3.55**	2.79
5.	ERZINCAN	2.91	3.29	**3.64**	3.30
6.	GIRESUN	2.94	**3.46**	3.16	2.74
7.	MEHMETAKIF	2.45	2.96	3.24	**3.33**
8.	NAMIKKEMAL	2.39	2.91	**3.32**	3.11
9.	RECEP T. ERD.	2.80	2.83	**3.12**	3.00
10.	UŞAK	2.30	2.69	3.13	**3.26**
11.	BATMAN	2.39	2.55	3.37	**3.38**
12.	BILECIK ŞEYH	**3.44**	3.38	**3.73**	2.75
13.	BINGOL	2.69	3.10	**3.41**	3.23
14.	BITLISEREN	2.76	3.09	**3.43**	3.07
15.	ÇANKIRIKAR	3.11	**3.59**	3.34	2.95
16.	KARABÜK	2.84	**3.63**	3.62	3.03
17.	KILIS7ARAL	2.73	2.97	**3.42**	2.83
18.	KIRKLARELI	2.87	2.87	**3.20**	2.70
19.	MARDIN A.	2.39	2.85	**3.16**	3.07
20.	NEVSEHIR HBV.	2.63	3.42	**3.48**	3.28
21.	OSMANIYE K.A	2.44	2.95	**3.43**	2.67
22.	SIIRT	2.76	3.06	**3.39**	3.10
23.	SINOP	2.90	**3.29**	3.28	2.73
24.	ARDAHAN	2.53	3.33	**3.67**	2.78
25.	BAYBURT	2.33	2.82	3.27	3.09
26.	GUMUSHANE	2.99	3.17	**3.34**	2.74
27.	HAKKARI	2.63	**3.14**	2.97	2.67
28.	IGDIR	2.62	**3.00**	2.77	2.89
29.	YALOVA	2.58	2.98	**3.32**	3.36
30.	ABDULLAHGÜL	3.67	**3.74**	3.47	3.06
31.	ISTANBUL ME.	2.98	2.94	3.32	2.87
32.	IZMIRKATIP	2.98	3.06	**3.52**	3.08
33.	YILDIRIM BYZT	2.40	2.57	3.30	**3.58**
	Mean	**2.76**	**3.12**	**3.35**	**3.02**
	Total	**2.74**	**3.20**	**3.33**	**3.00**

In order to examine universities' differences/similarities and identify groups of universities, a hierarchical cluster analysis consisting of a graphical representation of the matrix of distances was used. In this method, universities have been clustered together in a dendrogram according to their similarities and differences. In accordance with this dendrogram, public universities are clustered mainly in two groups. The symbolic group is characterized as having the highest levels of the symbolic university model, which only includes Middle Eastern Technical University (ODTU; $\overline{X}$ = 4.24). The strong bureaucratic group is characterized as having the highest levels of the bureaucratic

university model ($\overline{X}$ = 3.73) and includes just Bilecik Seyh University; the bureaucratic group is characterized as having average levels of the bureaucratic university model ($\overline{X}$ = 3.09 to $\overline{X}$ = 3.67) and includes the rest of the universities (Figure 6).

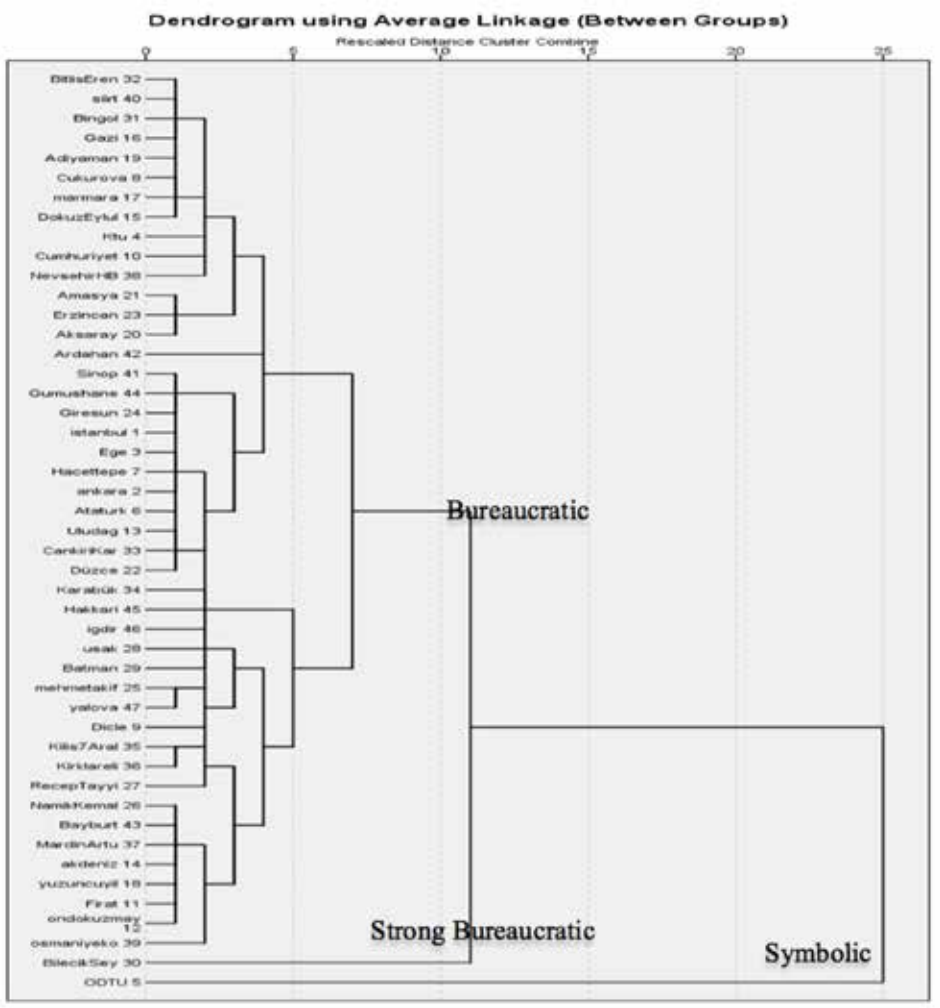

Figure 6. Hierarchical cluster analysis method (squared Euclidean distance).

According to the regression analysis of universities' structural imperatives with organizational models as the dependent variable, only the symbolic university model explains any variance among the universities. Table 7 shows the results of the multiple regression analysis, which indicates that the independent variables explain 42% of the total variance (R = .65; R^2 = .42). According to the partial and binary correlations between the dependent variable and predictor variables, a positive and moderate relationship exists for universities' scores for PhD students under the

symbolic university model (r = 0.53), but when checked against the other variables, the correlation between the two is calculated as r = 0.13. Furthermore, a positive relationship exists for universities' scores for articles under the symbolic university model (r = 0.49), but when checked against the other variables, the correlation between the two is calculated as r = 0.12. Also, a positive relationship exists for universities' citation scores under the symbolic university model (r = 0.48), but when checked against the other variables, the correlation between the two is calculated as r = 0. 21. However, according to the t-test results for the significance of regression coefficients' values, none of the variables are seen to be statistically significant for the symbolic university model (see Table 7).

Table 7
Results of Regression Analysis on the Symbolic Models

Variable	B	SE_B	ß	t	σ	r	Partial r
(Constant)	3.071	.429	-	7.152	.000	-	-
Article Score	.003	.004	0.33	.709	.483	0.491	0.119
Citation Score	.004	.003	0.48	1.275	.211	0.483	0.211
Total Scientific Document	-.004	.005	-0.54	-.778	.442	0.500	-0.130
PhD Student Score	.001	.002	0.30	.807	.425	0.538	0.135
Staff-to-Student Ratio	-.001	.003	-0.05	-.386	.702	0.008	-0.065

n = 1072; R = 0.65; R^2 = 0.42. $F_{(11, 35)}$ = 2.36, p = .05.

Discussion

According to the MDS analysis of universities' academic performance, the new public universities are not doing well in terms of quality issues. Regarding their scores for PhD students, some new universities have the capacity for high quality, but their academic results do not reflect this quantitatively. A huge push exists in Turkey for new universities to empower their capacities, especially with new PhD students, as a way of indicating quality assurance. In reality, however, even if they have the capacity, they are not productive. Regarding the quality of higher education especially for new universities, research-based policies for supporting their academic performances should be urgently implemented.

According to the descriptive statistics, the most prevalent model for Turkish higher education is the bureaucratic model, which describes campuses with regulations, rules, protocols, job descriptions, and rational goals that structure the form and functions of their administrative roles and processes (Birnbaum, 1988). In addition, CoHE as a formal and coercive organization is the main source of support for public universities and makes Turkish higher education more centralized, bureaucratic, and isomorphic. This finding coincides with both Sert's (2008) study that analyzed the process of diffusing the structures, actions, and practices in an organizational setting and showed that the CoHE is seen as an important agent in redefining Turkish higher education, as well as DiMaggio and Powell's (1983, p. 155) hypothesis on the tight connection

between organizational centralization and its dependency on resources. If organizational centralization becomes stricter, organizations become more isomorphic to resemble other organizations or institutions for resource dependency. Coercive pressures through centralization make the Turkish higher education system more isomorphic. Additionally, findings about the Turkish higher education system representing a highly bureaucratic organizational model can be explained through its close relationship with the state, which is defined by Levy (2004, p. 4) as the chief coercive force in new institutionalism. In order to obtain resources and social support, organizations must be in harmony with the state. Regarding this study's findings, Clark (1963), Tolbert (1985), Aypay (2003), and Levy (2004), as well as DiMaggio and Powell's (1983) hypothesis, identify the state as the chief coercive force playing an important role in supporting public universities. With the close relationship between the state and CoHE, new universities that represent a highly bureaucratic model lead and restructure the growing isomorphism among public universities in Turkey.

According to the geographical dispersion of universities, new public universities are mostly located in rural areas and less-developed cities. Such an expansion throughout the country can be explained ideologically. Institutions might be seen as the agents of nation-states that help instill values (Selznick, 1957) and spread the attitudes, values, beliefs, and norms of modernity, as in education, law, and health for the reproduction of culture and bureaucracies (Meyer & Rowan, 1977). In this process, universities as an institution may be seen as agents of the nation-state that help instill national values and norms throughout the country. Furthermore, institutional theories (DiMaggio & Powell, 1991; Meyer et al., 1977) emphasize the modern diffusion of institutionalized roles in education and society. According to Meyer et al. (1977, p. 243), "the political authority prompts educational expansion because it requires the creation of a national political culture and ideology, and the creation of national citizenship." With the idea that schools teach critical skills and values (Meyer, 1977, p. 65), the political authority prompts the expansion of Turkish higher education throughout the country. Establishing new universities is a government policy that enables the rapid higher educational expansion and the diffusion of national social, political, and ideological norms, values, and beliefs.

According to the size and age of universities and the descriptive statistics of university models (see Tables 5 & 6), the most productive universities are the old ones as they follow the symbolic model, describing campuses with a strong culture that consists of shared values, stories, ceremonies, and traditions (Birnbaum, 1988). On the other hand, the least productive universities are the new ones following the bureaucratic model. The stronger the symbolic model is, the higher the academic performance. Also, the stronger the bureaucratic model becomes, the lower academic performance drops. The results of linear regression analysis indicate that a positive

and moderate relationship exists between the symbolic model and universities' academic performance. However, according to the *t*-test results for the significance of the regression coefficients' values, none of the variables are statistically significant for the symbolic university model. In other words, academic performance could not explain the variance in the symbolic model. The findings on university models' descriptive statistics can be explained by Pfeffer's (1997) resource dependency theory, which claims that if institutions do not produce their own financial sources in order to survive, they need to change to find resources in an institutionalized environment. Meyer and Rowan (1977, p. 352) also stated "independent of their productive efficiency, organizations that exist in highly elaborated institutional environments and succeed in becoming isomorphic within these environments gain the legitimacy and resources needed to survive." Because the new and least productive universities cannot produce their own resources and need to get them from the government, their rules, procedures, protocols, and rational goals structure their forms and dependencies. These dependencies make them isomorphic within an institutionalized environment.

In the hierarchical cluster analysis, universities clustered mainly into two groups: The symbolic group includes only one university, ODTU, and the bureaucratic group includes all the others. Academic performance does not significantly explain this clustering because the university in the symbolic group does not have the highest academic score, though the university's model might explain it. ODTU has the highest levels for the characteristics of the symbolic university model, in which campuses have a strong culture with common values. These characteristics make ODTU a diversified university among the public universities. With its stronger symbolic model, it can exhibit greater diversity from other public universities. Furthermore, its symbolic characteristics might be a good determinant for the diversification mechanism of universities. Regarding the other universities, this cluster shows very high levels of isomorphism among public universities. Therefore, one can suggest that the Turkish higher education system needs institutions and higher education models that can make the system more heterogeneous and diverse. Also as a limitation of the study, we needed but could not obtain data gathered from private foundation universities, which have expanded rapidly since 2006, in order to deeply understand the policies and regulations of Turkish higher education to see how and the extent to which the results of this study can change. There has been some debate (Bernasconi, 2006; Levy, 2006) that private universities can make higher education systems more heterogeneous due to their growing market mechanism. Regarding diverse higher educational models, regulations, and new trends in the world, the private-public partnership (PPP) model has also been suggested as beneficial for diversifying the Turkish higher education system.

Regarding the geographical distribution of universities throughout the country, instead of local institutions in rural areas, key campuses as centers of excellence in well-developed cities would be an alternative for diversifying universities, and such professionalism can make the quality of higher education more in line with the professional standards of academia. Through a higher education planning process based on professionalism, diverse organizational models based on specific skills and disciplines (mostly for graduate degrees) should be much more appropriate than the same organizational model that converges with very high levels of isomorphism in every university. As a suggestion, the Turkish higher education system needs to not replicate models but diversify university models having their own characteristics, and productive universities could legitimize this diversification in a global market. Also, new universities should be established with regional vision and specialized missions. To determine the regional themes, areas, and fields of specialization, one should regard the prestigious and competitive sides, fields, and advantages of a region to distinguish a university from others (Altınsoy, 2011). Through the CoHE, the Mission Differentiation and Specialization on Regional Development Project, launched in June 2015 and applied in October 2016, is a very important initiative for diversifying universities in Turkey. During this project, five pilot universities, (Bingöl U., Mehmet Akif Ersoy U., Düzce U., Kırşehir Ahi Evran U., and Uşak U.) were selected from among 40 new public universities (CoHE, 2016). This project leads new universities to specialize on diversifying regional fields and themes. Furthermore, this project helps universities improve their quality, acquire international prestige, become research-oriented, collaborate regionally and nationally, and become more diverse and competitive among other universities. As each province has at least one public university in Turkey, the diversifying, specializing, and qualifying of higher education should be the priority of policies in the near future.

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