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Article

Organizational Culture and Educational Innovations in Turkish Higher Education: Perceptions and Reactions of Students

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Abstract

With the enormous scientific and technological developments, higher education institutions are facing rapid structural, social, technological changes. Because they are considered as an important center of talent development and knowledge production and sharing for countries. To fulfill their educational, social and economic needs, higher education institutions need to respond to changing education needs, to adopt the more flexible modes of organizational culture. Organizational culture is a promotive environment which influences values, assumptions and beliefs. In an innovative culture, people can easily develop new ideas and exhibit collaboration. Therefore, this paper examines the relationship between the organizational culture features and the perceptions and student reported implementation with regard to student-centered learning, collaborative learning and use of innovative educational technologies in Turkish higher education. Four universities were involved, and 894 students responded to a questionnaire comprising three groups of questions. The three groups of questions capture (i) demographic characteristics, (ii) student perceptions of organizational culture, (iii) students' perceptions of and responses to educational innovations comprising the following scales in a survey study. The results show that features of organizational culture affect students' perceived need for innovation, their views about innovative approaches to instruction, responsiveness to instructional innovations and the perceived implementation level of educational innovations. In addition, differences among the institutions were examined and discussed. The study concludes that hierarchical structure, lack of open communication and autonomy, workload, lack of financial resources and support are main barriers for educational innovations in Turkish universities. It also implies to understand the link between organizational culture and educational innovations in Turkish higher education context.

Keywords

organizational culture • educational innovations • Turkish higher education • students

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With the enormous scientific and technological developments, higher education institutions around the world are facing rapid structural, social, and technological changes as important centers of talent development, knowledge production and sharing for countries (Lundvall, 2007). The evolution of globalization and the internationalization as a possible response to globalization (Delgado-Márquez, Hurtado-Torres, & Bondar, 2011) have led to some changes in higher education systems (Deem & Brehony, 2005), such as organizational performance, structure, management, leadership, finance, autonomy, reward system, new methods, new courses and program, new curricula, and the application of technology in the educational approaches (Zhu, 2012).

Among these changes, while some are related to macro level which refers to national/state higher education policies, governance, and structure, some are related to micro- level which refers to the teaching/learning processes and educational strategies and methods (D'Andrea, 2007). As for the latter, it includes collaborative learning, student learning and the use of educational technologies (online learning and computer supported collaborative learning; Atmaca, 2007; Gokhale, 1995). To fulfill their educational, social and economic needs in the 21st century, higher education institutions need to respond to changing education needs, to adopt to the more flexible modes of organization and governance (Gardner, 2002). However, the implication of educational innovations in higher education institutions is a major challenge (Stevens, 2004). The main challenge faced by institutions is the governmental and institutional failure to recognize the need for change in organizational cultures and structures and educational approaches (Latchem, Jung, Aoki, & Ozkul, 2008).

The existing body of research suggests that organizational culture influences educational institutions (Eren & Kılıç, 2014; Kezar & Eckel, 2002; Kuruuzum, Asilkan, & Cizel, 2005). Poskiene (2006) further investigates that organizational culture specifies the complex set of ideologies, beliefs, attitudes and values which have an impact on the potential source of innovation. Likewise, Quinn and Rohrbaugh (1983) have stressed that organizational culture has an impact on management, productivity, change and innovation for higher performance in educational settings. By drawing on the concept of the culture of innovation, Thompson (1966) mentions that innovation must begin at the management level, points out that the leaders should be open to take risks and accept the drawbacks. Herbig and Dunphy (1998) indicate that innovation tends to occur in less hierarchic environments in which are based on creativity, decentralized authority and change. Thus, regarding organizational structure, bureaucracy and innovation are two terms which are mutually exclusive, a finding confirmed by Tian, Deng, Zhang, and Salmador (2018). Following these elements, collaboration is a process in organizations to be innovative. It is a key factor that enables the accomplishment of the objectives which cannot be attained individually (Bronstein, 2003). This view is supported by Dombrowski et al. (2007) who wrote that collaboration produces reasonable benefits in high trust environments where the members of the organization share their knowledge, beliefs and concerns openly. They further emphasize that in an innovation culture, a distributed network can allow organizations to adapt, support and implement new ideas.

Despite these studies, debate continues about the restraining factors to educational innovations. These include risk, short vision, lack of skilled personnel, innovation costs, lack of customer responsiveness, lack of information on technologies, rigid structure and management control (Arad, Hanson, & Schneider, 1997). Yet, the existing studies fail to understand the role of specific organizational culture dimensions in educational innovations (Doruk, 2014; Efeoğlu & Ulum, 2017).

This paper examines the relationship between the organizational culture features and the perceptions, and student reported implementation of educational innovations in Turkish universities. The

overall structure of the study takes the form of six sections, including literature review, methodology, results, discussion, implications and limitations.

Theoretical Framework and Research Questions

Organizational culture. Today, organizational culture occupies an important place in the management approaches. The concept of organizational culture is defined by many scientists in many different ways. Pettigrew (1979) - apparently the first to introduce the concept to the literature- defined organizational culture as a system of meanings, shared by a certain group of people, composed of symbols, language, beliefs, ceremonies and legends. Peters and Waterman (1982) also summarized Pettigrew's definition as sum of values shared by members within the organization. Besides, organizational culture can be broadly defined as a system of values shared among employees, a set of assumptions to be taught and a fundamental feature that distinguishes one organization from another (Schein, 2010).

Culture allows to understand the dynamics of organizations which powerfully influence human behavior (Kotter, 1996). The organization where people create and share knowledge is positively linked to growth and innovation, bottom line savings, increased satisfaction, increased value and learning (Smith & McKeen, 2000). Thus, organizations should provide a promotive environment for the members to contribute easily (Beck, 2004). The culture of innovation is a managerial, cultural and structural factor which requires openness, trust, supportive leaders, innovative orientation, participative decision-making process, and learning and knowledge acquisition approaches (Ismail & Abdmajis, 2007).

Studies also show that an in-depth analysis of values, beliefs and behavior patterns is required to guide organizational performance because innovation culture have a role in including the values that are open to new ideas (Martins & Martins, 2002). According to what Chavda (2004) examined, the determinants of an innovation supportive organizational culture are revealed as managerial support, trust, rewards, goal clarity, and organizing work around teams. However, underestimating and minimizing those aspects inhibit innovation (Balsano et al., 2015). Previous research points out that obstacles to innovation may include lack of a shared vision or strategy, lack of organizational commitment, pressure on production, hierarchical structures, management control, workforce workloads, negative attitude, less freedom or autonomy, and less reward (Kanter, 1983).

In literature, theoretical and empirical studies suggest that there is an enormous effect of organizational culture on innovation with different implications such as thoughts, feelings, interactions, creativity and innovation, knowledge management, organizational performance, achievement of organizational goals, participation in decision making, successful leadership behaviors, support, trust, shared vision, innovative orientation (Ahmed, 1998; Bakan & Büyükbeşe, 2005; Martins & Martins, 2002; Martins & Terblanche, 2003; Taylor, Dunn, & Winn, 2015). Organizational culture is important not only for business-oriented organizations but also for higher education institutions (Kezar & Eckel, 2002). Previous studies have suggested that organizational culture in educational institutions refers to the behavior-beliefs, attitudes, perspectives traditions- of the students and teachers, support from the management, collaborative environment, achievement criteria and the organizational culture type, innovative approaches, supportive leadership, structured leadership, students' participation in decisions, satisfaction, reward (Doruk, 2014; Efeoğlu & Ulum, 2017; Erdem, 2007; Eren & Kılıç, 2014; İra, 2011; Kuruuzum et al., 2005; Maurer & Davidson, 1998; Zhu & Engels, 2014).

Drawing on the literature and our previous studies, this paper explores organizational culture of higher education in terms of innovative orientation, achievement orientation, collaborative relationship among members, supportive leadership, and participative decision-making process. These measures can

draw a picture of organizational culture of Turkish universities and can provide an implementation for identifying the relationship between educational innovations.

Educational innovations. In the field of organizational culture, various definitions of innovation are found, and the terms “creativity” and “innovation” substitute each other. Thus, we first clarify the definition of innovation adopted in this research and the differences between creativity. When creativity is generally defined as a process growing out of the uniqueness of the people, events, or environments or a product that applies to individuals (Rogers, 1954) focusing on the production of ideas rather than implementing them, innovation usually refers to a key element for creating new ideas, methods, strategies and implementing them correctly in an organization (Brown & Ulijn, 2004). As confirmed by Kanter (1983), innovation provides changing, accepting, and implementing of new ideas, processes and products. Amabile (1988) proposed a somewhat conceptual connection between creativity and innovation. In her definition, the term innovation has come to be used to refer to the successful implementation of creative ideas, as stressed by Kuhn, it requires both creativity and implementation. In this paper, we adopted the latter definitions of innovation (Amabile, 1988; Kanter, 1983) like those of other scholars (Zhu & Engels, 2014) which includes the creation of novel ideas being followed by a successful implementation by a larger group.

Being innovative and responsive to innovation are important for higher education institutions as they are the centers for science and innovation (Zhu & Engels, 2014). Kozma (1985) emphasizes that higher education institutions have been experiencing severe pressure to change their instructional practices to interact with other actors. This is because of the heterogeneous background of the students, the need of the society for people equipped with the skills, abilities to adopt to the new situations, team building and problem solving. He further stresses that educational innovations, ranging from computer-based system to collaborative learning system, have been developed and implemented. Higher education institutions are beginning to use the increased capabilities of technology, especially in teaching and research (Musselin, 2007). Innovations in research are academic capitalism, triple helix, knowledge production model while those in teaching can be counted as integrated use of information and communication technologies (ICTs) which allows greater educational access and better preparation for the economic market (Chun & Evans, 2009).

As to educational innovations, several trends have been influential in the last two decades, such as collaborative learning, cooperative learning, student centered pedagogy, computer supported learning, online learning, web-based platform and distance learning (Atmaca, 2007; Garrison & Kanuka, 2004; Gokhale, 1995; Wright, 2011). In order to functionalize the measurement of educational innovations, we aim to obtain data in three educational innovations trends: (i) student-centered learning (SCL), (ii) collaborative learning (CL), (iii) e-learning (e-L) and computer supported collaborative learning [CSCL] (technology use). We examine four dependent variables in terms of educational innovations: perceived need for educational innovations, views about educational instructions, responsiveness to educational innovations and the student reported implementation level of educational innovations.

The relationship between organizational culture and educational innovation. The organizational cultural features are crucial for innovation. In their major study, Jassawalia and Sashittal (2002) state that the culture of innovation is an environment in which several elements including values, assumptions and beliefs are present to develop new ideas and to exhibit collaboration and innovation. The literature around organization culture offers some cultural traits to encourage innovation such as mission, vision, risk taking, competitive, teamwork, leadership, trust, communication, collaboration, organizational structure, organizational learning, commitment and time (Ahmed, 1998; Sharifirad & Ataei, 2012). What

Creemers (2005) points out is also about the positive relation between organizational culture and educational innovation.

The research in higher education institutions regarding the impact of organizational culture on educational innovations are extensive and focus particularly on the educational innovation approaches. Kılıç (2012) draws our attention to the importance of culture for an effective student-centered learner approach. In their book of shaping the school culture, Deal and Peterson (1999) point out culture is a pivotal element to foster improvement, collaboration, decision making, staff development and student learning in educational institutions. Besides, Economides (2008) states that the cultural background of the individual learners has an impact upon their participation, motivation and satisfaction during collaborative activities. According to Lea, Stephenson, and Troy (2003) achieving the maximum gain in e-L requires understanding the organizational culture. This view is supported by Lehtinen (2004) who writes that if an organization has a collaborative culture, it gets easier to apply computer supported collaborative approaches in learning environments. Successful implementation obliges organizations to have a careful fit assessment and well-designed training program for using this CSCL technology (Vandenbosch & Gizberg, 1996).

Organizational culture can be a facilitator or a barrier for educational innovations. In terms of serving as a facilitator, a culture of innovation broadly includes creating, accepting and implementing the new ideas (Amabile, 1988; Kanter, 1983). Similarly, Katz and Kahn (1978) found that the structure of an organization facilitates innovation through the flow of information, the coordination and integration of activities within an organization. Additional characteristic for the innovation process was suggested by Arad et al. (1997). They proposed that flat hierarchy, autonomy, empowerment, and work teams facilitate innovation. They also identified the importance of leadership on innovation. Especially creating supportive culture, motivating employees, providing direction and vision are seen as important aspects for innovation (Yukl, 1989). Still other researchers have focused on the positive relationships between innovation and social characteristics of the universities such as organizational goals achievement, selection and reward system, growth and risk taking (Eren & Kılıç, 2014; Peters & Waterman, 1982).

Next to the facilitators mentioned above, organization culture may be a significant barrier for educational innovations. Previous research points out that restraining factors to innovation may include values mostly associated with hierarchical structures and authoritarian management (Arad et al., 1997). In a similar vein, academic staff members' lack of knowledge and skills may hamper educational innovations. Some studies have highlighted the inhibitors associated with academic achievement criteria (Kalaycı, 2009; Yılmaz, 2017) which has broken the link between scientific practices and higher order thinking skills.

Higher education in Turkey is faced with serious challenges and opportunities. It is necessary to establish stable, consistent and sustainable policies. However, higher education system is highly centralized, with limited transparency, accountability and autonomy. The present structure of universities is far from universal principles. It is also used as a means for students' discipline. However, the main purpose of higher education should be to enable students to think independently (Küçükcan & Gür, 2009).

The quality of education, access to higher education, equality in opportunities, financing of higher education, the increase of foreign students and faculty members, personal rights of faculty members, the development of economic and social relations, university autonomy and academic freedom to engage are some of the challenges for higher education institutions in Turkey in the coming years (Bağcı, 2016; Doğan, 2013; Toylan & Göktepe, 2010). Thus, higher order thinking skills, taking risks, fostering innovative ideas, collaborative studies are neglected in some universities. Under these circumstances, it becomes challenging for academic staff members to make efforts in educational innovations (Boddy, Watson, & Aubusson, 2003; Santiago, Gilmore, Nusche, & Sammons, 2012).

It is necessary to transform these problems in higher education into opportunities and to create an organizational culture with differentiation, innovation and diversity (Tanrikulu, 2009), and participatory management, visionary leadership and entrepreneurship concept (Yavuz, 2012). Organizational culture is a promotive environment which influences values, assumptions, and beliefs. In an innovative culture, people can easily develop new ideas and exhibit collaboration (Beck, 2004). Therefore, examining the relationship between organizational culture and educational innovations can provide insights for researchers, policy makers to realize the role of specific organizational culture features in innovations and make recommendations for culture change and reforms in education.

Research questions. The research aims to address the following research questions: (RQ1) What are the characteristics of Turkish public universities regarding organizational culture features as perceived by students in teacher training programs? (RQ2) What are the students' perceptions, responsiveness and implementation of educational innovations? (RQ3) What are the relationships between organizational culture features and students' perceptions, responsiveness and implementation of educational innovation?

Based on the literature review, we hypothesize that there is a relation between organizational culture features and the students' perceived need, view about and responsiveness to educational innovations in Turkish higher education. Also, there is a relation between organizational culture features and the implementation of educational innovations in Turkish higher education.

Methods

Participants

The target population consisted of undergraduate teacher training program students in 4 public universities in Turkey. We aimed to include four public universities which are in the ranking list of the Entrepreneurial and Innovative University Index 2015 prepared by TUBITAK (Scientific and Technological Research Council of Turkey). Out of 50 universities, the universities were selected because each was on the different percentile on the list and got different points. To ensure anonymity, we coded universities as: University 1, University 2, University 3, University 4 and we calculated percentile of the universities and wrote an approximate percentile. Universities' percentiles are as follows: University 1: between 50-70%; University 2: between 30-50%; University 3: between 10-30%; University 4: first 10%. Hence, it can be assured that the organizational culture types of these four universities represent the general academic culture in Turkey. A total of 894 undergraduate student from second-year student to final-year student participated in the survey. Among them, 676 were females, 218 were males. Their mean age was 20.5 ($SD = 1.29$). The sample composition is depicted in Table 1.

Table 1. *Distribution of students by independent variables*

	University				Gender		Age				Year		
	U1	U2	U3	U4	male	female	19	20	21	≥ 22	2 nd	3 rd	4 th
<i>N</i>	239	250	212	193	218	676	191	255	206	242	280	312	302
%	26.7	28.0	23.7	21.6	24.4	75.6	21.4	28.5	23.0	27.1	31.3	34.9	33.8

Note. U1 = University 1; U2 = University 2; U3 = University 3; U4 = University 4

Instruments

All participants responded to a questionnaire comprising three groups of questions. The three groups of questions capture (i) demographic characteristics, (ii) student perceptions of organizational culture, (iii) students' perceptions of and reactions to educational innovations. The demographic characteristics included university, gender, age and year of the students.

As to the student's perceptions of organizational culture, *The Organizational Culture Survey* (self-developed for the purpose of this study) was used. This self-developed instrument was pilot tested with 221 students studying in the faculties of education of two universities in the sample. Based on the exploratory factor analysis (EFA) and the reliability coefficient analysis for the instrument, four items were omitted following the first pilot study, and for the main study we had 21 items. At first, a total of 25 questions were asked to 221 students to pilot test the instrument. After EFA, it included 21 items composing five scales: students' perceptions about innovative orientation, achievement orientation, supportive leadership, collaborative relationship among members and about participative decision-making process (see Table 2).

Table 2. Scales of organizational culture and responsiveness to and implementation of instructional innovations

	Cronbach's alpha	M (SD)
<i>Organizational Culture Dimensions</i>		
Innovation Orientation	.85	3.61 (0.79)
Achievement Orientation	.83	3.60 (0.81)
Supportive leadership	.75	3.18 (0.97)
Collaborative relationship	.84	3.80 (0.82)
Participative decision-making process	.81	2.83 (0.94)
<i>Educational Innovation Dimensions</i>		
Perceived need	.86	3.80 (0.82)
Perceived views	.85	3.79 (0.78)
Responsiveness	.80	3.68 (0.81)
Implementations	.74	3.48 (0.83)

As to the perceptions and reactions to educational innovations, the *Scale of Perceptions of and Reactions to Instructional Innovations* (Zhu & Engels, 2014) was used. It comprised the following scales perceived need for educational innovations, views about educational innovations, responsiveness to educational innovations, the implementation level of instructional innovations. As to the implementation of educational innovations, the student reported implementation level of SCL, CL, e-L, and CSCL in universities is measured in this study. A total of 20 questions were answered by the students: perceived need for innovations, views about innovative instructions, responsiveness to educational innovations and the implementation level of educational innovations. After EFA, one item from the perceived view scale, namely "I think teachers should focus on transmitting knowledge to students" was removed due to its low factor loading (< 0.30). Finally, we ended up with 19 items for educational innovations. The participants were asked to indicate the extent to which they agreed or disagreed with the statements about themselves using a five-point scale anchored by 1 = *strongly disagree* (absolutely not true) and 5 = *strongly agree* (very true). Total scores were calculated for each scale. The reliability (Cronbach's alpha), mean and standard deviation for each scale are reported in Table 2.

Procedure

Prior to data collection, we obtained the ethical approval from the Ethics Committee of Middle East Technical University. Once the permission was granted, students were given the opportunity to participate in the research according to participants' availability on a voluntary basis. We let them know their information would be confidential and the findings would be anonymous.

This part of data was collected through a self-administered paper-and-pencil survey that took approximately 30-35 minutes to complete. The survey was administered by teachers (who agreed to support this research) and the researcher during their course sessions or during group activities. In total, 972 questionnaires were collected, and the valid questionnaires totaled 894.

As this study seeks to understand the perceptions of students about organizational culture and educational innovation at Turkish Higher Education Institutions (HEIs), the quantitative approach was selected for the research design. The primary purpose of the quantitative study is to explain phenomena by collecting numerical data and analyze the data using mathematically based methods, especially statistics to get the perceptions of people on something (Aliaga & Gunderson, 2002; Muijs, 2004). Surveys were used in this study to uncover the areas regarding the students' perceptions of organizational culture and educational innovation as well as the relationship between specific organizational culture features and educational innovation at Turkish HEIs.

Data Analysis

Firstly, data normal distribution was checked. Secondly, in order to test the reliability and validity of the scales, reliability analysis (Cronbach's Alpha), exploratory factor analyses were conducted. Thirdly, linear multiple regression analyses were carried out to assess which organizational cultural features predict each dimension of educational innovations. The influence of the organizational cultural characteristics was assessed in the first relational model, after which the other controlled variables (university, gender) were added to the regression models.

The reliability of the scales of the Organizational Culture Scale was satisfactory with Cronbach's alphas between .75 and .85. In order to determine construct validity of the scale, EFA (principal component with Promax rotation) was performed (KMO .89, the χ^2 value of Bartlett's sphericity test 9305.876, $df = 210$, $p < .01$). As a result of the EFA, a five-component construct accounting for 65.211 % of the total variance emerged. For the dimensions on educational innovations, the scales had Cronbach's alphas between .74 and .86. In order to determine the construct validity of the existing *Scale of Perceptions of and Reactions to Instructional Innovations*, EFA (maximum likelihood with varimax rotation) was performed (KMO .86, *Chi-square* 795.413, $df = 101$, $p < .01$) As a result of the EFA, a four-component construct accounting for 61.88 % of the total variance emerged. EFA results revealed that both scales were confirmed by the data.

Results

Characteristics of Organizational Culture

In view of RQ1, the perceptions of organizational culture of four universities were analyzed. ANOVA was conducted to examine the five dimensions of organizational culture among the different universities. There was a statistically significant difference between groups as determined by one-way ANOVA among the dimensions innovation orientation, achievement orientation, supportive leadership, collaborative relationship and participative decision making process (respectively, $F_{(3,890)} = 12.169$, $F_{(3,890)}$

= 7.789, $F_{(3,890)} = 20.572$, $F_{(3,890)} = 27.850$, $F_{(3,890)} = 9.124$, $p < .001$). The results indicate that each university has its own features with regard to the dimensions of the organizational culture. A Games-Howell post hoc test revealed that University 4 represented relatively higher collaborative relationship, innovation orientation and achievement orientation than all other universities, but low supportive leadership and participative decision making. The collaborative relationship was not significantly different among University 1, 2 and 3, The results showed that University 1 and 2 seemed to be not significantly different among all dimensions of organizational culture. Across the four universities, supportive leadership was lower than the other dimensions. The ANOVA results are presented in Table 3.

Table 3. *Organizational culture dimensions by universities*

	$F_{(3, 890)}$	p	University (mean)						
			Games-Howell post hoc test						
			U1	U2	U3	U4			
Innovation Orientation	12.169	.000	3.48	\geq	3.41	$<$	3.70	$<$	3.94
Achievement Orientation	7.789	.000	3.47	\leq	3.49	$<$	3.70	$<$	3.78
Supportive Leadership	20.572	.000	3.01	\geq	2.88	$<$	3.35	$<$	3.62
Collaborative relationship	27.850	.000	3.63	\leq	3.71	\leq	3.86	$<$	4.07
Participative Decision	9.124	.000	2.65	\leq	2.72	$<$	2.96	$<$	3.05

Note. U1 = University 1; U2 = University 2; U3 = University 3; U4 = University 4

In addition, the results also show that there was a positive correlation among the five dimensions of organizational culture. The correlation analysis results are presented in Table 4. It indicates, for example, the innovation orientation is highly correlated with cooperative relationship and achievement orientation.

Table 4. *Pearson correlations between the scales of organizational culture*

	IO	AO	SPL	CR
Achievement orientation (AO)	.58**			
Supportive leadership (SPL)	.46**	.32**		
Collaborative relationship (CR)	.58**	.50**	.46**	
Participative decision-making process (PDM)	.41**	.37**	.46**	.40**

Note. ** $p < .01$; IO = innovative orientation

Perceptions of and the Responsiveness to Educational Innovations

In view of RQ2, students' perceptions, reported responsiveness and implementation of educational innovations were analyzed. The results showed that there was a high perceived need and view for and responsiveness to educational innovations. However, it was low in the implementation level of educational innovations. As for the significant differences, ANOVA results indicated that universities differed in perceived need, responsiveness, implementation level of SCL and CL (respectively, $F_{(3,890)} = 28.811$, $F_{(3,890)} = 26.181$, $F_{(3,890)} = 14.881$, $F_{(3,890)} = 18.641$, $p < .05$). Even so, there were no significant differences identified from the four universities in the perceived view, the implementation level of e-L and CSCL (respectively, $F_{(3,890)} = 1.018$, $F_{(3,890)} = 18.641$, $F_{(3,890)} = 18.641$, $p > .05$). Across the four institutions, the implementation of CSCL and e-L was rather low. The detailed results are presented in Table 5.

A Games-Howell post hoc test revealed that respondents in University 4 reflected the highest need, view, responsiveness and implementation levels. The University 1 had the lowest level in the perceived need, view and responsiveness, though the implementation levels in University 2 was lower than the other

universities. Although the four universities differ from each other in organizational culture features, the findings of this study seem to indicate that University 4 was more innovative than other universities, and University 3 was the second for innovativeness.

Table 5. *The perceptions and reactions to educational innovations by universities*

	$F_{(3, 890)}$	p	University (mean)						
			Games-Howell post hoc test						
			U1	U2	U3	U4			
Perceived need	28.811	.000	3.47 <	3.70 <	4.04 ≤	4.06			
Perceived views	1.018	.384	3.74 ≤	3.76 ≤	3.82 ≤	3.85			
Responsiveness	26.181	.000	3.39 ≤	3.57 <	3.88 ≤	3.97			
Implementation of SCL	14.881	.000	3.46 ≤	3.25 ≤	3.70 <	3.89			
Implementation of CL	18.641	.000	3.50 ≥	3.34 <	3.77 <	4.03			
Implementation of e-L	1.763	.153	3.33 ≥	3.27 ≤	3.36 ≤	3.51			
Implementation of CSCL	0.827	.479	3.32 ≤	3.35 ≤	3.42 ≤	3.47			

Note. U1 = University 1; U2 = University 2; U3 = University 3; U4 = University 4

A Games-Howell post hoc test revealed that respondents in University 4 reflected the highest need, view, responsiveness and implementation levels. The University 1 had the lowest level in the perceived need, view and responsiveness, though the implementation levels in University 2 was lower than the other universities. Although the four universities differ from each other in organizational culture features, the findings of this study seem to indicate that University 4 was more innovative than other universities, and University 3 was the second for innovativeness.

The Relationship Between Organizational Culture and Perceptions of and Responsiveness to Educational Innovations

In view of RQ3, the relationships between the scales of organizational culture features and students' perceived need, view, responsiveness and implementation of educational innovations were analyzed with regression analyses. Taking the dimensions of organizational culture as independent variables and perceived need as dependent variable, the regression model (Model 1) showed that four dimensions of the organizational culture (except supportive leadership) predicted students' perceived need for innovations. The total contributions of organizational culture to perceived need for innovation were 27.3%. Organizational culture also significantly influenced students' perceived view of educational innovations ($R^2 = 25.2\%$), responsiveness to innovation ($R^2 = 23.2\%$), and the implementation level of SCL, CL, e-L and CSCL, with a contribution ($R^2 = 20.8\%$, 18.2% , 16.3% and 15.0% respectively). In model 2, other independent variables (university and gender) were added. The results show that four dimensions of organizational culture, namely, achievement orientation, innovative orientation, collaborative relationship and participative decision making, university and university and gender variables together contributed to 28.4 % variances of students' perceived need. Model 2 also influenced students' perceived views about educational innovations ($R^2 = 25.9\%$), responsiveness to educational innovations ($R^2 = 24.2\%$) and the implementation levels of educational innovations regarding SCL, CL, e-L and CSCL ($R^2 = 21.6\%$, 19.2% , 16.3% and 15.2% respectively). The regression results demonstrate that the perceived need and views about educational innovations can be mostly explained by the examined independent variables in this study. The detailed results are depicted in Table 6 and Table 7.

Table 6. Regression results of organizational culture and other independent variables on educational innovations

	<i>Perceived need for educational innovations</i>		<i>Views about educational innovations</i>		<i>Responsiveness to educational innovations</i>	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	β	β	β	β	β	β
Innovation orientation	.26***	.25***	.22***	.22***	.26***	.24***
Achievement orientation	.17***	.17***	.17**	.17***	.16***	.15***
Supportive leadership	.05	.02	-.01	.01	.09*	.07
Collaborative relationship	.13**	.13**	.17***	.16***	.06	.07
Participative decision-making	.06	.06	.08**	.12**	.05	.05
University		.12***		-.06		.11***
Gender		-.01		-.01		-.02
R^2 (%)	27.7	29.0	25.6	25.3	23.7	24.8
Adjusted R^2 (%)	27.3	28.4	25.2	25.9	23.2	24.2

Note. β = standardized regression coefficient. R^2 = explained variance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 7. Regression results of organizational culture and other independent variables on implementation on educational innovations

	<i>Implementation level of innovations - SCL</i>		<i>Implementation level of innovations - CL</i>		<i>Implementation level of innovations - e-L</i>		<i>Implementation level of innovations - CSCL</i>	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
	β	β	β	β	β	β	β	β
Innovation Orientation	.19***	.18**	.19**	.18***	.26***	.27***	.23***	.24***
Achievement Orientation	.06	.06	.03	.03	.05	.05	.03	.04
Supportive leadership	.07	.05	.11**	.09*	.05	.05	.07	.07
Collaborative relationship	.18**	.18***	.16***	.17***	.08*	.08	.11**	.11**
Participative decision-making	.09**	.09*	.05	.05	.06	.07	.04	.05
University		.10**		.11*		-.04		-.05
Gender		-.03		-.02		.01		.03
R^2 (%)	21.2	22.2	18.7	19.8	16.8	17.0	15.5	15.9
Adjusted R^2 (%)	20.8	21.6	18.2	19.2	16.3	16.3	15.0	15.2

Note. β = standardized regression coefficient. R^2 = explained variance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Discussion

This study was designed to predict educational innovation from organizational culture features in Turkish higher education. The findings have added the following insights into characteristics of organizational culture in Turkish higher education, perceptions of responsiveness to and the student reported implication levels of educational innovations and the relationship between organizational culture and perceptions of and responsiveness to educational innovation.

Characteristics of Organizational Culture in Turkish Higher Education

This study endorses the view that the organizational culture significantly differed among the four universities. More specifically the University 4 enjoys a more innovative organizational culture with regard to the highest scores of collaborative relationship, innovative orientation and achievement orientation. However, the participative decision-making process and supportive leadership are relatively less positive in four universities compared to the other dimensions of organizational culture. These results are likely to be related to the hierarchical culture of Turkish higher education. In the same line, Mızıkacı (2003) states that Turkish higher education system has a mandated and over-centralized structure which is regulated by the only authority-Council of Higher Education (YÖK, 2007). In addition, recent research has also pointed out that teachers' involvement in educational innovations is limited because of the academic staff members' lack of practice at schools, workload, curriculum, conflicts in academic achievement criteria, management and leadership features (Kalaycı, 2009; Yılmaz, 2017). In this respect, the result coincides with those of Erdem (2007), Aktan (2007), Eren and Kılıç (2014), Köse (2017) that Turkish universities reflect mechanical process with a result-oriented and controlled environment.

The Perceptions of Students' Perceived Need and View About, Responsiveness to and the Student Reported Implementation Levels of Educational Innovations

With respect to the results of educational innovations, students' perceived need was high and significantly differed among universities. Their perceived views about educational innovations were also positive, in spite of similarities among the universities. This similarity may be because of the centralized culture (Bocutoglu & Kara, 1995; Köse, 2017). As Yu and Jia (2009) mentioned, everyone has the capacity for innovation, however, the level of innovation might be enhanced by new educational approaches in supportive educational environments. Thus, the views may be differentiated by changing the organizational features such as the impact of individual factors (Tabak & Barr, 1999), organizational support (O'Connor & McDermott, 2004), and contextual variables (Damanpour & Gopalakrishnan, 1998).

When the scores on the responsiveness and student reported implementation levels are analyzed, they seemed relatively lower in all the universities studied. This finding broadly supports the implementation model of Klein, Conn, and Sierra (2001) that the adoption of an idea is easier than the implementation. Fullan (1993) takes this argument a little further. He states that implementation gets harder if the ideas of policy makers, leaders and teachers are very different from each other.

Among the four implementation levels of educational innovations, the implementation of SCL and CL was not significantly different among the universities. A possible explanation for this might be about the convergence among these universities. Another explanation can be the need for the prospective teachers to be trained using constructivist approaches. The results indicate that there is a failure not to provide the prospective teachers with enough and sufficient in-service training for SCL and CL. These results are in accord with the recent studies indicating that prospective teachers hold immature beliefs and abilities about SCL and CL. They are only presented theoretically in the faculties of education, even so traditional approaches are applied in practice (Doruk, 2014; Karacaoğlu & Acar, 2010). At this point, some prominent researchers suggest combining theory with the practice in teacher training period in the faculties of education (Doruk, 2014; Buhagiar, 2013).

The results of this study demonstrate empirically that cultural dimensions have a significant effect on the implementation of e-L and CSCL. The results demonstrated that the more innovative and collaborative a culture is, the higher the implementation level of educational innovations with regard to e-L and CSCL as it is clear in University 4. The previous studies have demonstrated that cultural dimensions are prominent influencing the implementation of the use of technologies (Vatrapu, 2008).

Despite the significant differences in the implementation levels of e-L and CSCL, four universities illustrate their lowest levels in e-L and CSCL compared to other variables. This could be attributed to the whole structure of Turkish educational faculties. This result supports the idea that there are not enough courses and qualifications for technology-supported education in the faculties of education and that the prospective teachers graduated from these universities with limited information (Bursal & Yiğit, 2012).

This adds to the arguments of the needs for a holistic approach (Schneckenberg, 2008) considering a unique combination of the pedagogical, technological and social contexts (Kirschner et al., 2004; Stahl et al., 2006). Therefore, in order to implement the use of technologies, Turkish universities need to put emphasis on the fact that the change is caused by innovative educational practices, well-designed technological infrastructure, and students' and teachers' requests and needs (Bursal & Yigit, 2012; Turan & Çolakoglu, 2008).

The Relationship Between Organizational Culture and Educational Innovations

The findings of this research provide empirical evidence about the organizational culture on the perceptions of and responsiveness to and implementation of educational innovations. The results confirmed the two hypotheses. The regression models on the one hand indicate that innovation orientation, achievement orientation and collaborative relationship were strong predictors. Universities with the highest score on innovative orientation are more tended to respond to and implement educational innovations. These results corroborate the ideas of Deal and Peterson (1999) who suggest that organizations need to institute particular cultures that support innovation to embrace the concept of innovation. On a similar note, Martin and Terblanche (2003) argue that organizational culture can increase innovation by being receptive to new ideas, taking risks. The results also indicate that achievement orientation and collaborative relationship dimensions have a meaningful effect on the educational innovations.

The regression models on the other hand demonstrate that participative decision-making process and supportive leadership are weak predictors. This result may be explained by the cultural features of Turkish universities. This is in line with previous findings that if there is a participative environment and an encouraging leader for the adopting rules and regulations, more new ideas are generated to foster innovations (Martins & Martins, 2002). The results also indicate that the setting high goals and working hard to achieve them in a cooperative team play a role in the perceptions and implementation of educational innovation. These findings are in agreement with the previous researches that the integration of high goals creates a culture for innovation in a participative condition (Arad et al., 1997; Martins, 2000; Tushman & O' Reilly, 1997). Moreover, this approach reduces the hierarchical distance between the stakeholders (Kozuch, 2009). Therefore, the adoption of innovations may be related to the organizational culture components such as well integrated and effective set of values, beliefs and behaviors (Cameron & Quinn, 2011; Deal & Kennedy, 1982; Denison, 1990).

Exploration of the relationship between organizational culture and educational innovations can yield useful insights for the performance improvement in HEIs. Next to organizational culture dimensions in this study, the literature has also identified other organizational factors affecting educational innovations such as commitment, financial resources, time, support, trust, teacher training and workload (Amabile, 1998; Cameron & Quinn, 2011; Kalaycı, 2009; Yılmaz, 2017). These driving forces require universities to think creatively and generate new ideas to promote innovation (Martins & Terblanche, 2003). In the case of University 4, these driving factors are probably stronger than the other universities. Thus, it could be more innovative-oriented than other universities.

This study provides valuable insights about the organizational culture in the relevant Turkish universities. Based on the findings of the study, students' perceived need, view and responsiveness are quite

high. In Turkish education, the authorities have been making great efforts to adopt the worldwide standards. However, there are some constraints that can hinder the educational innovations in Turkish universities. Firstly, the results show that implementation of e-L and CSCL is harder than the adoption of the idea. As Maurer and Davidson (1998) mentioned, Turkish universities need fundamental reforms from the ground up in order to have a positive effect of the use of technologies in education. In a similar vein, Sadi et al. (2008) support that the use of technologies should depend on the plans or programs of the university, not just on individuals. Secondly, the structure does not provide a flexible and autonomous environment to respond effectively to society, to be ready to change and to be extrovert (Kurt, 2015). Thirdly, the top leaders of universities have a strong power. Thus, the organizational structure turns in to bureaucracy and causes to respond slowly to the changes around the world (Robbins & Coulter, 2012). Under this pyramid, communication is not transparent and accountability mechanism is neglected. Within the recent literature, Kurt, Gür, and Çelik (2017) further confirm that the leaders may feel free at taking the faculty members' ideas into consideration or ignoring them. Therefore, this situation may hamper the educational innovations in Turkish universities. Linked to this, participative decision making is low in some universities and in most cases students' councils are excluded from decision making (Bakan & Büyükbeşe, 2005; Kuruuzum et al., 2005). In summary, hierarchical structure, lack of open communication and autonomy, workload, lack of financial resources and support are main barriers for educational innovations in Turkish universities.

Limitations and Implications

This study has some limitations that should be considered while interpreting the result. First of all, although there are sufficient student samples in this study, though it is limited in terms of the number of faculties and universities. Future studies can compare experiences and perceptions of individuals within all departmental faculty, staff and administrators. It would be of great help in surveying the perceptions of more faculty members in all universities to estimate how much of the variations of educational innovations would be related to the differences between universities and those between individuals. Second, there are other factors influencing the perceptions, responsiveness and implementation of educational innovations, apart from organizational culture. These are national education policies, students' readiness, teacher competencies, social environment, resources, scientific, cultural, physical activities, internationalization, modern educational technologies and quality assurance (Yıldız, 2007; Zhu & Engels, 2014). Future studies could focus on more these factors. Third, that study includes five dimensions of organizational culture. However, there are other models to analyze organizational culture and innovation. For example, identifying organizational culture type provides a means of understanding and changing organizational culture to in order to make organizations more effective and innovative (Cameron & Quinn, 2011). Future studies can focus on the impact of organizational culture type on educational innovations. Fourth, organizational culture plays an essential role to influence faculty engagement in innovative approaches, such as academic achievement criteria (Yılmaz, 2017), autonomy (Balyer, 2011) and research collaboration (Huang, 2014). In future investigations, it might be possible to consider the roles of these factors to foster educational innovations in HEIs. Fifth, this research used quantitative method to be able to gather more data on a relatively large scale. However, future research can explore the richness of qualitative method through interview, observations, case studies to capture a deeper insight from the participants.

With the attempt to explore the perceptions of students regarding the relationship between organizational culture and educational innovations, the findings of this study drew attention on Turkish higher education context and thus, have important implications. First, this study, while preliminary, helps us to understand the link between organizational culture and educational innovations in Turkish context. Second, the findings in this paper also provided several insights at both theoretical and practical levels. At

the theoretical level, the relationship between organizational culture and educational innovations was identified. At the practical level, it offered recommendations for the universities and policy makers concerning to implement educational innovations. This research demonstrates that the organizational features-innovation orientation, achievement orientation, collaborative relationship, supportive leadership and participative decision making- are strong indicators to promote educational innovations. Thus, universities need to create a supportive culture where all stakeholders' need, view and responsiveness to educational innovations are considered. Third, this study adds to previous findings that the dimensions of innovative orientation and collaborative relationship should be examined as important cultural factors for the implementation of e-L and CSCL. Fourth, the findings have confirmed that implementing of innovations is much harder than the accepting the idea if there is no match between leaders and teachers.

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