

Relationships between Foreign Language Teachers' Cognitions and Actions: Evidence from Instructors at Tertiary-level^{*}

Yabancı Dil Öğretmenlerinin Bilişleri ile Eylemleri Arasındaki İlişkiler: Üniversite Öğretim Elemanlarından Bulgular

Mustafa ÖZTÜRK^{**}, Ali YILDIRIM^{***}

• Received: 19.11.2017 • Accepted: 02.04.2018 • Published: 31.01.2019

Kaynakça Bilgisi: Öztürk, M., & Yıldırım, A. (2019). Yabancı dil öğretmenlerinin bilişleri ile eylemleri arasındaki ilişkiler: Üniversite öğretim elemanlarından bulgular. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 34*(1), 145-159. doi: 10.16986/HUJE.2018038544

Citation Information: Öztürk, M., & Yıldırım, A. (2019). Relationships between foreign language teachers' cognitions and actions: Evidence from instructors at tertiary-level. *Hacettepe University Journal of Education*, 34(1), 145-159. doi: 10.16986/HUJE.2018038544

ABSTRACT: Teacher cognition and teacher action are two interrelated concepts of teaching and thus ought to be studied together in-depth to understand the nature of teaching and its effect on educational achievement. Examining the relationship between language teachers' cognitions and their actions has the potential to inform and guide current and future instructional practices in language teaching settings. From this point forth, this correlational study aims to answer in what way language teachers' language learning cognitions may predict their language teaching practices. The data were collected from 606 instructors teaching English in various higher education institutions in Turkey by means of a cross-sectional inventory and then analyzed primarily through canonical correlation analysis. During the data analysis process, multivariate normality; linearity (among variables and linear composites); homoscedasticity; and multicollinearity were also evaluated. The general results indicated that the participants having competence-oriented approaches and executive learner preferences would exhibit adherence to traditional (conservative) pedagogy, but divergence from communicative practices in instructional planning and error correction. Similarly, the participants disfavoring legislative learners would tend to diverge from communicative practices in instructional planning and error correction; on the contrary they would reflect a tendency towards traditional (conservative) pedagogy.

Keywords: Teacher cognition, teacher action, language teaching, language learning, higher education

ÖZ: Öğretmen bilişi ve öğretmen eylemi, öğretimin birbiriyle ilişkili iki temel kavramıdır ve bu nedenle öğretimin doğasını ve başarı üzerindeki etkisini anlayabilmek için birlikte ve derinlemesine incelenmeleri gerekir. Dil öğretmenlerinin bilişleri ve eylemleri arasındaki ilişkiyi incelemek, dilin öğretildiği ortamlarda yürütülen mevcut ve gelecekteki uygulamaları bilgilendirme ve yönlendirme potansiyelini taşır. Bu noktadan hareketle, bu ilişkisel çalışma, dil öğretmenlerinin dil öğretmeye dair bilişlerinin dil öğretim uygulamalarını hangi biçimlerde yordayabileceğini araştırmayı amaçlamıştır. Veriler, Türkiye'nin çeşitli yükseköğretim kurumlarında görevli 606 öğretim elemanından, kesitsel tarama envanteri kullanılarak toplanmış, kanonik korelasyon yöntemi ile analiz edilmiştir. Verilerin analizi aşamasında çok değişkenli normallik, doğrusallık (değişkenler ve doğrusal bileşenler arasında), eş varyanslık ve çoklu doğrusal bağlantı boyutları da test edilmiştir. Çalışmanın genel sonuçları, dil öğrenmede öncelikler konusunda *edinç odaklı* bir yaklaşım benimseyen ve önceden belirlenmiş kuralları söylendiği gibi uygulayan *yürütücü* öğrencileri tercih eden katılımcıların, *geleneksel* eğitim anlayışına daha yatkın olabileceğini ve öğretimi planlama ve yanlış düzeltme konusunda *iletişimsel* uygulamalardan uzaklaşabileceğini ortaya koymuştur. Benzer şekilde, kendi önceliklerine karar verebilen *kural koyucu* öğrencileri tercih etmeyen katılımcıların da öğretimi

* This manuscript was generated from a PhD dissertation.

^{**} Dr., Hacettepe University, School of Foreign Languages, Ankara-TURKEY. e-mail: <u>mustafaozturk@hacettepe.edu.tr</u> (ORCID: 0000-0001-7845-6882)

^{****} Prof. Dr., University of Gothenburg, Faculty of Education, Department of Pedagogical, Curricular and Professional Studies, Göteborg-SWEDEN. e-mail: <u>ali.yildirim@gu.se</u> (ORCID: 0000-0001-7350-0741)

planlama ve yanlış düzeltme konusunda *iletişimsel* uygulamalardan uzaklaşabileceği ve *geleneksel* eğitim anlayışına daha yatkın olabileceği gözlenmiştir.

Anahtar Sözcükler: Öğretmen bilişi, öğretmen eylemi, dil öğretimi, dil öğrenme, yükseköğretim

1. INTRODUCTION

'Teacher' has long been considered to be one of the most dominant dynamics shaping learners' achievements and a well-known actor generating and maintaining quality teaching in and outside the classrooms. When educational researchers work on the role of teachers in educational achievement, it is inevitable to look into what goes on in their assumptions, perceptions, thoughts, views, perspectives, judgments, beliefs, values, and so on. All those concepts constitute their cognitions, and their cognitions are the results of implicit or explicit motives behind their actions, behaviors and attitudes. For that reason, recognizing the importance of teacher cognition, when conducting research on teaching and teacher education, is unavoidable.

Looking into why teacher cognition is a remarkable issue when the nature of teaching is considered, its value for and role in teacher learning and development is highlighted in many papers (Kubanyiova, 2015; Kubanyiova & Feryok, 2015, Richards, Gallo & Renendya, 2001; Verloop, Van Driel, & Meijer, 2001; Zheng, 2009). Burns, Freeman, and Edwards (2015) portray teaching as a combination of public activity such as classroom interactions and private mental work such as invisible decisions. For that reason, thinking processes of teachers are believed to guide and determine their behaviors (Peterson & Walberg, 1979) and studying teachers' inner lives is asserted to be "the clearest measure of a teacher's professional growth" (Kagan,1992, p. 85).

Studying teacher cognition is discussed to have two fundamental roles in teacher education from the perspective of constructivist theories. Firstly, student teachers bring previously constructed beliefs, understandings, and preconceptions that might influence what and how they learn during a teacher education program. Secondly, teacher education programs guide prospective teachers in developing belief systems and create changes in their cognitions (Richardson, 1996; Numrich 1996; Borg 2003). In this framework, Kuzborska (2011) emphasizes the importance of understanding the relationship between beliefs and practice for the improvement of teachers' professional preparation.

Language learners' learning and development, being two of the most important outcomes of foreign language education, are also influenced primarily by teachers' teaching styles. This is attributed to be the behavioral reflections of teachers' cognitive conceptions of learning and teaching. Research on teaching suggests that it is crucial to uncover teachers' cognitions for the reason that teachers' mental processes are considered to be the underlying sources behind their instructional approaches, attitudes, decisions, policies, behaviors, strategies, and so on. All of those concepts are linked in some way to their learners' learning and development. In this respect, focusing on pure classroom practices without considering teachers' cognitive accumulations could lead to shallow information about whichever educational issue is being investigated. Therefore, by examining the patterns of the relationships between the two, this paper draws attention to both language teachers' cognitions on language learning processes and the actions they follow during their practices of language teaching.

1.1. Theoretical Base

The theoretical base in this article emerges from the idea of expanding the boundaries of teacher cognition in a way that enables the investigation of teaching, because teachers interpret a teaching situation in the light of their cognitions on learning and teaching, and this interpretation guides their decisions and attempts to create effective teaching in the classroom. The developments in cognitive science provide us with a model with three components: (a) the

classroom events and actions, (b) the planning that precedes those events and actions, and (c) the understanding and interpretation that follow those events and actions (Woods, 1996). As teaching is a kind of cognitive activity, the concept of teacher cognition is itself broad and encompassing, because there is a set of distinct concepts and multiple perspectives regarding the cognitive processes occurring in human. Cognitions are described by Borg (2006) in terms of "instructional concerns or considerations teachers have, principles or maxims they are trying to implement, their thinking about different levels of context, the pedagogical knowledge they possess, their personal practical knowledge and their beliefs" (p.87). Accepting teacher cognition as such a broad concept brings along the significance of understanding unobservable dimensions and hidden sides of teaching.

In view of the fact that understanding teacher cognition is of great importance to understanding teaching and teachers, it is equally critical to understand possible sources of teacher cognition and how those cognitions are constructed. Woods (1996) claims that language learning experiences, early teaching experiences and education courses potentially influence teachers' beliefs about and approaches to teaching. Borg (2003) illustrates that professional coursework, classroom practice, schooling and contextual factors add to the formation of teacher cognition. Likewise, Gabillon (2012) lists the factors contributing to belief formation and development as life experiences in society, prior schooling, professional education, and teaching experience. Experience, as attached importance, ought to be discussed in terms of three phases: (a) early experiences in schooling, (b) experiences during teacher education, and (c) experiences obtained from actual classroom practices.

In the last four decades, educational researchers have given due consideration to the investigation of teachers' mental lives through a variety of concepts like teacher belief, teacher knowledge, teacher thinking, teacher perception, teacher assumption, teacher value, teacher principle, teacher philosophy, teacher maxim, and so on. Although some of them have had more emphasis attached while others have been studied and reported in a limited number of papers, all of those concepts have been treated as an extension of teacher cognition. Teacher cognition, as a broad concept, "encompasses what teachers think of, know about, believe in, and understand from an educational issue as well as its relationship to classroom practices" (Öztürk & Yıldırım, 2015, p. 171). From this point forth, this paper focuses on the way language teachers think of, know about, believe in, and understand from language learning and its link to language teaching practices in the real professional world of language teachers.

1.2. Research on Language Teachers' Cognitions

Research on language teachers' cognitions started to emerge in the 1990s and put forward a variety of arguments about the nature of cognitions. A great number of researchers from different educational settings around the world worked on whether language teachers' cognitions could be consistently transferred to their classroom practices or to what extent language teachers' instructional practices were governed by their cognitions. The empirical literature focusing on the link between language teachers' cognitions and actions was split into half, with each group proclaiming different conclusions. On the one hand, a considerable number of papers claimed a certain transfer of cognitions to instructional practices (Chan, 2008; Farrell & Kun, 2007; Johnson, 1992, 1994; Kuzborska, 2011; Lau, 2007; Olson & Singer, 1994; Richards & Lockhart, 1996; Richardson et al., 1991; Smith, 1996; Xu, 2012). On the other hand, there were a lot of studies in which such a transfer was not ensured and even a lack of congruence between cognitions and actions was revealed (Burns & Knox, 2005; Choi, 2000; Ezzi, 2012; Farrell & Lim, 2005; Graden ,1996; Karavas-Doukas, 1996; Khonamri & Salimi, 2010; Richards, Gallo, & Renandya, 2001; Sato and Kleinsasser, 1999; Spada & Massey, 1992; Wilson, Konopak, & Readence, 1992; Zacharias, 2005).

Looking into the reasons behind the discrepancies between cognitions and actions, it was seen that contextual factors placed upon by environmental realities and institutional norms were reported to be an important hindrance to the consistency between cognitions and actions in many papers (Burns & Knox, 2005; Davis, Konopak, & Readence, 1993; Farrell & Lim, 2005; Graden, 1996; Ng & Farrell, 2003; Pennington & Richards, 1997; Richards & Pennington, 1998; Smith, 1996; Spada & Massey, 1992; Soontornwipast, 2010). As for the recent literature, Kubanyiova and Feryok (2015) assert three shifts in the study of language teacher cognition towards: (a) a social turn in applied linguistics in the respect of diverse conceptual, methodological, and analytical possibilities; (b) a bottom-up research approach starting with the complexity of teachers' inner lives and practices; and (c) a contextual perspective focusing on teachers inner worlds and individual practices. Within this framework, studying language teacher cognition should be understood as an interpretative activity and its relationship to language teaching practices should not be insulated from the context that binds them (cognitions and actions) together.

1.3. Significance of the Study

All those papers and reports contributed to the body of literature on language teachers' cognitions to a great extent, and the majority of them focused on a specific aspect of language teaching such as how to teach reading, how to teach grammar, how to use certain teaching methods or how to assess language skills. However, in this paper, a broader perspective was adopted to portray the relationship between certain sets of cognitions and actions in relation to language learning and teaching processes as a whole. Considering language teaching both as a cognitive and a social activity, this study aimed to investigate both cognitive and behavioral aspects of language teaching from the in-service teachers' side. Building on this scheme, there were two main components under investigation: the 'cognition' component and the 'action' component. The cognition component refers to the process by which knowledge, beliefs, thoughts, and understandings in relation to language learning processes are developed in a teacher's mind. The action component stands for the process of carrying out a task in order to make language learning happen or ease the process.

Another significance of the study lies in the context in which the research was conducted. Turkey, as a developing country, is investing a lot of money in English language teaching at all levels of education. This is being done with the purpose of educating current and future generations as speakers of at least one foreign language. To that end, Turkish higher education institutions are adopting a policy to offer English-medium instruction in an increasing number of academic programs and to provide one-to-two year intensive English preparatory programs to their students. In light of the fact that higher education institutions are now the fundamental spaces and tertiary-level English teachers are the principal players of English language teaching in Turkey, this study was conducted in such a setting. Considering the critical role of specific contexts in drawing the boundaries of language teacher cognition (Burns, Freeman, & Edwards, 2015; Kubanyiova, 2012; Kubanyiova & Feryok, 2015; Moodie & Feryok, 2015), this study aims to provide invaluable insights about the current status and educational practices in the field of English language teaching in Turkey.

2. METHOD

On the basis of the aforementioned rationale, this study mainly aimed to examine the pattern and the strength of the relationship between the sets of language learning cognitions and language teaching practices of teachers teaching English at tertiary levels in Turkey. In other words, it intended to answer how one set of variables (language learning cognitions) would relate to or predict the other set of variables (language teaching actions).

To answer the aforementioned question, the data were collected by means of a single, cross-sectional inventory from 606 teachers teaching English at higher education institutions. The respondents were provided with the necessary informed consent forms before the administration of the inventory so that the voluntary basis of participation was ensured. The age of the respondents ranged from 22 to 60 with a central tendency around 30. The teaching experience ranged from 1 year to 33 years with the mean value indicating 10 years of teaching experience. 308 of the participants were teaching at public universities while the rest were teaching at foundation universities. As for their academic backgrounds, 191 of them (32%) were the graduates of English Language Teaching departments and 189 of them (31%) were the graduates of other departments (such as English Literature, English Linguistics, English Translation, American Literature). The rest (37% of the respondents) did not report anything about the program they graduated from. 63% of the participants held or were pursuing a master's degree.

In the construction of the inventory, a *Likert Scale* was adopted to assess the cognitions on language learning processes on a five-level scale from (1) *Strongly Disagree* to (5) *Strongly Agree*; and a *Rating Scale* to inquire the frequency of the reported language teaching practices in five level from (1) *Never* to (5) *Always*. Each section of the inventory required the participants to read the items and simply mark the preferred choice across each statement. Those items were mainly constructed based on conceptual literature and previously-conducted empirical studies. Some items were taken and adapted from Horwitz's (1985) BALLI (Beliefs about Language Learning Inventory) and Sternberg and Wagner's (1991) MSG-TSI (Mental Self Government Theory Thinking Styles Inventory) and some other items were created by referring to the books, articles, theoretical explications on language acquisition and language teaching methodology. The inventory was piloted in advance of the actual study and the results obtained from the pilot work were used to conduct a factor analysis to determine the underlying dimensions within the inventory. To assess whether the items within the inventory formed a reliable scale, Cronbach's alpha was computed. The alphas were .89 for the cognitions set and .88 for the actions set, both of which indicated a high reliability for the inventory.

The data were analyzed primarily by means of canonical correlation analysis. As canonical correlation is used when the variables in each set can be grouped together conceptually, it is defined as an exploratory technique enabling researchers to see which variables would go together and which subset of the variables in one set would best relate to which subset of the variables in the other set (Leech, Barrett, & Morgan, 2005). The first set of variables selected for the analysis was the *cognitions set*, which included language learning cognitions on *innatist*, *interactionist*, *competence-oriented*, *performance-oriented*, *executive learner-oriented*, *legislative learner-oriented*, and *judicial learner-oriented* views. The second set of variables was *actions set*, which included language teaching practices reflecting *traditional (conservative)* and *innovative (liberal) pedagogies*, *communicative instructional planning* and *error correction, learner-centeredness*, and *personal and professional development*. Those dimensions were determined as a result of factor analysis procedures conducted after two subsequent piloting phases carried out to validate and finalize the data collection tool. Table 1 displays the operational definitions of the dimensions in the inventory.

Dimensions	Definitions
innatist perspective	the philosophical doctrine asserting that the mind, rather than a blank slate, is born with ideas/knowledge and not all knowledge is obtained from experience and the senses
interactionist perspective	the sociological doctrine asserting that ideas/knowledge takes on shape and meaning with the help of numerous interactions between the learner and the environment
competence-oriented approach	the approach seeing the language within a frame of linguistic elements and giving more emphasis to knowing something about the language
performance-oriented approach	the approach seeing the language within a frame of communicative elements and giving more emphasis to doing something with the language
executive learner-oriented view	the view favouring the learners who do a piece of work, perform a duty, or put a plan into action by following the given instructions
legislative learner-oriented view	the view favouring the learners who use their power to make plans or initiate changes in plans and applications
judicial learner-oriented view	the view favouring the learners who are able to make analyses, comparisons, evaluations, and judgments on situations using a repertoire of their personal-practical knowledge
traditional (conservative) pedagogy	the inherited, established, or customary patterns of thoughts and practices about teaching that have been used by previous people for a long time
innovative (liberal) pedagogy	the enriched, cultivated, or modernized patterns of thoughts and practices about teaching that include new, creative, and free ideas and methods
communicative instructional planning	organizing language teaching processes that focuses on meaningful communication rather than structure
communicative error correction	helping to reconstruct written/spoken messages with errors by emphasizing meaningful communication rather than structure
learner-centeredness	teachers' attempts to adjust their instructional planning, teaching methods, and assessment procedures to certain norms in order to optimize their students' learning
personal/professional development	all types of attempts teachers make in order to reach their fullest potential in teaching profession and personal growth

Table 1: Operational definitions of the dimensions

During the data analysis process, linearity between each variable as well as between the variables and the linear composites; multivariate normality; homoscedasticity; and multicollinearity were evaluated. Necessary assumptions for the analysis such as multivariate normality, linearity, homoscedasticity, and multicollinearity were checked as the initial step of the analyses. As the first assumption, multivariate normality is that all variables and all linear combinations of variables are normally distributed. As Tabachnick and Fidell (2007) state, multivariate normality is not an easily testable hypothesis, but if the variables happen to be normally distributed, the likelihood of multivariate normality is increased. Therefore, univariate normality was checked through skewness and kurtosis values, significance of Kolmogorov-Smirnov and Shapiro-Wilk tests and histograms with normal curves. Not all skewness and kurtosis values were close enough to the ideal value zero, and Kolmogorov-Smirnov and Shapiro Wilk tests indicated significant (p < .05) values, which could mean that the data were not normally distributed. However, Field (2009) claims that it is easier to get such significant results from small deviations from normality in a study with a large sample size. Considering this argument, it was thought to look at the shape of the distribution rather than using formal inference tests as the sample was quite large (Tabachnick & Fidell, 2007). Thus, Q-Q plots, and histograms were inspected for normality assumption. It was noticed that the univariate

normality was not violated based on the histograms with normal curves. Boxplots were also examined to determine whether there were any outliers, and it was seen that there were no serious outliers. Secondly, through an examination of scatterplots, the linearity was checked to determine whether the variables are linearly related, and the homoscedasticity was inspected to see that the variability in scores for one continuous variable is roughly the same at all values of another continuous variable. Accordingly, if both variables are normally distributed and linearly related, the scatterplot is oval-shaped, and if the scatterplot between the two variables are of roughly the same width all over with some bulging toward the middle, the homoscedasticity was ensured. As the homoscedasticity is related to the assumption of normality, if the normality assumption is met, the relationships between variables become homoscedastic (Tabachnick & Fidell, 2007). For the current data set, the shapes of most of the scatterplots reflected no obvious departures from linearity and homoscedasticity since the overall shapes did not curve and they were about the same width throughout. Finally, it was important that the variables in each set and across sets are not too highly correlated with each other, and thus the multicollineratity was checked in the output. As Field (2006) suggests, there should be no perfect linear relationship (>.90) between two or more of the predictors. Accordingly, none of the correlations in the matrix exceeded .90 (Tabachnick & Fidell, 2007). As demonstrated in Table 2, neither among the variables in the *cognitions set*, nor among the variables in the *actions set*, and not even between the two sets there was a correlation over .60. Accordingly, most of the variables in each set were weakly or moderately correlated with each other, which were not interpreted as a violation of the assumption.

		Set I - Cognitions Set					Set II - Actions Set							
		INN	INT	CA	PA	LL	EL	JL	TCP	ILP	CIP	CEC	LC	PPD
Set-I	INN	1.0												
	INT	.38	1.0											
	CA	.07	.18	1.0										
	PA	.20	.34	.15	1.0									
	LL	.28	.35	07	.24	1.0								
	EL	.21	.43	.27	.12	.28	1.0							
	JL	.33	.33	03	.07	.56	.26	1.0						
Set-II	TCP	.10	.22	.33	.09	04	.34	.03	1.0					
	ILP	.18	.32	.07	.21	.26	.11	.27	07	1.0				
	CIP	.18	.28	06	.29	.20	.03	.15	13	.61	1.0			
	CEC	.18	.30	10	.23	.21	.18	.24	.20	.22	.32	1.0		
	LC	.14	.37	.12	.24	.16	.09	.20	01	.45	.49	.21	1.0	
	PPD	.20	.36	01	.16	.22	.12	.14	.08	.40	.32	.18	.47	1.0

 Table 2: Bivariate correlations among predictors and outcome variables

INN=Innatist Perspective; INT=Interactionist Perspective; CA=Competence-oriented Approach; PA=Performanceoriented Approach; EL=Executive Learner-oriented View; LL=Legislative Learner-oriented View; JL=Judicial Learner-oriented View; TCP= Traditional (Conservative) Pedagogy; ILP=Innovative (Liberal) Pedagogy; CIP=Communicative Instructional Planning; CEC=Communicative Error Correction; LC=Learner-centeredness; PPD= Personal and Professional Development in Tables 2 and 3.

3. FINDINGS

A canonical correlation analysis was performed to determine the structure of the relationship between the two sets, and the analysis yielded two functions with squared canonical correlations (Rc^2) of .308 and .215, respectively. Both of the functions accounted for a significant amount of overlapping variance, and both of the solutions were over .30. The first canonical correlation was .55 (31% overlapping variance); the second was .46 (22% overlapping variance). With both canonical correlations included, Wilks' $\lambda = .471$, p < .001. With the first removed, Wilks' $\lambda = .681$, p > .001 (see Table 3).

Variables		First Ca	anonical Correlat	tion	Second Canonical Correlation			
		Coefficient	Loading (rs)	rs ² (%)	Coefficient	Loading (rs)	rs ² (%)	
Predictors	INN	06	10	.01	.47	.26	.07	
	INT	13	02	.00	12	.05	.00	
	CA	.77	.85*	.72	55	27	.07	
	PA	19	16	.03	.16	.13	.02	
	EL	.41	.43*	.18	.80	.48*	.23	
	LL	34	38*	.14	17	18	.03	
	JL	.01	18	.03	69	45*	.20	
Outcomes	TCP	.85	.76*	.58	.42	.50*	.25	
	ILP	.20	18	.14	75	54*	.29	
	CIP	33	44*	.19	.67	.02	.00	
	CEC	46	38*	.14	.23	.29	.08	
	LC	.28	06	.00	70	45*	.20	
	PPD	35	26	.07	.45	.11	.01	

Table 3: Correlation solutions for cognitions predicting actions

* >.30

rs: structure coefficient (canonical loadings)

 rs^2 : squared structure coefficient

As the first canonical correlation revealed statistically significant results to make meaningful interpretations, the second model was not taken into consideration for discussion. In the framework of the first canonical correlation, competence-oriented approach, executive learner-oriented view, and legislative learner-oriented view were significantly correlated with the first variate at .85, .43, and -.38, respectively. On the other hand, traditional (conservative) pedagogy, communicative instructional planning, and communicative error correction were significantly correlated with the first variate at .76, -.44, and -.38, respectively. When redundancy analysis output was examined, it was seen that the first canonical variate for the cognitions set extracted 32% of the variance from the cognitions (its own set) and 10% of the variance from the actions (the other set). Similarly, the first canonical variate for the actions set extracted 36% of the variance from the actions (its own set) and 11% of the variance from the cognitions (the other set).

Figure 1 presents the loadings and correlations for both pairs in the first canonical solution. Accordingly, competence-oriented approach, executive learner-oriented view, and legislative learner-oriented view as the three predictors were related to the three outcomes, which were traditional (conservative) pedagogy, communicative curriculum planning, and communicative error correction. Considering positive and negative signs of the loadings, it was interpreted that the participants having more competence-oriented approach and executive learner preferences would probably follow more traditional (conservative) pedagogy but less communicative practices in curriculum planning and error correction. Similarly, the participants disfavoring legislative learners would probably follow less communicative practices in instructional planning and error correction; on the contrary, they would probably reflect more traditional (conservative) pedagogy.



Figure 1. Canonical Correlation Model

To sum up in other words, teachers who see the language as a system of linguistic elements emphasizing the knowledge about the language and who prefer learners performing a task according to the given instructions rather than the learners who take responsibility for their own learning would probably follow customary patterns of thoughts and practices about teaching that have been used for a long time and also implement less communicative practices in instructional planning and error correction procedures.

4. DISCUSSION and CONCLUSION

Based on the literature (Breen, 1991; Flores, 2001; Johnson, 1992, 1994; Mitchell, Brumfit, & Hooper, 1994a, 1994b; Mitchell & Hooper, 1992; Richards & Lockhart, 1996; Smith, 1996) that gave a wide coverage to the causal relationship between teachers' cognitions and their pedagogical (reported or observed) practices, an illustrative model revealing the patterns of the connections between cognitions and actions was obtained as a result of the canonical correlation analysis. As the model revealed, there was a relationship among the following sets of variables: (1) competence-oriented approach; executive learner-oriented view; legislative learner-oriented view; (2) traditional (conservative) pedagogy; communicative instructional planning; and communicative error correction. In this case, the participants having competence-oriented approaches and executive learner preferences exhibited adherence to traditional (conservative) pedagogy, but divergence from communicative practices in instructional planning and error correction. Considering the relevance of language teachers' cognitions to the domains of applied linguistics as well as to the real-life concerns of language teachers (Kubanyiova & Feryok, 2015), we infer that teachers seeing the language as a system of linguistic elements and the learners as individuals performing pre-established duties by following given instructions would probably adopt traditional and conservative ways in their language teaching practices, rather than employing communicative principles in their instructional planning and error correction practices. Similarly, the participants disfavoring legislative (more autonomous) learners would tend to diverge from communicative practices in instructional planning and error correction; on the contrary they would reflect a tendency towards traditional (conservative) pedagogy. At this point, we need to take the pivotal role of context into consideration, because, like all forms of mental processes, language teacher cognition is "part and parcel of people in activity in a particular time and place" (Burns, Freeman, & Edwards, 2015, p. 596). Therefore, the positive attitude of teachers for innovative or liberal ideas possibly disappear when workload become apparent (Kubanyiova, 2012). Teacher commitment is also socially grounded in teachers' everyday life and occurs through negative and positive experiences in a particular context (Moodie & Feryok, 2015). As Crookes (2015) also highlighted, language teachers' preferred teaching practices are related to their perspectives regarding the ethically, morally, and philosophically important aspects of their work.

As various studies in the previous literature put forward and the current study justified, teacher cognition and classroom practice exist in 'symbiotic relationships' (Foss & Kleinsasser 1996: 441, cited in Borg, 2003). For instance, Johnson (1992) highlighted the relationship between teachers' theoretical beliefs and their classroom practices. In another study, Johnson (1994) mentioned the associations between beliefs about language teaching and the instructional practices of pre-service teachers. Consistent findings were also seen in the studies of Smith (1996), who claimed that teachers' curricula design and selection of learning tasks and teaching approaches are influenced by their beliefs about second language teaching and learning. Likewise, Richards and Lockhart (1996) emphasized that teachers' beliefs influence how they make decisions or act in a classroom. Andrews (2003), more specifically, claimed that the teachers' beliefs in a form-focused approach to grammar are positively correlated to beliefs in a deductive approach to grammar.

Considering all the points discussed so far and asserted in the related literature, there are noticeable relationships between cognitions and actions, and the canonical correlation model in the current research justifies the idea that it is essential to create awareness in cognitions to be able to create changes in actions. The basic rationale behind studying language teacher cognition is that cognitions, either pedagogical or practical, have to change so that practices could change (Borg, 2006), for the reason that language teachers' pedagogical practices and cognitions are considered as related and sometimes even overlapping (Crookes, 2015). In other words, changes in social interaction and activities that teachers engage in critically influence the changes in individual cognitions (Johnson, 2015).

As asserted in many other papers (Borg, 2003; Clandinin & Connelly, 1987; Flores, 2001; Gabillon, 2012; Johnston & Goettsch; 2000; Thompson, 1992), teachers' cognitions cannot be static or unchangeable. Cognitive development is such a dynamic feature that it is possible to observe changes in teachers' cognitions and actions as they experience teaching and learning. Designing professional development activities like in-service trainings are good ways to update teachers on the latest developments and innovations in language teaching and thus promote the necessary cognitive and behavioral changes among them.

A considerable body of research, together with the current study, claim that both the development of teachers and their classroom practices are influenced by their pedagogical orientations towards language teaching and learning processes. Thus, identifying language teachers' cognition creates spaces for teachers' own growth as well as their students and their schools. All types of teacher organizations, teacher educators, directors, teacher education researchers, educational specialists, and other stakeholders who are responsible for the professional development of language teachers should take into account the systematic examinations of language teachers' cognitions.

In this study, it is revealed that teaching is a complex task being both a cognitive and a social activity, and it is mostly guided by teachers' personal, practical, and experiential knowledge as well as their beliefs and understandings. Having an objective to explore teachers' cognitions, this study could be seen as a tool for the teachers to confront their own cognitions

and reflect on their cognitive and behavioral orientations when teaching. It also had the side benefit of raising awareness among the participants of the study. However, recent calls for studying teacher cognition suggests other effective ways such as self-inquiry, which reflects the unity of cognition and emotion (Golombek, 2015). Through a variety of elicitation instruments (Kubanyiova & Feryok, 2015), a thorough and comprehensive depiction of teachers' mental lives would aid the search for practical means for improvement in language teaching (Crookes, 2015).

As hidden dynamics of teachers' practices, cognitions also happen to be rich reflections of learners' learning process. However, we have little knowledge about how language teacher cognition could be related to students' language learning experiences in those teachers' classrooms (Kubanyiova & Feryok, 2015). In a further study, binding language teachers' cognitions with their students' in-class leaning would add valuable perspectives to the existing literature.

5. REFERENCES

- Andrews, S. (2003). Teacher language awareness and the professional knowledge base of the L2 teacher. Language Awareness, 12(2), 81-95.
- Borg, S. (2003). Teacher cognition in language teaching: A review of research on what language teachers think, know, believe, and do. *Language Teaching*, *36*(2), 81-109.
- Borg, S. (2006). Teacher cognition and language education: Research and practice. London: Continuum.
- Burns, A., Freeman, D., Edwards, E. (2015). Theorizing and studying the language-teaching mind: Mapping research on language teacher cognition. *The Modern Language Journal*, 99(3), 585-601.
- Burns, A., & Knox, J. (2005). Realisation(s): Systemic-functional linguistics and the language classroom. In N. Bartels (Ed.), *Applied linguistics and language teacher education* (pp. 235-259). New York: Springer.
- Chan, Y. (2008). Elementary school EFL teachers' beliefs and practices of multiple assessments. *Reflections on English Language Teaching*, 7(1), 37-62.
- Choi, J. (2008). Teacher-learners' beliefs about proficiency goals and teaching methods for Korean secondary English education. *English Teaching*, 63(1), 3-27.
- Crookes, G. (2015). Redrawing the boundaries on theory, research, and practice concerning language teachers' philosophies and language teacher cognition: Toward a critical perspective. *The Modern Language Journal*, 99(3), 485–499.
- Davis, M. M., Konopak, B. C., & Readence, J. E. (1993). An investigation of two chapter in teachers' beliefs about reading and instructional practices. *Reading Research and Instruction*, 33(2), 105-118.
- Ezzi, N. A. A. (2012). Yemeni teachers' beliefs of grammar teaching and classroom practices. *English Language Teaching*, 5(8), 170-184.
- Farrell, T. S. C., & Kun, S. T. K. (2007). Language policy, language teachers' beliefs, and classroom practices. *Applied Linguistics*, 29(3), 381-403.
- Farrell, T. S. C., & Lim, P. C. P. (2005). Conceptions of grammar teaching: A case study of teachers' beliefs and classroom practices. *TESL-EJ*, 9(2), 1-13.
- Field, A. (2009). Discovering statistics using SPSS (3rd ed.). London: Sage
- Flores, B. B. (2001). Bilingual education teachers' beliefs and their relation to self-reported practices. *Bilingual Research Journal*, 25(3), 251-275.
- Gabillon, Z. (2012). Discrepancies between L2 teacher and L2 learner beliefs. *English Language Teaching*, 5(12), 94-99.
- Golombek, P. R. (2015). Redrawing the boundaries of language teacher cognition: Language teacher educators' emotion, cognition, and activity. *The Modern Language Journal*, 99(3), 470–484.
- Graden, E. C. (1996). How language teachers' beliefs about reading are mediated by their beliefs about students. *Foreign Language Annals*, 29(3), 387-395.

- Horwitz, E.K. (1985). Using student beliefs about language learning and teaching in the foreign language methods course. *Foreign Language Annals*, 18(4), 333-340.
- Johnson, K.E. (1992). The relationship between teachers' beliefs and practices during literacy instruction for nonnative speakers of English. *Journal of Reading Behaviour*, 14(1), 83-108.
- Johnson, K.E., (1994). The emerging beliefs and instructional practices of pre-service ESL teachers. *Teaching and Teacher Education*, 10(4), 439-452.
- Johnson, K.E. (2015). Reclaiming the relevance of L2 teacher education. *The Modern Language Journal*. 99(3), 515-528.
- Johnston, B., & Goettsch, K. (2000). In search of the knowledge base of language teaching: Explanations by experienced teachers. *Canadian Modern Language Review*, 56(3), 437-468.
- Kagan, D. (1992). Implications of research on teacher beliefs. Educational Psychologist, 27, 65-90.
- Karavas-Doukas, E. (1996). Using attitude scales to investigate teachers' attitudes to the communicative approach. *ELT Journal*, *50*(3), 187-198.
- Khonamri, F., & Salimi, M. (2010). The interplay between EFL high school teachers' beliefs and their instructional practices regarding reading strategies. *Novitas-ROYAL (Research on Youth and Language)*, 4(1), 96-107.
- Kubanyiova, M. (2012). *Teacher development in action: Understanding language teachers' conceptual change*. Basingstoke, UK: Palgrave Macmillan.
- Kubanyiova, M. (2015). The role of teachers' future self guides in creating L2 development opportunities in teacherled classroom discourse: Reclaiming the relevance of language teacher cognition. *The Modern Language Journal*, 99(3), 565-584.
- Kubanyiova, M., & Feryok, A. (2015). Language teacher cognition in applied linguistics research: Revisiting the territory, redrawing the boundaries, reclaiming the relevance. *The Modern Language Journal*, 99(3), 435-449.
- Kuzborska, I. (2011). Links between teachers' beliefs and practices and research on reading. *Reading In A Foreign Language*, 23(1), 102-128.
- Lau, K. (2007). Chinese language teachers' orientation to reading instruction and their instructional practices. *Journal* of Research in Reading, 30(4), 414-428.
- Leech, N. L., Barrett, K. C., & Morgan, G. A. (2005). SPSS for intermediate statistics: Use and interpretation (2nd ed.). Mahwah, New Jersey, London: Lawrence Erlbaum Associates, Inc. Publishers.
- Mitchell, R., Brumfit, C., & Hooper, J. (1994a). Perceptions of language and language learning in English and foreign language classrooms. In M. Hughes (Ed.), *Perceptions of teaching and learning* (pp. 53-65). Clevedon: Multilingual Matters.
- Mitchell, R., Brumfit, C., & Hooper, J. (1994b). Knowledge about language: Policy, rationales and practices. *Research Papers in Education*, 9(2), 183-205.
- Moodie, I. A. N., & Feryok, A. (2015). Beyond cognition to commitment: English language teaching in South Korean primary schools. *The Modern Language Journal*, *99*(3), 450-469.
- Ng, J., & Farrell, T. S. C. (2003). Do teachers' beliefs of grammar teaching match their classroom practices? A Singapore case study. In D. Deterding, A. Brown & E. L. Low (Eds.), *English in Singapore: Research on* grammar (pp. 128-137). Singapore: McGraw Hill.
- Numrich, C. (1996). On becoming a language teacher: Insights from diary studies. TESOL Quarterly, 30(1), 131-149.
- Olson, J. R., & Singer, M. (1994). Examining teacher beliefs, reflective change and the teaching of reading. *Research and Instruction*, 34(2), 97-110.
- Öztürk, M., & Yıldırım, A. (2015). English as a Foreign Language Instructors' cognitions on language learning processes and factors affecting those cognitions. *Education and Science*, 40(182), 171-192.
- Pennington, M. C., & Richards, J. C. (1997). Reorienting the teaching universe: The experience of five first-year English teachers in Hong Kong. *Language Teaching Research*, 1(2), 149-178.
- Peterson, P. L., & Walberg H. J. (1979). (Eds.), *Research on teaching: Concepts, findings, and implications*. Berkeley, CA: McCutchan.
- Richards, J. C., Gallo, P. B., & Renandya, W. A. (2001). Exploring teachers' beliefs and the processes of change. *The PAC Journal*, 1(1), 43-64.

e-ISSN: 2536-4758

Richards, J.C., & Lockhart, C. (1996). Reflective teaching in second language classrooms. Cambridge: CUP.

- Richards, J. C., & Pennington, M. (1998). The first year of teaching. In J. C. Richards (Ed.), *Beyond training* (pp. 173-190). Cambridge: CUP.
- Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula, T. J. Buttery & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed.) (pp. 102-119). New York: Macmillan.
- Richardson, V., Anders, P., Tidwell, D., & Lloyd, C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal*, 28(3), 559-586.
- Sato, K., & Kleinsasser, R. C. (1999). Communicative language teaching (CLT): Practical understandings. *Modern Language Journal*, 83(4), 494-517.
- Smith, D.B. (1996). Teacher decision making in the adult ESL classroom. In D. Freeman & J.C. Richards. (Eds.), Teacher learning in language teaching (pp. 197-216). Cambridge: CUP.
- Soontornwipast, K. (2010). EFL teachers' beliefs about grammar and grammar teaching: A case study of a language institute at a Thai university. *The International Journal of the Humanities*, 8(8), 143-151.
- Spada, N., & Massey, M. (1992). The role of prior pedagogical knowledge in determining the practice of novice ESL teachers. In J. Flowerdew, M. Brock & S. Hsia (Eds.), *Perspectives on second language teacher education* (pp. 23-37). Hong Kong: City Polytechnic.
- Sternberg, R. J., & Wagner, R. K. (1991). MSG Thinking Styles Inventory manual Unpublished test manual.
- Tabachnick, B. G., & Fidell, L.S. (2007). Using multivariate statistics. Needham Heights, MA: Allyn and Bacon.
- Thompson, A. (1992). Teachers' beliefs and conceptions: A synthesis of the research. In D. Grouws (ed.), *Handbook of research on mathematics teaching and learning* (pp. 127-146). New York: Macmillan.
- Verloop, N., Van Driel, J., & Meijer, P. C. (2001). Teacher knowledge and the knowledge base of teaching. International Journal of Educational Research, 35(5), 441-461.
- Wilson, E. K., Konopak, B. C., & Readence, J. E. (1992). Examining content area and reading beliefs, decisions, and instruction: A case study of an English teacher. *Yearbook of the National Reading Conference*, 41, 475-482.
- Woods, D. (1996). Teacher cognition in language teaching. Cambridge: CUP.
- Xu, L. (2012). The role of teachers' beliefs in the language teaching-learning process. *Theory and Practice in Language Studies*, 2(7), 1397-1402.
- Zacharias, N. T. (2005). Teachers' beliefs about internationally-published materials: A survey of tertiary English teachers in Indonesia. *RELC Journal*, *36*(1), 23-38.
- Zheng, H. (2009). A review of research on EFL pre-service teachers' beliefs and practices. *Journal of Cambridge Studies*, 4(1), 73-81.

Uzun Özet

Öğrenci başarısını şekillendiren en güçlü dinamiklerden biri olarak görülen 'öğretmen,' sınıf içinde veya dışında nitelikli eğitimi üretebilen ve sürdürebilen en önemli aktör olarak kabul edilir. Öğretmenlerin varsayımları, algıları, düşünceleri, görüşleri, bakış açıları, yargıları, inançları ve değerleri gibi olgulara ilişkin derinlemesine incelemeler yapmadan, 'okul başarısında öğretmenin rolü nedir' konusunu irdelemek pek mümkün değildir. Bütün bu olgular, öğretmenlerin bilişlerini oluşturur ve bu bilişler, öğretmenlerin sergilediği davranışların, eylemlerin ve tutumların arkasındaki örtük ya da açık bir takım dürtülerin sonucunda gelişirler. Bu nedenle, öğretim uygulamaları veya öğretmen eğitimi üzerine araştırmalar yürütürken, öğretmen bilişi konusunu dikkate almak büyük önem taşır.

Yabancı dil öğretmenlerinin bilişlerine ilişkin araştırmalar, 1990'lı yıllarda ortaya çıkmaya başlamış ve bu araştırmalarla birlikte öğretmen bilişinin gelişimi ve doğası hakkında çok çeşitli görüşler öne sürülmüştür. Dünyanın farklı eğitim ortamlarında bilimsel çalışmalar yürüten çok sayıda araştırmacı, yabancı dil öğretmenlerinin bilişlerini tutarlı bir şekilde sınıf uygulamalarına aktarıp aktaramadığı veya yabancı dil öğretmenlerinin öğretim uygulamalarının ne ölçüde bilişleri tarafından yönetildiği konusunda çeşitli bulgular elde etmiştir. Yabancı dil öğretmenlerinin bilişlerini bilişlerini bilişleri bilişleri ile eylemleri arasındaki ilişkiye odaklanan ampirik alanyazın, temel olarak farklı bulgular öne süren iki gruba ayrılmıştır. Bir tarafta, bilişlerin uygulamalara tutarlı bir şekilde aktarılabildiğini ileri süren dikkate değer sayıda makale bulunmaktadır (Chan, 2008; Farrell & Kun, 2007; Johnson, 1992, 1994; Kuzborska, 2011; Lau, 2007;

Olson & Singer, 1994; Richards & Lockhart, 1996; Richardson et al., 1991; Smith, 1996; Xu, 2012). Diğer tarafta, tutarlı bir transferin çoğunlukla sağlanamadığını ve hatta bilişler ile eylemler arasında genellikle bir uyuşmazlığın söz konusu olduğunu vurgulayan araştırmacılar yer almaktadır (Burns & Knox, 2005; Choi, 2000; Ezzi, 2012; Farrell & Lim, 2005; Graden ,1996; Karavas-Doukas, 1996; Khonamri & Salimi, 2010; Richards, Gallo, & Renandya, 2001; Sato and Kleinsasser, 1999; Spada & Massey, 1992; Wilson, Konopak, & Readence, 1992; Zacharias, 2005). Biliş ve eylem arasındaki tutarsızlığın arkasındaki temel nedenlere bakıldığında ise, çevresel gerçeklerin ve kurumsal normların bir araya gelerek oluşturduğu bağlamsal etkenlere sıkça yer verilmiştir (Burns & Knox, 2005; Davis, Konopak, & Readence, 1993; Farrell & Lim, 2005; Graden, 1996; Ng & Farrell, 2003; Pennington & Richards, 1997; Richards & Pennington, 1998; Smith, 1996; Spada & Massey, 1992; Soontornwipast, 2010).

Bütün bu araştırmalar, yabancı dil öğretmenlerinin bilişleri konusundaki alan yazına önemli ölçüde katkıda bulunmuş, ancak çalışmaların çoğunluğu dil öğretiminin belirli bir yönüne odaklanarak yürütüldüğü için okuma öğretimi, dilbilgisi öğretimi, öğretim yöntemlerinin nasıl kullanılacağı veya dil becerilerini nasıl değerlendirileceği gibi çeşitli temalarla sınırlı kalmıştır. Mevcut çalışmada ise, öğretmen bilişleri ve eylemleri arasındaki ilişki bir bütün olarak ele alınmış, dil öğrenme ve öğretme süreçleri ile ilgili olgular daha geniş bir bakış açısıyla ortaya konmaya çalışılmıştır. Yabancı dil öğretimi hem bilişsel hem de sosyal bir etkinlik olarak düşünüldüğünde, bu çalışmada öğretmenlerin yabancı dil öğretimi sürecinde ortaya koydukları bilişsel ve davranışsal yönlerin birlikte araştırılması amaçlanmıştır. Bu şemaya dayanarak, araştırmanın iki ana bileşeni söz konusudur: 'biliş' bileşeni ve 'eylem' bileşeni. Biliş bileşeni, öğretmenlerin zihinlerinde dil öğrenme süreçleriyle ilgili geliştirilen bilgi, inanç, düşünce ve anlayışların tamamını ifade ederken; eylem bileşeni, dil öğretim sürecinin gerçekleştirilmesi veya kolaylaştırılması için atılan adımları ve yerine getirilen görevleri kapsamaktadır.

Dil öğretmenlerinin bilişleri ve eylemleri arasındaki ilişkiyi incelemek, dilin öğretildiği ortamlarda yürütülen mevcut ve gelecekteki uygulamaları bilgilendirme ve yönlendirme potansiyelini taşır. Bu noktadan hareketle, bu ilişkisel çalışma, dil öğretmenlerinin dil öğrenmeye dair bilişlerinin dil öğretim uygulamalarını hangi biçimlerde yordayabileceğini araştırmayı amaçlamıştır. Veriler, Türkiye'nin çeşitli yükseköğretim kurumlarında görevli 606 öğretim elemanından, kesitsel tarama envanteri kullanılarak toplanmış, kanonik korelasyon yöntemi ile analiz edilmiştir. Verilerin analizi aşamasında çok değişkenli normallik, doğrusallık (değişkenler ve doğrusal bileşenler arasında), eş varyanslık ve çoklu doğrusal bağlantı boyutları da test edilmiştir.

Veriler, araştırmacılar tarafından tasarlanmış ve uygulamaya konulmuş olan İngilizce Öğretim Elemanları Biliş ve Eylem Envanteri isimli ölçek yoluyla toplanmıştır. Veri toplama aracı demografik bilgilerin sorulduğu kısım dışında iki temel bölümden oluşmaktadır: (1) Dil yeteneği, dil öğrenmede öncelikler ve dil öğrenmeye yatkın öğrenci özellikleri boyutlarının yer aldığı dil öğrenmeye ilişkin bilişler; (2) Eğitim yaklaşımı, öğretimi planlama, yanlış düzeltme, öğrenci merkezci olma, kişisel ve mesleki gelişim boyutlarının yer aldığı dil öğretimine ilişkin eylemler. Envanterin bu bölümleri 5'li Likert tipi ölçek kullanılarak tasarlanmış kapalı uçlu maddelerden oluşmaktadır. Veriler, frekans dağılım tabloları, yüzdeler, aritmetik ortalamalar, standart sapma ve kanonik korelasyon gibi betimleyici ve çıkarsamalı istatistik yöntemleri kullanılarak analiz edilmiştir.

Temel araştırma sorusunu cevaplandırmak için bilişler ve eylemler arasındaki ilişki biçimi incelenmiştir. Öğretmenlerin bilişleri ve (rapor edilen veya gözlemlenen) öğretim uygulamaları arasındaki nedensel ilişkiye geniş yer veren alanyazına dayalı olarak yürütülen kanonik korelasyon analizi sonucunda, öğretmen bilişleri ve eylemleri arasındaki ilişkiyi ortaya çıkaran tanımlayıcı bir model elde edilmiştir. Kanonik korelasyon modelinin ortaya koyduğu iki grup değişken arasında anlamalı bir ilişki bulunmuştur:

- (1) edinç odaklı yaklaşım; yürütücü öğrenci odaklı görüş; kural koyucu öğrenci odaklı görüş;
- (2) geleneksel eğitim yaklaşımı; iletişimsel öğretimi planlama; iletişimsel hata düzeltme.

Analizlerdeki olumlu ve olumsuz korelasyonlara bakıldığında, dil öğrenmede öncelikler konusunda edinç odaklı bir yaklaşım benimseyen ve önceden belirlenmiş kuralları söylendiği gibi uygulayan yürütücü öğrencileri tercih eden katılımcıların, geleneksel eğitim anlayışına daha yatkın olabileceği, fakat öğretimi planlama ve yanlış düzeltme konusunda iletişimsel uygulamalardan uzaklaşabileceği gözlenmiştir. Benzer şekilde, kendi önceliklerine karar verebilen kural koyucu öğrencileri tercih etmeyen katılımcıların da öğretimi planlama ve yanlış düzeltme konusunda iletişimsel uygulamalardan uzaklaşabileceği ve geleneksel eğitim anlayışına daha yatkın olabileceği gözlenmiştir.