

# What is the Relationship Between Teaching Approaches of Instructors and Learning Approaches of Teacher Candidates?

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## ABSTRACT

The aim of this study is to determine the relationship between the way that teacher candidates perceive the teaching approaches used by the instructors at the faculty of education and the learning approaches they prefer. The study group of this research was composed of 525 students from different departments of the faculty of education to determine the relationship between the teaching approaches and the learning approaches. As a result of the research, it was determined that the means of Information Transfer-Teacher - Focused (IT-TF) approach were higher than Conceptual Change-Student-Focused (CC-SF) scores across university departments and grade levels. It was also determined that the means of the deep and strategic learning approach across university departments, genders and grade levels were higher than the mean scores of the surface learning approach. In addition, there was a strong, positive and significant relationship between the mean score of IT-TF and the mean score of CC-SF, whereas it was found that there was a small, positive and significant relationship between the mean scores of IT-TF and CC-SF and DLA and SLA.

**KEYWORDS:** *Learning Approaches, Teaching approaches, Pre-service teachers*

## INTRODUCTION

Learning is a process of behaviour changing by means of experiences, and different models are employed to understand and explain this process. In this context, Biggs (1979) deals with the learning process in three stages as input, process and output. The input variable stands for the curriculum content and other features in the teaching context, the process variable stands for the special ways/approaches used to select and learn information obtained via input, and the output variable stands for the qualitative and quantitative results of the performance (Biggs, 1979, p. 381).

The literature review shows that a great number of studies conducted in higher education concentrate on the relationships within the context of the input and output phases of student learning, but there are fewer studies carried out on the process variable (Kember and Harper, 1987, p.16). However, the learning process of students is associated with both the amount and quality of learning (Biggs, 1979, p.381). In this context, according to Kemper and

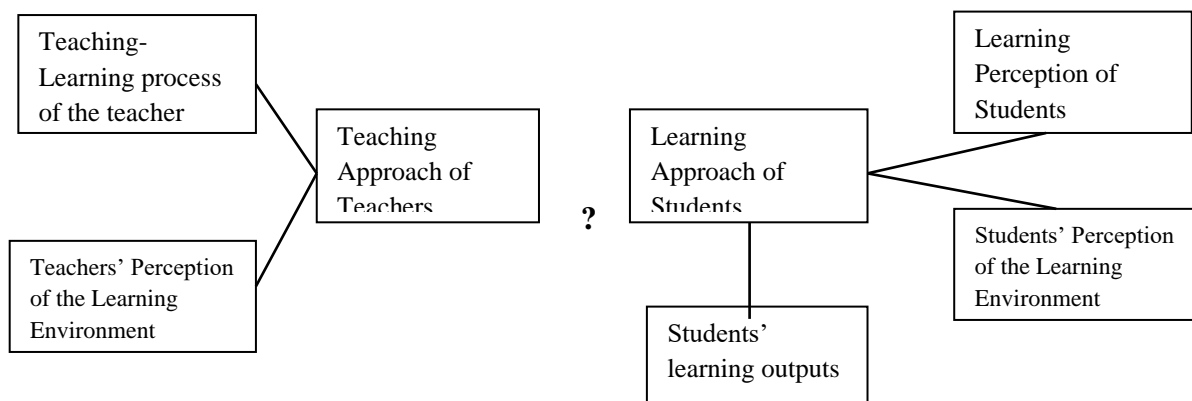
Harper (1987, p.16), the evaluation of the learning process deals with how students learn, and accordingly focuses on the learning approaches that students use.

The learning approach is defined as “the change in intention and behaviour of the learner towards the learning task depending on the learner’s perception of the learning context he/she is in” (İlhan-Beyaztaş & Senemoğlu, 2015) and is classified as deep, surface and strategic learning.

Finding the meaning and learning are essential in the deep learning approach and this approach is triggered by an intrinsic motivation (Biggs, 2001; Biggs and Tang, 2007; Curzon, 2004; Entwistle, McCune and Walker, 2001). It is essential that the task undertaken in the surface learning approach is performed with a low level of effort and is triggered by an external motivation (Biggs, 2001; Biggs and Tang, 2007; Curzon, 2004). In this respect, the learner focuses on the recall and repetition of knowledge in the learning process (Biggs and Tang, 2007; Curzon, 2004). While the strategic learning approach is motivated by success and high grades/degrees (Newble and Entwistle, 1986, p. 165), it is an approach that uses one of the surface and deep learning approaches (based on comprehension and recall) depending on the quality of the perceived evaluation process (Entwistle, 1995, p. 47).

Literature shows that there are many factors that influence the learning approaches (Biggs, 1987; Biggs, 1996, p. 187; Chan, 2003; Chamorro-Premuzic and Furnham, 2009; Dart et al., 2000, p.263; Duff et al. 2004, p. 1910; Gaff, Crombag & Chang, 1976, p. 287-288; Scouller and Prosser, 1994; Senemoğlu, 2011; Ramsden, 1979, p. 412; Watkins and Hattie, 1981; Zeegers, 2001). In a collectivist approach, Zeegers (2001) classified these factors in two dimensions as contextual (teaching/learning process activities, evaluation, institutional values, etc.) and individual factors (gender, age, previous experiences, etc.). In this study, the relationship between teacher approaches and learning approaches will be discussed.

One of the most important elements of the teaching-learning process is the teacher. Dart et al. (2000) stated that the academic environment factors such as the teaching method, the openness of the teacher towards the students, the freedom in the evaluation of the learning, the expression of the aims, the professional relationship, the emphasis placed on making sense, the perception of the teaching and learning process and the appropriate workload affected the learning approaches of the students. One of the most comprehensive qualitative studies conducted in this context is the study by Trigwell, Prosser and Taylor (1994, p.78-83). At the end of the study, it was stated that the teacher-centred approaches were related to the surface learning approach and the student-centred approaches were related to the deep learning approach. The relationship between the teaching approaches of the teachers and the learning approaches of the students is summarized in Figure 1 below by Trigwell, Prosser and Waterhouse (1999, p. 60).



**Figure 1. The Relationship Between Teaching Perception of Teachers and Learning Outputs of Students (Trigwell, Prosser and Waterhouse 1999: 60).**

As can be seen from Figure 1, teaching approaches of teachers are shaped by the perception of teaching environment and teaching-learning process. This formation is classified into two groups as the teacher-centred approach in which information is transmitted and the student-centred approach in which conceptual change is emphasized. Although Postareff et al. (2008) stated that teachers do not always use the same approach and made a third classification as the teacher-student-centred approach (dissonant), they are generally classified in the two groups (teacher-centred and student-centred approach) in the literature. In the context of the relationship between the teaching approach and the learning approach, it was determined that in the lessons of the teachers who adopted the teacher-centered approach, students resorted to the surface learning approach and in the lessons of those who adopted the student-centered approach, students resorted to the deep learning approach (Trigwell, Prosser and Waterhouse, 1999, p. 62-68). In this context, Biggs and Tang (2007, p. 23-24) found that teacher-based factors that lead students to adopt the surface learning approach included the presentation of the lesson as irrelevant parts without creating a cohesion, making evaluation based on the case, and failing to provide sufficient time. They also listed the teacher-based factors that lead students to adopt a deep learning approach as the provision of a question-based educational environment, ensuring meaningful learning in cohesion, and the creation of a classroom environment encouraging students.

Today's modern educational approaches focus on creating a deep learning approach. Particularly in the last decade, the pedagogical content at the undergraduate level has been transformed radically under the influence of the constructivist approach and it emphasizes a student-centered environment in which students are more active (Tynjälä and Gijbels, 2012). Accordingly, the teachers should take into account the context which includes students' lives and studies, their backgrounds, and their tendency to learn. In this process, teachers have a significant role to guide their students (Huddleston and Unwin, 2008). In this context, the aim of the present study is to determine the relationship between the way that teaching approaches used by the instructors of the faculty of education are perceived by the teacher candidates and the learning approaches that students prefer. In this context, the following questions will be addressed:

1. What are the teaching approaches of instructors across departments and grade level variables? Are there a difference between the teaching approaches of instructors according to departments and grade level variable?

2. What are the learning approaches of students across departments, grade and genders? Are there a difference between the learning approaches of students according to departments, grade level and genders variable?
3. Is there a relationship between the learning approaches of the students and the teaching approaches?

## **METHOD**

Since this study aims to investigate the relationship between teaching approaches and learning approaches, it can be stated as a correlational study (Frankfort-Nachmias and Nachmias, 1992)

### ***Study group***

The study group of this study was composed of 525 students from different departments of the faculty of education departments of Turkish Language Teaching (TLT), Mathematics Teaching (MT), Social Studies Teaching (SST), Classroom Teaching (CT) and Psychological Counselling and Guidance (PCG) to determine the relationship between the teaching approaches and the learning approaches.

### ***Data collection tools***

Within the scope of the study, in order to determine the learning approaches of the students, “Strategic Learning Approach Scale”, “Deep Learning Approach Scale” and “Surface Learning Approach Scale” consisting of three sub-scales and developed by İlhan-Beyaztaş (2014) were employed. Also, “Teaching Approaches by the Student Opinion Scale”, which was adapted according to student opinions, was used.

### ***Strategic learning approach scale***

The “Strategic Learning Approach Scale”, which consists of one dimension, has 20 five-point Likert items. In order to examine the construct validity of the scale, Exploratory Factor Analysis (EFA) was performed and the variance explained by the scale was found to be 31.36%. The internal consistency coefficient (Cronbach’s Alfa) of the test was 0.88 (İlhan-Beyaztaş, 2014).

### ***Deep learning approach scale***

The “Deep Learning Approach Scale” which consists of one dimension, has 20 five-point Likert items. In order to examine the construct validity of the scale, Exploratory Factor Analysis (EFA) was performed and the variance explained by the scale was found to be 32.51%. The internal consistency coefficient of the test (Cronbach’s Alpha) was 0.89 (İlhan-Beyaztaş, 2014).

### ***Surface learning approach scale***

The “Surface Learning Approach Scale”, which consists of one dimension, has 20 five-point Likert items. In order to examine the construct validity of the scale, Exploratory Factor Analysis (EFA) was performed and the variance explained by the scale was found to

be 26.82%. The internal consistency coefficient (Cronbach's Alfa) of the test was 0.86 (İlhan-Beyaztaş, 2014).

### *Teaching approaches by the student opinion scale*

“Revised Teaching Approach Scale” (ATI-R) which was developed by Trigwell et al. (2005) and adapted by Tezci (2017) into Turkish has been re-adapted in line with the student opinions in order to determine the teaching approaches instructors preferred in the classroom. The scale is a 5-point Likert-type scale consisting of 22 items and can be scored ranging from “totally agree” to “totally disagree”. The scale consists of two dimensions which are “Information Transfer-Teacher-Focused” (IT-TF) (In this subject my teaching focuses on the good presentation of information to students) and “Conceptual Change-Student-Focused” (CC-SF) (I see teaching as helping students develop new ways of thinking in this subject). In the adaptation process, Trigwell and Tezci were first contacted by e-mail and the required permission was obtained. In the second stage, two experts working in the Turkish Language Department, two academics working in the Department of English Language and Literature, and an expert from the Department of Curriculum and Instruction were consulted to reorganize the scale items which determine in-class approaches of instructors by their self-reports in line with student opinions. Five partially different adaptations were made by the experts. Since different adaptations were made, the draft form of the scale was formed by using the Delphi technique by working jointly on the scale items. After the draft form was created, it was checked by an assessment expert to make sure that it met the criteria and it was understandable and simple. In addition, scale items were revised in terms of being fit for the purpose and comprehensible with the participation of 7 university students studying at 1st and 4th grades, and corrections were made considering their views and suggestions.

The scale was applied to 387 students attending the Faculty of Education Department of Classroom in the spring term of 2017-2018 academic year to perform the validity and reliability analysis of the “Teaching Approaches by the Student Opinion Scale”. Before DFA was performed, the analysis was performed on 370 (269 female, 101 male) students by omitting the assumptions and outliers from the data set. Cronbach's alpha coefficient of the scale consisting of two dimensions and a total of 22 items was found to be .79 for IT-SF dimension and to be .89 for CC-SF dimension. DFA was conducted to examine the construct validity of the scale. The chi-square fit test ( $\chi^2$ ), the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI) and the Root Mean Square of Residuals (RMR) were used to demonstrate the validity of the model tested in the DFA. In the literature, since  $\chi^2$  is sensitive to the sample size, it is recommended to use  $\chi^2/sd$  ratio called normalized chi-square and in large samples that this ratio is below 3 represents a perfect fit and that it is below 5 is an indication of moderate fit (Kline, 2005; Tabachnick and Fidell, 2001). RMSEA and RMR values smaller than or equal to 0.05 indicate a good fit, and between 0.05 and 0.08 indicate a sufficient fit (Brown, 2006; Jöreskog and Sörbom, 1993). If the CFI value is greater than 0.95, it indicates a perfect fit, 0.90 and above is accepted as an indicator of acceptable fit (Tabachnick and Fidell, 2001).

Fit indexes calculated by DFA for the “Teaching Approaches by the Student Opinions Scale” were found to be RMSEA= 0.07, CFI= 0.96, GFI=0.86 and SRMR= 0.06. The  $\chi^2= 639.32$  (sd=208) was found to be significant ( $p < .01$ ) and was calculated as  $\chi^2/sd = 3.07$ . The modification suggestions obtained via analyses were examined and the analysis was repeated. The goodness of fit indexes after modification were found to be RMSEA= 0.59, CFI= 0.97, GFI=0.90 and SRMR= 0.05. It was observed that  $\chi^2= 458.5$  (sd=199) was significant ( $p < .01$ )

and was calculated as  $\chi^2/sd = 2.3$ . The calculated goodness of fit values indicate that the scale is an acceptable model.

## FINDINGS

The data obtained in the research are given as headings in accordance with the sub-objectives.

**1. What are the teaching approaches of instructors across departments and grade levels? Are there a difference between the teaching approaches of instructors according to departments and grade level variable?**

The first sub-problem of the research was aimed at answering “What are the teaching approaches of instructors across departments and grade levels? The descriptive scores obtained in this context are presented in Table 1.

**Table 1.** Arithmetic Mean and Standard Deviations of Teaching Approaches of Instructors Across Departments and Grade Levels

	IT-TF		CC-SF	
	$\bar{X}$	SS	$\bar{X}$	SS
TLT (N=116)	41.14	6.59	38.16	7.87
MT (N=112)	42.31	6.71	38.86	8.84
SST (N=78)	43.39	6.07	42.83	7.89
CT (N=140)	38.8	5.38	33.82	6.89
PCG (N=79)	39.85	6.44	37.41	9.16
1 <sup>th</sup> grade (N=288)	40.03	6.06	36.31	8.03
4 <sup>th</sup> grade (N=237)	41.97	6.66	39.45	8.8

When Table 1 is examined, it is seen that according to the perceptions of students across university departments and grade levels, the means of the IT-TF are higher than the means of CC-SF. Table 2 presents the results of MANOVA, which shows the comparison of the scores of IT-TF and CC-SF across university departments and grade levels.

**Table 2.** MANOVA Results Comparing the Total Scores of Teaching Approaches of Instructors Across Department and Grade Levels

	Wilks' Lambda	F	Hypothesis sd	Error sd	p
<b>Department</b>	.864	9.529	8	1008	.000***
<b>Grade Level</b>	.960	10.558	2	504	.000***

\*\*\*p < .001

When Table 2 is examined, it is seen that the student mean scores regarding the teaching approaches of instructors show a significant difference at the level of .05 across

university departments and grade levels. The information regarding the comparison of the mean scores of the students regarding the IT-TF and CC-SF teaching approaches of the instructors, which are teaching approach dimensions, across university departments and grade levels is given in Table 3.

**Table 3.** MANOVA Results Comparing the Total Scores of Instructors Regarding Teaching Approaches Across Departments and Grade Levels

		Sum of squares	Sd	Mean of Squares	F	P	Difference
<b>Department</b>	IT-TF	1268.034	4	317.008	9.318	.000** *	TLT-CT, MT-PCG, MT-CT, SST-PCG, SST-CT
	Error	17181.178	50	34.022			
	CC-SF	3728.747	4	932.187	16.549	.000** *	SST-TLT, SST-CT, SST-PCG, SST-MT, MT-CT, TLT-CT, PCG-CT, SST-CT
	Error	28446.529	50	56.330			
<b>Grade</b>	IT-TF	468.699	1	468.699	13.776	.000** *	4-1
	Error	17181.178	50	34.022			
	CC-SF	1176.234	1	1176.234	20.881	.000** *	4-1
	Error	28446.529	50	56.330			

\*\*\*p < .001

Table 3 shows the F-test used to compare the mean scores of the IT-TF and CC-SF dimensions across university departments and the grade levels. According to results of departments variable, it was determined that there was difference in the dimension of IT-TF (F=9.318, p < .001) and CC-SF (F=16.549, p < .001). The Tukey test was used to determine between which university departments there was a difference regarding the mean scores of IT-TF and CC-SF. According to the results of Tukey test, for IT-TF dimension, a significant difference was observed in favour of the first departments listed in the pairs of Turkish Teaching-Classroom Teaching, Mathematics Teaching- Psychological Counselling and Guidance, Mathematics Teaching-Classroom Teaching, Social Sciences Teaching-Psychological Counselling and Guidance and Social Studies Teaching- Classroom Teaching. Looking at the CC-SF dimension, a significant difference was observed in favour of the first departments listed in the pairs of Social Sciences Teaching - Turkish Language Education, Social Sciences Teaching-Classroom Teaching Education, Social Sciences Teaching-Psychological Counselling and Guidance, Social Sciences Teaching-Mathematics Teaching, Mathematics Teaching-Classroom Teaching, Turkish Language Teaching-Classroom

Teaching, Psychological Counselling and Guidance -Classroom Teaching and Social Sciences Teaching – Classroom Teaching.

According to results of grade variable, it was determined that there was difference in the dimension of IT-TF ( $F=13.776$ ,  $p < .001$ ) and CC-SF ( $F=20.881$ ,  $p < .001$ ). The LSD test was used to determine between which grade levels there was a difference between the mean scores of the IT-TF and the CC-SF dimensions because the number of categories was below three. In both dimensions, there was a significant difference between 1st and 4th grades in favour of 1st grade.

**2. What are the learning approaches of students across department, grade and gender variables? Are there a difference between the learning approaches of students according to departments, grade level and genders variable?**

The first sub-problem of the research was aimed at answering “What are the learning approaches of the students across department, grade and gender variables?” The descriptive scores obtained in this context are presented in Table 4.

**Table 4.** Arithmetic Mean and Standard Deviations of Learning Approaches of Students Across Department, Grade and Gender Variables

	Deep Learning Approach (DLA)		Surface Learning Approach (SL)		Strategic Learning Approach (SLA)	
	$\bar{X}$	SS	$\bar{X}$	SS	$\bar{X}$	SS
TLT (N=116)	75.06	9.91	62.02	10.42	74.28	9.92
MT (N=112)	73.18	9.98	62.31	9.83	72.52	9.6
SST (N=78)	74.29	12.06	65.08	10.35	72.44	10.97
CT (N=140)	73.67	8.6	59.78	9.79	72.75	9.11
PCG (N=79)	73.88	10.34	59.79	9.72	71.32	9.53
Female (N=346)	74.57	9.99	61.03	10.07	73.66	9.61
Male (N=179)	72.88	9.96	62.71	10.21	71.06	9.84
1 <sup>th</sup> grade (N=288)	72.42	9.6	61.79	9.66	71.69	9.48
4 <sup>th</sup> grade (N=237)	75.92	10.16	61.37	10.71	74.1	9.94

When Table 4 is examined, it is determined that the means of the deep and strategic learning approach across university departments, gender and grades are higher than the means of the surface learning approach. Table 5 shows the results of MANOVA, which shows the comparison of the scores of learning approaches across university departments, gender and grade levels. Prior to the analysis, variance equality and homogeneity were checked, and it was determined that covariance equality was not ensured. For this purpose, for university departments Pillai's Trace, for gender and grade levels Wilks' Lambda values were taken into consideration.



**Table 5.** MANOVA Results Comparing the Total Scores of Instructors on Teaching Approaches Across Departments, Grade Levels and Genders

	<b>Pillai's Trace</b>	<b>F</b>	<b>Hypothesis sd</b>	<b>Error sd</b>	<b>p</b>
<b>Department</b>	.047	2.083	12	1560	.01*
	<b>Wilks' Lambda</b>	<b>F</b>	<b>Hypothesis sd</b>	<b>Error sd</b>	<b>p</b>
<b>Gender</b>	.979	3.793	3	521	.01*
<b>Grade Level</b>	.969	5.496	3	521	.01*

\*p < .05

When Table 5 is examined, it is seen that the mean scores of learning approaches of students show a significant difference at .05 level across university departments, gender and grade levels. Table 6 shows the comparison of means scores of students in deep, surface and strategic learning approaches across university departments, gender and grade levels.

**Table 6.** MANOVA Results Showing the Comparison of Total Scores of Deep, Surface and Strategic Learning Approach Dimensions Across Departments, Grades and Genders

		Sum of squares	Sd	Mean of Squares	F	P	Difference
<b>Department</b>	DLA	229.13	4	57.28	0.57	.68	
	Error	52232.93	520	100.44			
	SL	1744.26	4	436.06	4.34	.000**	SST-PCG, SST-CT
	Error	52187.87	520	100.361		*	
	SLA	446.01	4	111.5	1.17	.32	
	Error	49471.9	520	95.13			
<b>Gender</b>	DLA	336.56	1	336.56	3.377	.06	-
	Error	52125.41	523	99.66			
	SL	335.72	1	335.72	3.276	.07	-
	Error	2046471.009	523	102.47			
	SLA	797.31	1	797.31	8.489	.000**	K-E
	Error	49120.60	523	93.921		*	
<b>Grade</b>	DLA	1596.35	1	1596.35	16.41	.000**	4-1
	Error	50865.71	523	97.258	4	*	
	SL	22.756	1	22.756	.221	.63	-
	Error	53909.38	523	103.07			
	SLA	752.65	1	752.65	8.006	.000**	4-1
	Error	49165.26	523	94.006		*	

\*\*\*p < .001

Table 6 shows the F test which is used to compare the mean scores of the dimensions of the deep, surface and strategic learning approaches across university departments, gender and grade level variables. According to results of departments variable, it was determined that there was difference in the dimension of surface learning approach ( $F=4.34$ ,  $p < .001$ ). Tamhane test was used to determine between which university departments there was a difference in the mean scores of surface learning approach scores due to the fact that the groups were not homogenous. According to the Tamhane test results, a significant difference was found for surface learning approach in favour of first departments listed in the pairs of Social Sciences Teaching-Psychological Counselling and Guidance and Social Sciences Teaching-Classroom Teaching.

According to results of gender variable, it was determined that there was difference in the dimension of strategic learning approach ( $F=8.489$ ,  $p < .001$ ). In terms of the gender variable, in order to determine the difference in strategic learning approach, since the number of categories was below three, LSD test was used, and it was determined that there was a significant difference in favour of female students.

According to results of grade variable, it was determined that there was difference in the dimensions of deep learning approach ( $F=16.414$ ,  $p < .001$ ) and strategic learning approach ( $F=8.006$ ,  $p < .001$ ). The LSD test was used to determine between which grade levels there was the difference with regard to deep and strategic learning dimension mean scores, because the number of categories was below three. In both dimensions, there was a significant difference between the 4th grade and 1st grade in favour of 4th grade.

### 3. *Is there a relationship between the learning approaches of the students and the teaching approaches?*

The third sub-problem of the study was aimed at answering the question “*Is there a relationship between the learning approaches of the students and the teaching approaches?*” and in this context, Pearson Moment Multiplication Correlation Coefficient technique was used to determine the relationship between teaching approaches perceived by students and learning approaches of students and the results are presented in Table 7.

**Table 7.** The Relationship Between Mean Scores of Teaching Approach Perceptions and Learning Approaches of University Students

Sub scales	IT-TF	CC-SF	DLA	SLA	SL
IT-TF	-	.777**	.281**	.335**	.017
CC-SF	-	-	.291**	.275*	.105*
DLA	-	-	-	.637**	-.145**
SLA	-	-	-	-	-.050
SL	-	-	-	-	-

\*\*  $p < .01$

When Table 7 is examined, it is seen that there is a strong, positive and meaningful relationship between the mean scores of IT-TF and CC-SF ( $r=.777$ ,  $p < .01$ ). It was observed that there was a low level, positive and significant relationship between the mean scores of

IT-TF and mean scores of DLA ( $r=281, p <.01$ ) and SLA ( $r=335, p <.01$ ). In addition, It was observed that there was a low level, positive and significant relationship between the mean scores of CC-SF and mean scores of DLA ( $r=291, p <.01$ ) and SLA ( $r=275, p <.01$ ). It was observed that there was a high level and positive relationship between DLA and SLA mean scores ( $r=637, p <.01$ ) and a low, negative and significant relationship between the mean scores of DLA and SL ( $r= -145, p <.01$ ).

## RESULTS AND DISCUSSION

The aim of this study is to determine the teaching approaches of university instructors according to student perceptions and to ascertain the relationship between this perception and their preferred learning approaches. Within this scope, when the findings are examined, it is determined that the IT-SF approach means of the instructors determined based on the student perception across university departments and grade levels were higher than the means of the CC-SC approach. Across university departments, for IT-TF and CC-SF scores, SST was found to have the highest and CT was found to have the lowest mean. When compared in terms of grade level, it was found that the means of the IT-TF approach as well as the means of the CC-SF approach were significantly different in favour of the 1st grade students. When the literature was examined, no study directly related to the subject was found. However, Biglan (1973) conducted a study on disciplines and accordingly, he divided the disciplines into four groups as theoretical and hard-pure (chemistry etc.), hard-applied (medicine etc.), theoretical and pure-soft (history etc.) and applied-soft (education). In this respect, Lueddeke (2003) stated that teachers working in the discipline classified as “hard” adopted IT-TF approach and teachers working in the discipline classified as “soft” adopted CC-SF approach. Similarly, Lindblom-Ylänne et al. (2006), in their study, found that the IT-TF approach scores of the teachers working in the “hard-applied” discipline were significantly higher than the teachers working in the “theoretical and pure-soft” and “applied-soft” disciplines. In this scope, the high scores for the IT-TF approach in the findings obtained from the study group (education) which is classified within the “theoretical and pure-soft” class are not consistent with the literature.

Another finding of the study was that the means of the deep and strategic learning approach were higher than the scores of the surface learning approach. This finding is partially consistent with the literature (Ekinci, 2008; İlhan Beyaztaş, 2014; İlhan Beyaztaş and Senemoğlu, 2015; Selçuk, Çalışkan and Erol, 2007; Senemoğlu, 2011). In addition, in terms of the gender variable, it was found that female students adopted a strategic learning approach in a meaningful way compared to male students. Similarly, in a study by Smith and Miller (2005), learning approaches of 248 university students were identified and it was found that female students adopted more strategic learning approaches than male students. Also, the study conducted by Biggs (1987) in Australia and the study conducted by Senemoğlu (2011) on Turkish and American students indicated that female students prefer more strategic learning approaches than male students. However, in the studies conducted by Chan (2003) and Zeegers (2001), it was stated that there was no difference according to the gender factor. In this context, it can be seen that a conclusive statement about the role of gender factor in terms of learning approaches cannot be made. When the grade level variable is considered, it was determined that there was an increase in both the strategic and deep learning approach scores in the mean scores of the 4th grades compared to 1st grades and this increase is significant. This finding is also supported by the literature (Biggs, 1987; Chan, 2003; Richardson, 1995; Selcuk, Caliskan and Erol, 2007, Senemoglu, 2011; Watkins and Hattie, 1981; Zeegers, 2001). Furthermore, Ramsden explained this situation based on previous experiences. In his study, Ramsden (1991) found that the learning approaches used by the students at the university were shaped by the experiences in the high school period and the

students who were encouraged to use the deep learning approach during the high school period insisted on preferring the deep learning approach in the first and subsequent years of the university (cited in Ramsden, 1992, p. 67). In this context, it can be said that supporting students to this end encourages students to prefer deep and strategic learning approach and results in an increase in the mean scores of these approaches in 4<sup>th</sup> grades.

The most interesting finding of the study is the strong, positive and significant relationship between the IT-SF teaching approaches and the CC-SF teaching approaches. When the literature is reviewed, it is seen that the teaching approaches are independently classified in these two categories (Samuelowicz and Bain, 1992; Trigwell, Prosser and Taylor, 1994; Trigwell, Prosser and Waterhouse, 1999). Kember and Kwan (2000) also recommend that teachers use either the IT-TF or CC-SF teaching approach. However, there is no evidence of a high correlation between these two classifications. In this respect, this finding is not parallel with the literature. However, in recent studies, a third dimension has been put forward. Postareff et al. (2008) stated that teachers do not always use the same approach and a third classification as the teacher-student centered approach (dissonant) has been put forth. This approach was also supported in a study by Stes and Van Petergem (2014). Although the debate is ongoing in the literature, this finding supports the fact that the number of dimensions in the teaching approaches, which is currently 2, should be 3. In addition, it was observed that there was a small, positive and significant relationship between IT-TF and CC-SF mean scores and SDA and SLA mean scores. However, this finding does not correspond to the literature. In a study by Trigwell, Prosser and Waterhouse (1999), the relationship between teaching approaches of teachers and learning approaches of students was investigated, and it was seen that when the teacher only chose a teaching method in the form of transferring information and focusing on what they did, students chose the surface learning approach to learn the subject. However, when teachers chose student-centred and student perception-enhancing methods, it was determined that students predominantly chose the deep learning approach to learn the subject. Similarly, in the study conducted by Uiboleht, Karm and Postareff (2018), it was observed that when teachers employed CC-SF approaches, students resorted to the deep learning approach. In addition, Biggs and Tang (2007) stated that the approach “teaching based on questioning or through presenting problems rather than explaining the information” encouraged the students to adopt the deep learning approach.

One of the interesting findings of the study was that a strong and positive relationship was observed between the DLA and SLA. In a study by İlhan-Beyaztaş and Göçer-Şahin (2017), path analysis was conducted to determine to what extent did the academic success at school, deep, surface and strategic learning approaches and self-regulated learning skills of 445 high school 4<sup>th</sup> grade students predict their university entrance exam score. As a result of the research, it was found that the increase in the level of adopting deep learning approaches resulted in an increase of 0.47 in the level of adopting the strategic learning approach. There are also other studies supporting this finding in the literature. According to Bartlett and Burton, (2007), although learning approaches generally have a stable structure, this approach can vary according to the learning task and purpose. In this respect, it can be said that the students change their learning approach depending on the learning task, they use both approaches frequently and thus, a strong relationship between the two approaches is present.

The limitation of this study was that quantitative data were collected from a small study group. The results of the study showed that instructors employed IT-SF approaches more frequently according to the perceptions of students. First of all, it is necessary to elaborately investigate the reasons why students perceive instructors this way. In this context, it is necessary to carry out qualitative studies on a larger scale. In addition, there was a positively significant correlation between IT-SF and CC-SF teaching approaches. Although

the scores related to the IT-SF approach are high, it can be said that the instructors also employ the CC-SF teaching approach. At this point, which teaching approaches the instructors use and why they use these approaches can be investigated in depth with both quantitative and qualitative data.

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