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Identifying The Relationship Of Teacher Candidates' Humor Styles With Anxiety And Self-Compassion Levels

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Abstract

Problem Statement: Teacher candidates who will soon be responsible for educating the future generations should possess certain characteristics. Specific teacher candidates should have specific characteristics taken into consideration: pre-school and primary teacher candidates should be seen as role models by younger students; psychological counseling and guidance teacher candidates should guide students in terms of choice of profession and provide counseling in case of problems; and special education teacher candidates should be fully equipped with the skills to handle students with special needs and characteristics.

Purpose of Study: This study aims to identify the relationship between teacher candidates' humor styles, anxiety, and self-compassion levels, and to investigate these levels from the perspective of gender and grade variables.

Method: In this research study, a multiple regression analysis was applied in order to explore the relationship between candidate teachers' humor styles and their anxiety as well as self-compassion levels. The sample of the study is comprised of a total of 1008 students studying in the following departments of the Atatürk Education Faculty at Marmara University: early childhood education, primary school teaching, psychological counseling and guidance, and special education. As data collection instruments, the Self-Compassion Scale, the Humor Styles Questionnaire, and the State and Trait Anxiety Scale were used.

Findings and Results: According to the findings of the study, the t values calculated to find the significance of the regression coefficients indicate that isolation and self-judgment sub-dimensions have significant

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predictiveness for affiliated humor. Self-kindness, common humanity, isolation, and over-identification sub-dimensions have significant predictiveness for self-enhancing humor. Self-kindness, self-judgment, mindfulness, and over-identification subdimensions have significant predictiveness for aggressive humor. Self-judgment and common humanity sub-dimensions have significant predictiveness for self-defeating humor. Other sub-dimensions do not have significant influence on the dependent variable. Finally, the sub-dimensions of the State and Trait Anxiety Scale have significant predictiveness for all the sub-dimensions of the Humor Style Scale.

Recommendations: There is a need for experimental studies aiming to boost teacher candidates' self-compassion by developing programs indented to reduce their anxiety levels. It is also suggested that if some aspects of such programs are found to be positive in such studies, they should be incorporated into the optional courses or practice-based applications in the programs of education faculties.

Key words: Teacher candidates, humor style, self-compassion, anxiety

Introduction

Teacher candidates who will soon be responsible for educating future generations should possess certain characteristics. Especially the following characteristics should be taken into consideration: pre-school and primary teacher candidates should be role models for younger students; psychological counseling and guidance teacher candidates should guide students in terms of choice of profession and provide counseling in case of problems; and special education teacher candidates should be fully equipped with the skills to handle students with special needs and characteristics.

It is important for teacher candidates to be sensitive and understanding to themselves and to the people in their surroundings. It is essential for them to have self-compassion. Self-compassion provides individuals with the skills needed to establish good relationships with themselves, develop empathy, be sympathetic and sensitive, and be tolerant of problems (Gilbert & Procter, 2006). Self-compassion also encourages individuals to feel satisfied with themselves in case of difficulties and when they feel inadequate (Neff & Beretvas, 2012), and it is one of the ways to cope with negative life experiences (Allen & Leary, 2010). Moreover, self-compassion facilitates flexibility in individuals' behaviors (Germer & Neff, 2013), and refers to the self-acceptance of the individuals and their ability to be able to make compassionate evaluations of themselves (Werner et al., 2012). Aside from this, some researchers found a negative relationship between self-compassion and depression, the fear of failure, and anxiety (Neff, Hsieh, & Dejitterat, 2005; Ying, 2009; Raes, 2010). It was also revealed that high levels of self-compassion help individuals to be

psychologically healthy (Neff, 2009; Van Dam, Sheppard, Forsyth & Earleywine, 2011).

Several factors in life might cause individuals to feel good-bad, sufficient-insufficient, happy-sad or anxious. Especially during the period of transition to the a profession, which is one of the most important transition periods in life, it is natural for teacher candidates to feel anxious. As stated by Cüceloğlu (1991), the most significant source of anxiety is a lack of knowledge about what will happen in the future. Some precautions related to the teacher candidates' appointments and placements can be taken to reduce their initial anxiety and to make them feel more secure. However, these precautions are considered to serve little purpose in the long run. Additionally, not only the challenges arising from their work experiences but also the difficulties resulting from the responsibilities of adulthood come into play in this transition period to professional life. Considering all these factors, it is essential for individuals to protect themselves and to learn how to calm down in challenging circumstances.

In addition to having self-compassion, which leads individuals to establish good relationships both with themselves and with the people in their surroundings, teacher candidates must have humor. By means of humor, individuals can be flexible, tolerant, and accepting by discovering the amusing sides of events. Humor also paves the way for the development of interpersonal relationships and a decrease in the number of conflicts (Semrud-Clikeman & Glass, 2010), the expression of emotions through positive thinking (Smith, Harrington, & Neck, 2000), and the emergence of a positive and optimistic approach (Chinery, 2007). Sense of humor has many adaptive functions (Dowling & Fain, 1999; Martin, 2002; Mireault et al.,, 2012) and is important in terms of the individuals' interpersonal relationships (Zeigler-Hill, Besser, & Jett, 2013). Some studies reported that as teacher candidates use more self-enhancing and affiliate humor styles, their approaches to problem solving become more positive (Traş, Arslan, & Mentiş–Taş, 2011), and they grow more self-confident in overcoming problems (Sarı & Aslan, 2005). Furthermore, it was emphasized that students with high senses of humor are more optimistic (Durmuş & Tezer, 2001). In another study, it was revealed that students using self-enhancing and affiliate humor styles have lower levels of anxiety (Bilge & Saltuk, 2007).

From the findings of the reviewed studies, it is clear that individuals have more positive approaches when they use humor, and they feel better when they have higher levels of self-compassion. Thus, it is likely that there is a positive relationship between humor and self-compassion, and they have both been proven to reduce individuals' anxiety levels. It can be maintained that teacher candidates' sense of humor will encourage them to feel satisfied both during their daily lives and in educational processes. It is also likely that satisfied teachers will exhibit more positive attitudes towards their students and deal with problems calmly and appropriately. Although no study exploring the relationship among these variables has been encountered in the reviewed literature, it is thought that teacher candidates' self-compassion and anxiety levels while establishing relationships with themselves and with their students might be related to their humor styles. Thus, this study aims

to investigate the relationship of teacher candidates' humor styles, which are important to satisfaction and healthy interpersonal relationships, with anxiety and self-compassion levels.

Method

Research Design

Multiple regression was applied in this study to explore the relationship of teacher candidates' humor styles with their anxiety and self-compassion levels. Multiple regression analysis is used to predict the dependent variable based on two or more predictors (independent variables) that are related to the dependent variable (Büyüköztürk, 2005).

Research Sample

The sample of the study is comprised of a total of 1008 students studying in the departments of early childhood education (N=295), primary school teaching (N=208), psychological counseling and guidance (301), and special education (204) in the Atatürk Education Faculty at Marmara University. Out of 1008 participants, 824 were female while the remaining 184 were male. Also, 230 of the participants were in the first year while 300 of them were in the fourth year in their departments.

Research Instrument and Procedure

Self-compassion Scale: The scale developed by Neff (2003) assesses the characteristics related to the sub-dimensions of self-compassion, and it is a self-assessment instrument based on individuals' information about themselves. Containing 26 items in the form of five-point Likert scale, it includes six sub-dimensions making up the concept of self-compassion by means of the confirmatory factor analysis. These sub-dimensions are as follows: self-kindness against self-judgment, common humanity against isolation, and mindfulness against over-identification. The adaptation of the scale into Turkish and the reliability as well as the validity of the scale was carried out by Akın, Akın and Abacı (2007) who collected data from 633 students at the Education Faculty of Sakarya University. The confirmatory factor analysis in the study revealed that the scale was compatible with the original form ($x2$=779.01, sd=264, p=0.00, RMSEA=.056, NFI=.95, CFI=.97, IFI=.97, RFI=.94, GFI=.91 and SRMR=.059). The internal consistency coefficients of the scale were found to be between .72 and .80, and the test-retest reliability coefficients were between .56 and .69. Also, the corrected item-total correlations of the scale were between .48 and .71, and it was revealed that all the differences between the 27% of the mean scores of the high-low groups were significant (Akın, Akın & Abacı, 2007).

Humor Styles Questionnaire (Scale): Developed by Martin, Puhlik-Doris, Larsen, Gray and Weir (2003), the scale aims to assess four different dimensions through 32 seven-likert-type items pertaining to the individual differences in the use of humor styles. The scale was adapted into Turkish by Yerlikaya (2003) whose participants were 1363 students attending Çukurova University. The piloting of the scale was done with a sample of 530 students while the construct validity of the scale

was tested with a sample of 495 students. The criterion-related validity studies were done by means of the involvement of two different sample groups including 137 and 138 students, and the test-retest reliability studies were conducted in a fifteen-day interval with the participation of a sample of 63 students. The findings of the study revealed that the scale was comprised of four factors as determined in its original form, and each factor was found to be equivalent to four sub-scales that included eight items. The percentage variance explanation of the obtained four factors is 36.88%. Core values of the factors are respectively as follows: Self-enhancing humor: 5.22, Affiliate Humor: 2.97, Aggressive Humor: 1.90, and Self-defeating Humor: 1.70. The variance description percentages are respectively as follows: 16.34, 9.28, 5.97, and 5.30. The Cronbach alpha internal consistency coefficients of the sub-scales were found to be between .67 and .78, and the test-retest correlation coefficients were found to be between .83 and .88 (Yerlikaya, 2003).

State and Trait Anxiety Scale: The scale including 40 items was developed by Spielberger (1979) and the reliability and the validity study of the scale in Turkish was carried out by Öner and Le Compte. While the State Anxiety Scale asks individuals to describe how they feel at a certain times and under certain conditions, the Trait Anxiety Scale requires individuals to describe how they feel in general. Each of these scales is comprised of 20 items. The Alpha reliability coefficient of the State and Trait Anxiety Inventory in different applications was between 0.83 and 0.87 for the State Anxiety Scale and for the Trait Anxiety Scale, the coefficient was between 0.94 and 0.96. The test-retest reliability coefficient was found to be between 0.71 and 0.86 for the State Anxiety Scale while the coefficient for the State Anxiety Scale was between 0.26 and 0.68 (Öner & Compte, 1998).

Results

Table 1.

Results of the Multiple Regression Analysis Applied to Predict Sub-dimension Scores of Humor Styles Scale through Sub-dimension Scores of Self-compassion Scale

Affiliate humor	*B*	Sh_B	*β*	*T*	*p*	*Binary r*	*Partial r*
Invariant	5,567	,262		21,244	,000		
Self-kindness	,061	,070	,041	,878	,380	,161	,028
Self-judgment	-,189	,060	-,143	-3,143	,002	-,228	-,099
Common Humanity	,115	,059	,083	1,945	,052	,171	,061
Isolation	-,201	,058	-,161	-3,463	,001	-,226	-,109
Mindfulness	-,024	,065	-,017	-,375	,708	,138	-,012
Over-identification	,105	,059	,088	1,779	,076	-,162	,056
R=,270	R^2=,073						
$F_{(6; 1001)}$==13,138	p=,0000						

Table 1 Continue…

Self-enhancing humor	*B*	*Sh_B*	*β*	*T*	*p*	*Binary r*	*Partial r*
Invariant	3,140	,263		11,939	,000		
Self-kindness	,372	,070	,230	5,314	,000	,405	,166
Self-judgment	,022	,060	,015	,358	,721	-,272	,011
Common Humanity	,172	,059	,114	2,899	,004	,345	,091
Isolation	-,131	,058	-,097	-2,258	,024	-,292	-,071
Mindfulness	,067	,065	,044	1,021	,307	,349	,032
Over-identification	-,131	,059	-,101	-2,210	,027	-,311	-,070
R=,451	R^2=,204						
$F_{(6;1001)}$=42,690	p=,0000						
Aggressive humor	*B*	*Sh_B*	*β*	*T*	*p*	*Binary r*	*Partial r*
Invariant	2,684	,236		11,378	,000		
Self-kindness	,166	,063	,126	2,645	,008	-,043	,083
Self-judgment	,236	,054	,200	4,342	,000	,153	,136
Common Humanity	-,074	,053	-,060	-1,398	,163	-,103	-,044
Isolation	,048	,052	,043	,921	,357	,094	,029
Mindfulness	-,157	,059	-,126	-2,673	,008	-,111	-,084
Over-identification	-,145	,053	-,136	-2,724	,007	,052	-,086
R=,206	R^2=,043						
$F_{(6;1001)}$=7,429	p=,0000						
Self-defeating humor	*B*	*Sh_B*	*β*	*T*	*p*	*Binary r*	*Partial r*
Invariant	2,006	,268		7,492	,000		
Self-kindness	,114	,071	,075	1,599	,110	-,003	,050
Self-judgment	,342	,062	,255	5,555	,000	,201	,173
Common Humanity	,132	,060	,094	2,189	,029	,017	,069
Isolation	,069	,059	,055	1,167	,244	,137	,037
Mindfulness	-,088	,067	-,062	-1,323	,186	-,036	-,042
Over-identification	-,087	,060	-,072	-1,438	,151	,109	-,045
R=,233	R2=,054						
F(6; 1001)=9,601	p=,0000						

The analysis of the multiple regression results between the sub-dimension scores of Self-Compassion scale and Humor style scale indicates that the score in the sub-dimension of affiliate humor (R=,270; R^2=,073; p<,01), the aggressive humor score (R=,206; R^2=,043; p<,01), and the self-defeating score (R=,233; R^2=,054; p<,01) had a relationship at a low level. T-values were calculated to explore the significance of the regression coefficients, and indicate that self-kindness, common humanity, isolation, and over-identification sub-dimensions had significant positive correlations with self-enhancing humor; self-kindness, self-judgment, mindfulness, and over-identification sub-dimensions had significant predictiveness for aggressive humor; self-judgment and common humanity sub-dimensions have significant predictiveness for self-defeating humor. Other sub-dimensions had no significant influence on the dependent variable.

Table 2.
Results of the Multiple Regression Analysis Applied to Predict Sub-dimension Scores of Humor Styles Scale through Sub-dimension Scores of Anxiety Scale

Affiliate Humor	*B*	Sh_B	*B*	*T*	*p*	*Binary r*	*Partial r*
Invariant	6,941	,169		40,959	,000		
State anxiety	-,325	,071	-,162	-4,568	,000	-,261	-,143
Trait anxiety	-,434	,083	-,185	-5,204	,000	-,271	-,162
R=,304	R^2=,092						
$F_{(2;1005)}$=51,136	p=,0000						
Self-enhancing Humor							
Invariant	6,890	,174		39,622	,000		
State anxiety	-,360	,073	-,166	-4,942	,000	-,335	-,154
Trait anxiety	-,808	,086	-,318	-9,443	,000	-,406	-,285
R=,430	R2=,185						
F(2; 1005)=113,974	p=,0000						
Aggressive Humor							
Invariant	2,180	,156		13,954	,000		
State anxiety	,132	,066	,074	2,014	,044	,113	,063
Trait anxiety	,152	,077	,073	1,981	,048	,113	,062
R=,129	R2=,017						
F(2; 1005)=8,536	p=,0000						
Self-defeating Humor							
Invariant	2,664	,178		14,937	,000		
State anxiety	-,079	,075	-,039	-1,059	,290	,041	-,033
Trait anxiety	,359	,088	,151	4,094	,000	,130	,128
R=,134	R^2=018						
$F_{(2;1005)}$=9,255	p=,0000						

The state and trait anxiety sub-dimensions of the anxiety scale have low-level correlations with the affiliate humor sub-dimension of Humor Style Scale (R=,304; R^2=,092; p<,01) aggressive humor sub-dimension (R=,129; R^2=,017; p<,01), and self-defeating humor scores (R=,134; R^2=,018; p<,01). The t-values intended to explore the significance of the regression coefficients indicate that both state and trait anxiety sub-dimensions have significant predictiveness for all the dimensions of Humor Style Scale.

Table 3.
Results of Independent Group t Test Applied to Identify whether Sub-dimension Scores of the Self-compassion, Humor and Anxiety Scales Differ Depending on the Gender Variable

	Groups	*N*	$\bar{x}$	*ss*	Sh $_{\bar{x}}$	*t* Test		
						t	*Sd*	*p*
Self-kindness	Female	824	2,96	,706	,025	-1,818	1006	,069
	Male	184	3,06	,646	,048			
Self-judgment		824	2,54	,791	,028	-3,124	1006	,002
		184	2,74	,726	,053			
Common Humanity		824	3,04	,760	,026	,201	1006	,840
		184	3,02	,684	,050			
Isolation		824	2,71	,847	,030	-1,424	1006	,155
		184	2,80	,755	,056			
Mindfulness		824	3,09	,758	,026	-1,569	1006	,117
		184	3,18	,658	,049			
Over-identification		824	2,77	,877	,031	,219	1006	,826
		184	2,75	,813	,060			
Total Scale Score		824	3,18	,608	,021	,377	1006	,706
		184	3,16	,498	,037			
Affiliate Humor		824	5,33	1,010	,035	3,463	1006	,001
		184	5,04	1,131	,083			
Self-enhancing Humor		824	4,32	1,134	,040	,355	1006	,723
		184	4,28	1,084	,080			
Aggressive Humor		824	2,74	,916	,032	-4,892	1006	,000
		184	3,10	,884	,065			
Self-defeating Humor		824	3,26	1,045	,036	-2,958	1006	,003
		184	3,51	1,057	,078			
State Anxiety		824	2,13	,519	,018	1,422	1006	,155
		184	2,07	,518	,038			
Trait Anxiety		824	2,26	,440	,015	2,609	1006	,009
		184	2,07	,518	,038			

Table 3 demonstrates that the difference in the mean scores of the groups in the self-judgment sub-dimension is significant in favor of the male participants (*t=3,124; p<,01*) while the differences in the other sub-dimensions and the total score are not significant (*p>,05*). The difference in the mean scores of the groups' affiliate humor sub-dimension is significantly in favor of female candidates (*t=3,463; p<,01*) while the differences in the mean scores of the groups' aggressive humor sub-dimension (*t=-4,892; p<,001*) and self-defeating humor sub-dimension (*t=-2,463958 p<,01*) are significantly in favor of male candidates. The differences in the self-enhancing humor are not significant (*p>,05*). The difference in the groups' mean scores of the trait anxiety sub-dimension is in favor of female students (*t=2,609; p<,01*) while the differences in the state anxiety sub-dimension are not significant (*p>,05*).

Table 4.
Results of Independent Group t Test Applied to Identify whether Sub-dimension Scores of the Self-compassion, Humor, and Anxiety Scales Differ Depending on the Grade Variable

Score	Groups	*N*	$\bar{x}$	*ss*	Sh $_{\bar{x}}$	*t* Test		
						t	*Sd*	*p*
Self-kindness	Grade 1	230	2,97	,734	,048	,758	528	,449
	Grade 4	300	2,92	,647	,037			
Self-judgment		230	2,68	,766	,050	1,195	528	,233
		300	2,60	,800	,046			
Common Humanity		230	3,01	,777	,051	-,346	528	,729
		300	3,03	,757	,044			
Isolation		230	2,80	,847	,056	,110	528	,913
		300	2,79	,851	,049			
Mindfulness		230	3,09	,736	,048	,803	528	,422
		300	3,04	,742	,043			
Over-identification		230	2,80	,899	,059	,207	528	,836
		300	2,79	,820	,047			
Total Scale Score		230	3,13	,593	,039	-,123	528	,902
		300	3,14	,568	,033			
Affiliate Humor		230	5,36	1,024	,067	2,325	528	,020
		300	5,15	1,039	,060			
Self-enhancing Humor		230	4,40	1,248	,082	2,625	528	,009
		300	4,14	1,012	,058			
Aggressive Humor		230	2,79	,999	,066	-,510	528	,610
		300	2,84	,947	,055			
Self-defeating humor		230	3,40	1,082	,071	1,367	528	,172
		300	3,28	1,005	,058			
State Anxiety		230	2,12	,474	,031	-3,163	528	,002
		300	2,26	,562	,032			
Trait Anxiety		230	2,26	,453	,030	-,338	528	,735
		300	2,27	,454	,026			

Table 4 reveals that the differences in groups' self-compassion scores are not significant (*p>,05*). The differences in the mean scores of affiliate humor (*t=2,325; p<,05*) and self-enhancing humor sub-dimensions of Humor Style Scale (*t=2,625 p<,01*) are significant in favor of first year students while the differences in the mean scores of state anxiety sub-dimensions are significant in favor of fourth years (*t=-3,163; p<,01*). On the other hand, the differences in the trait anxiety sub-dimension are not significant (*p>,05*).

Discussion

The results summarized above indicate that self-compassion can affect humor styles. It would also be fair to state that individuals with positive humor styles evaluate and judge themselves and prefer positive humor styles by feeling precious and by being aware of the importance of sharing. On one hand, humor can be used as a means of individuals' self-acceptance and the development of their relationships with others, but on the other hand it can be used as a way of harming (e.g. humiliating) themselves or the people around them (Martin, Puhlik-Doris, Larsen,

Gray, & Weir, 2003). Furthermore, humor has an important place in interpersonal relationships, and differences in personalities influence individuals' styles of using humor (Schermer et al. 2013). A harmful use of humor might affect individuals' relationships with the people in their surroundings and may jeopardize these relationships. However, as individuals become more self-compassionate, they can evaluate themselves better and strive not to insult others. These individuals can be aware of the importance of relationships with others and can establish satisfactory relationships.

Teachers' attention to themselves and to other people is especially vital for the students they will teach and for the families they will guide. Because they are the basis of sensitivity to others, self-compassion helps teachers not only establish relationships with themselves and with others, but also maintain these relationships (Neff & Beretvas, 2012). In addition, self-compassion facilitates individuals' flexibility in their behaviors by moderating their reactions against negative events (Germer & Neff, 2013). Thus, self-compassionate individuals can behave more tolerantly and become more understanding. It is reasonable to maintain that such positive behaviors and their characteristics pave the way for the effective use of humor. In other words, the higher one's self-compassion level is, the more frequent the use of positive humor is, and the more satisfying relationships are established.

In this study, the relationships of the state and trait sub-dimensions of anxiety scale with the affiliate, aggressive, and self-defeating humor dimensions of the humor scale were at a low level. Taking the t values related to the significance of the regression coefficients into consideration, both state and trait anxiety sub-dimensions have significant predictiveness for all the sub-dimensions of the humor styles scale. In other words, there is interaction between teacher candidates' humor styles and their state of anxiety. It is natural for teacher candidates to feel anxious about their future. In a study focusing on the job-related anxieties of the teacher candidates, the authors concluded that teachers' anxieties were mostly related to their professional lives (Çubukçu & Dönmez, 2011). Other researchers indicated that humor is expected to reduce the effects of negative experiences, especially in the case of feelings such as anxiety, tension, stress, and depression (Berk, 2001). Besides this, it was reported that students with healthy humor styles use coping strategies more frequently and are likely to be more optimistic (Durmuş & Tezer, 2001). Another study yielded the finding that there is a relationship between university students' aggressive as well as self-defeating humor styles and their anxieties; additionally, it was found that while students with self-enhancing and affiliate humor styles have lower anxiety scores, students with aggressive and self-defeating humor styles have higher anxiety scores (Bilge & Saltuk, 2007). Similarly, from research findings, it can be realized that the negative relationships between anxiety and positive humor styles are also true for teacher candidates. This finding implies that teacher candidates can reduce their anxieties somewhat by using positive humor.

Considering the gender variable, the difference in the mean scores of the groups' self-judgment sub-dimension was significant in favor of male participants while the differences in the sub-dimension and their total scores were not significant. Similarly, some research studies yielded the finding that self-compassion scores do not differ depending on the gender variable (Neff, Rude, & Kirkpatrick, 2007;

İskender, 2009; Soyer, 2010; Nazik & Aslan, 2011; İkiz & Totan, 2012). Still, some other studies revealed that female participants were less self-compassionate than male participants (Raes, 2010; Kirkpatrick, 2005; Neff, Hsieh, & Dejitterat, 2005; Neff, 2003a; Neff & Vonk, 2009). In the present study, the difference in the groups' mean scores of the affiliate humor sub-dimension was in favor of female participants, and the difference in the aggressive humor and self-defeating humor mean scores was in favor of male ones. On the other hand, the differences in the self-enhancing humor sub-dimension were not significant. These results corroborate with other research findings, indicating that the mean scores of male participants' aggressive and self-defeating humor styles are higher than the mean scores of the female participants (Yerlikaya, 2007; Traş, Arslan & Mentiş–Taş, 2011).

Another finding of the present study is that while the difference in the groups' mean scores of trait anxiety sub-dimension was in favor of female participants, the differences in the state anxiety sub-dimension were not significant. There have been similar studies in the relevant literature that indicate the anxiety levels of female students are higher (Taşğın, 2006; Akgün, Gönen, & Aydın, 2007; Tümerdem, 2007), and that the anxiety does not differ significantly depending on the gender variable (Dogan & Coban, 2009; Tekneci, 2010). The difference in mean scores of the affiliate and self-enhancing humor sub-dimensions of the Humor Style scale was found to be in favor of the first years. On the other hand, while the difference in the mean scores of the state anxiety sub-dimension were found to be significant in favor of the fourth years, the differences in the trait anxiety sub-dimension were not found to be significant. Dereli, Angın, and Karakuş (2012) as well as Tekneci (2010) also revealed that anxiety does not differ depending on grade level. These results indicate that as teacher, candidates' grades increase and as they approach the period of transition to the profession, their state anxiety increases and they start using humor styles less frequently. Especially awareness of the fact that they will have more responsibilities when they start working after graduation might cause teacher candidates' state anxiety increase. This worrisome situation might make teacher candidates less inclined to have fun and more inclined to feel anxious.

For further studies, the researchers would like to point out that there is a need for experimental studies aiming to boost teacher candidates' self-compassion by developing programs indented to reduce their anxiety levels. They also suggest that if some aspects of such programs are found to be positive in such studies, they should be incorporated into the optional courses or practice-based applications in education faculties' programs. Moreover, practical activities intended to develop teacher candidates' humor styles should be designed so that teacher candidates are encouraged to pursue their profession more enjoyably and to overcome problems they are likely to encounter in life.

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Öğretmen Adaylarının Mizah Tarzları Ile Kaygı Ve Öz-Duyarlık Düzeyleri Arasındaki Ilişinin Belirlenmesi

Özet

Aydan, A. (2015). Identifying the relationship of teacher candidates' humor styles with anxiety and self-compassion levels**.** *Eurasian Journal of Educational Research*, 59, 1-16
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Problem Durumu: Gelecek nesillerin eğitiminden sorumlu olacak aday öğretmenlerin çeşitli özelliklere sahip olması beklenir. Bu özelliklerin kimi mesleki yeterlilikle ilişkilendirilirken, kimisi adayların sahip oldukları niteliklerle ilişkilendirilebilir. Mesleki yeterlilikle ilgili eğitim fakültelerinin programları üzerine farklı zamanlarda çeşitli düzenlemeler yapılmaktadır. Ancak adayların kişisel özelliklerini belirlemeye, olumlu özelliklerini geliştirmeye ve sorunlarla baş edebilme becerilerini geliştirmeye yönelik çalışmalarında yapılması düşünülebilir. Özellikle küçük yaş çocukların model alacağı okul öncesi ve ilköğretimde çalışacak adayların, öğrencilere kariyer seçimi, olası sorunlarında rehberlik ve danışma hizmeti sunacak rehber öğretmen adaylarıyla, özel gereksinimleri ve özellikleri açısından özel bir donanıma sahip olması beklenen zihin engellilerle çalışacak aday öğretmenlerin, özelliklerinin dikkate alınması önemlidir. Başka bir deyişle; aday öğretmenlerin eğitimleri üzerinde yeniden düşünülmesi gerekliliği ve nitelikleri üzerinde yeni düzenlemeler yapılmasının yararlı olacağı söylenebilir.

Araştırmanın amacı: Öğretmen adaylarının mizah tarzları ile kaygı ve öz-duyarlık düzeyleri arasındaki ilişinin belirlenmesi ve cinsiyet ile sınıf düzeyi değişkenleri açısından incelenmesidir.

Araştırmanın Yöntemi: Araştırmada öğretmen adaylarının mizah anlayışları ile kaygı ve öz-duyarlık düzeyleri aralarındaki ilişkinin incelenmesi için çoklu regresyon analizi kullanılmıştır. Araştırmanın örneklemi: Marmara Üniversitesi Atatürk Eğitim Fakültesinde öğrenimine devam eden; Okul Öncesi öğretmenliği (295) Sınıf öğretmenliği (208), Rehberlik- Psikolojik danışma bölümü (301) Zihin Engelliler öğretmenliği bölümünde (204) okuyan; 824'ü kız-184'ü erkek toplam 1008 öğrenciden oluşmaktadır. Araştırmada Öz-Duyarlık Ölçeği, Mizah Tarzları Ölçeği ve Durumluk-Süreklilik Kaygı Ölçeği kullanılmıştır.

Araştırmanın Bulguları: Öz-Duyarlılık Ölçeği alt boyut puanları ile Mizah tarzları ölçeği (MTÖ) alt boyutları arasındaki çoklu regresyon sonuçlarına bakıldığında; katılımcı mizah (KM) alt boyutu puanı (R=,270; R^2=,073; p<,01), saldırgan mizah (SM) (R=,206; R^2=,043; p<,01), kendini yıkıcı mizah (KYM) (R=,233; R^2=,054; p<,01) ile düşük düzeyde; Kendini geliştirici mizahla (KGM) öz-yargılama ve izolasyon alt boyutları düşük düzeyde, diğer alt boyutlar orta düzeyde ilişki (R=,451; R^2=,073; p<,01) vermektedir. Regresyon katsayılarının anlamlılığına ilişkin olarak hesaplanan t değerleri incelendiğinde KM üzerinde; izolasyon ve öz-yargılama alt boyutlarının anlamlı bir yordayıcılığa sahip olduğu; KGM üzerinde öz-sevecenlik, paylaşımların bilincinde olma, izolasyon ve aşırı özdeşleşme alt boyutlarının anlamlı yordayıcılığa sahip olduğu; SM üzerinde öz-sevecenlik, öz-yargılama, bilinçlilik ve aşırı özdeşleşme alt boyutlarının, YM üzerinde ise öz-yargılama ve paylaşımların bilincinde olma alt boyutlarının anlamlı yordayıcılığa sahip olduğu; diğer alt boyutların bağımlı değişken üzerinde anlamlı bir etkisinin olmadığı belirlenmiştir. Kaygı ölçeği durumluk ve sürekli kaygı alt boyutu birlikte MTÖ katılımcı mizah alt boyutu (R=,304; R^2=,092; p<,01); saldırgan mizah alt boyutu (R=,129; R^2=,017; p<,01) ve kendini yıkıcı mizah alt boyutu puanları (R=,134; R^2=,018; p<,01) ile düşük düzeyde; kendini geliştirici mizah alt boyutu (R=,430; R^2=,185; p<,01) ile orta düzeyde bir ilişki vermektedir. Regresyon katsayılarının anlamlılığına ilişkin olarak hesaplanan t değerleri incelendiğinde hem durumluk hem de sürekli kaygı alt boyutlarının; mizah tarzları ölçeği tüm alt boyutları üzerinde anlamlı yordayıcılığa sahip olduğu belirlenmiştir.

Sonuç ve Öneriler: Sonuçlara bakıldığında; olumlu mizah tarzları (KM-KGM) ile öz-duyarlık ölçeğinin negatif alt boyutları (öz-yargılama, izolasyon ve aşırı özdeşleşme) arasında düşük düzeyde de olsa negatif ilişkiler görülmektedir. Olumsuz mizah tarzları (SM-KYM) ile öz-duyarlık ölçeği öz-sevecenlik, paylaşımların bilincinde olma ve bilinçlilik alt boyutları arasında da yine düşük düzeyde negatif ilişkiler görülmektedir. Kısaca öz-duyarlık ölçeğinin negatif alt boyutları ve olumsuz mizah tarzları; olumlu alt boyutları ile olumlu mizah tarzları azda olsa etkileşim göstermektedir. Regresyon katsayılarının anlamlılığına ilişkin olarak hesaplanan t değerleri incelendiğinde KM üzerinde; izolasyon ve öz-yargılama alt boyutlarının, KGM üzerinde; öz-sevecenlik, paylaşımların bilincinde olma, izolasyon ve aşırı özdeşleşme alt boyutlarının, SM üzerinde; öz-sevecenlik, öz-yargılama, bilinçlilik ve aşırı özdeşleşme alt boyutlarının, YM üzerinde ise öz-yargılama ve paylaşımların bilincinde olma alt boyutlarının anlamlı bir yordayıcılığa sahip olduğu; diğer alt boyutların bağımlı değişken üzerinde anlamlı bir etkisinin olmadığı belirlenmiştir. Bu sonuçlar öz-duyarlığın mizah tarzlarını etkileyebileceğini göstermektedir. Olumlu mizah tarzlarını kullanan kişilerin kendilerini değerlendirdiklerini, yargılayabildiklerini ama kendilerini değerli hissederek ve paylaşımlarında bilincinde olarak olumlu mizah tarzını tercih ettikleri söylenebilir. Araştırmada; Kaygı ölçeği durumluk ve sürekli kaygı alt boyutu birlikte Mizah tarzları ölçeği KM, SM VE KYM alt boyutu puanları ile düşük düzeyde; alt boyutu ile orta düzeyde bir ilişki vermektedir. Kaygı ölçeği tüm alt boyutları birlikte MTÖ katılımcı mizah alt boyutu puanları toplam varyansının yaklaşık %9'unu, kendini geliştirici mizah %19'unu, saldırgan mizah ve kendini yıkıcı mizah alt boyutu puanları toplam varyansının yaklaşık %2'sini açıklamaktadır. Regresyon katsayılarının anlamlılığına ilişkin olarak hesaplanan t değerleri incelendiğinde hem durumluk hem de sürekli kaygı alt boyutlarının; mizah tarzları ölçeği tüm alt boyutları üzerinde anlamlı bir yordayıcılığa sahip olduğu belirlenmiştir. Başka deyişle, öğretmen adaylarının mizah tarzları ile kaygı durumları arasında etkileşim görülebilmektedir. Öğretmen adaylarının geleceklerine yönelik kaygı yaşamaları olasıdır. Cinsiyet değişkenine bakıldığında; grupların öz-yargılama alt boyutu ortalamaları arasındaki farklılık erkekler lehine anlamlı bulunurken, diğer alt boyutlar ve toplam puan için farklılıklar anlamlı bulunmamıştır. Araştırmada; grupların katılımcı mizah alt boyutu ortalamaları arasındaki farklılık kızlar lehine, saldırgan mizah ve kendini yıkıcı mizah ortalamaları arasındaki farklılık erkekler lehine anlamlı bulunurken, kendini geliştirici mizah alt boyutu için farklılıklar anlamlı bulunmamıştır. Örneklem grubunu oluşturan öğrencilerin Öz-Duyarlık, Mizah Tarzları ve Kaygı Ölçeği alt boyut ve toplam puanlarının sınıf değişkenine göre anlamlı bir farklılık gösterip göstermediğini belirlemek amacıyla yapılan bağımsız gruplar t testi sonucunda; grupların öz-duyarlık ölçeği puanları arasındaki farklılıklar anlamlı bulunmamıştır. Mizah Tarzları ölçeği katılımcı mizah alt boyutu ve kendini geliştirici mizah alt boyutu ortalamaları arasındaki farklılık 1.sınıflar lehine anlamlı bulunurken; durumluk kaygı alt boyutu ortalamaları arasındaki farklılık 4.sınıflar lehine anlamlı bulunurken sürekli kaygı alt boyutu için farklılıklar anlamlı bulunmamıştır. İleride yapılacak araştırmalarda öğretmen adaylarının kaygı düzeylerini azaltacak, öz-duyarlıklarının geliştirilmesi ve mizah tarzlarını geliştirmeye ilişkin programların hazırlanarak etkililiğini sınayacak deneysel çalışmaların yapılması önerilebilir.

Anahtar kelimeler: ögretmen adayı, mizah tarzı, öz-duyarlık, kaygı

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The Effect of Cooperative Learning on the Learning Approaches of Students with Different Learning Styles

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Abstract

Problem Statement: For this study, a cooperative learning process was designed in which students with different learning styles could help each other in heterogeneous groups to perform teamwork-based activities. One aspect deemed important in this context was whether the instructional environment designed to reach students with different learning styles would allow students to better engage in deep learning.

Purpose of Study: The purpose of the study was to determine the effectiveness of cooperative learning activities in ensuring deep learning according to students' learning styles.

Methods: For this single-group pretest–posttest study, a purposive sampling method was used to form the sample of 39 students attending the course Special Teaching Methods as part of a pedagogical certification program at a state university in Turkey. During the study, the Grasha–Riechmann Student Learning Style Inventory was used to determine students' learning styles and the study process questionnaire to determine their learning approaches. Covariance analysis was performed for all research questions.

Findings and Results: Posttest student scores for the deep learning approach demonstrated significant differences depending on learning style. According to these scores, students with cooperative and competitive learning styles fared better with the deep learning approach than students with avoidant, dependent, and participative learning styles. By contrast, the students' posttest scores for surface learning demonstrated no significant differences regarding learning styles.

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Conclusions and Recommendations: The researchers recommend increasing both the duration of study activities and their focus on different techniques of cooperative learning, as well as considering the basic principles of cooperative learning to ensure effective designs for teamwork-based discussion activities, including those used for research.

Keywords: Cooperative learning, learning style, deep learning, surface learning

Introduction

"For many of us, the Learning Paradigm has always lived in our hearts. As teachers, we want above all else for our students to learn and succeed, but the heart's feeling has not lived clearly and powerfully in our heads. Now, the elements of the Learning Paradigm permeate the air. Our heads are beginning to understand what our hearts have known. However, none of us has yet put all the elements of the Learning Paradigm together in a conscious, integrated whole" (Barr & Tagg, 1995, p.2).

In the 20 years that have passed since Barr and Tagg (1995) expressed the abovementioned opinion, the importance accorded to effective learning has increased considerably, and numerous studies have been conducted on different aspects of the learning paradigm in order to answer the question, "How can we ensure effective learning?" Effective learning refers to a process in which students actively employ metacognitive strategies that involve planning, observation, and reflection (Watkins, Carnell, Lodge, Wagner, & Whalley, 2002). In this context, the term effective learners refers to students who are aware of their own learning processes and who systematically endeavor to make their learning experiences more meaningful in order to achieve their goals. Used for achieving effective learning, this approach is also called deep learning, a concept first described in 1976 by Marton and Säljö (Biggs, Kember, & Leung, 2001) and defined as one of two approaches used by students when they engage in learning activities. Deep learning is associated with a need for meaningful learning experiences. For example, students who display the deep learning approach participate in learning processes with genuine interest and by asking questions that they wish to see answered, while also deriving more enjoyment from the overall learning process (Biggs & Tang, 2011). The other approach described in Marton and Säljö's (1976) study is the surface learning approach, which in contrast to deep learning involves negative feeling toward the learning process and an emphasis on remembering information instead of questioning and understanding (Biggs & Tang, 2011). Achieving meaningful learning—that is, achieving effective learning—is possible only for students who employ a deep learning approach.

In Barr and Tagg's views described above (1995, p. 2), creating environments in which students can experience effective and deep learning requires a holistic consideration of all learning variables. Among the numerous different variables associated with learning, the researchers focused first on the learning style, believed to have a determining role on students' learning approaches due to differences in

their individual preferences regarding learning activities, and second on instructional methods, which assume a key role in creating learning environments influenced by students' individual preferences.

The chief view of the concept of learning styles is that different individuals exhibit different ways of learning and that effective learning is achieved when the instructional process is compatible with these styles. Learning styles may vary according to an individual's personality, the approaches that he or she uses to process information, and/or his or her preference regarding social interactions. Parallel to Sonnenwald and Li's (2003) approach, this study has adopted a learning style classification system based on student's preferences regarding social interactions given the importance accorded social interactions in learning activities. According to Grasha (1990), who previously conducted studies of the classification of learning styles based on social interaction preferences, learning styles reflect students' thoughts, ways of interacting with others, and preferences regarding learning environments and experiences. In this context, it is possible to describe six learning styles: competitive, cooperative, avoidant, participative, dependent, and independent. Students showing a competitive learning style engage in learning mostly to perform better than other students in their class, whereas students with a cooperative learning style believe that they can learn by sharing their opinions and skills with other students. Meanwhile, students with an avoidant learning style are disinterested in the topics taught and show unwillingness to participate in any class or learning activity. Students demonstrating a participative learning style, by contrast, enjoy taking part in class and learning activities. Lastly, students with a dependent learning style display very little interest toward the class and work only to meet minimum requirements, while students with an independent learning style are confident in their skills and prefer to learn information that they consider to be important (Grasha, 2002).

The most important factor involved in creating instructional environments that ensure deep learning for all of the different learning styles is the instructional method. Certain researchers (Kreke, Fields, & Towns, 1998; Tuan, Chin, Tsai, & Cheng, 2005) have described that cooperative group learning can ensure effective learning for students with different learning styles. Cooperative learning is a method in which students work together in small groups to learn academic content (Slavin, 2011). Sonnenwald and Li (2003) have described cooperative learning to be able to improve academic performance and success among all students, regardless of individual differences. Added to being inherently sensitive to students' learning styles, cooperative learning also favorably affects students' thinking and questioning skills (Felder & Brent, 2007; Klimovienė, Urbonienė, & Barzdžiukienė, 2006), largely because working in teams—and thereby engaging an environment and context closer to real-life—increases students' critical thinking skills and supports their ability to put theory into practice (Brown, Sivabalan, McKenzie, & Booth, 2001). Furthermore, learning by working in teams also makes it easier for students to engage in deep learning (Macpherson, 2007; Millis, 2010), since activities in the cooperative learning approach are designed especially to ensure a rich deep learning experience

(Macpherson, 2007). Given these characteristics, cooperative learning is well-suited both for creating instructional environments compatible with all learning styles and for ensuring deep learning among students.

The opinion that being sensitive to students' learning styles is important in ensuring effective learning is not new, but something that other studies have asserted for decades (Felder & Brent, 1994; Grasha, 2002; Kolb & Kolb, 2005; Mutlu & Aydoğdu, 2003; Sonnenwald & Li, 2003). Surprisingly, however, is that despite regular emphasis on the importance of individual differences, such differences continue to be only incompletely taken into consideration in learning environments. In response, a cooperative learning process was designed for this study in which students with different learning styles help each other in heterogeneous groups to perform teamwork-based activities. One aspect deemed important in this context was whether the learning environment designed to reach students with different learning styles would allow students to better engage in deep learning. Given this consideration, the researchers attempted to answer the following questions during the study:

1. Does the cooperative instructional design promote any differences in students' deep learning posttest scores according to learning styles when pretest scores are controlled for?
2. Does the cooperative instructional design promote any differences in students' surface learning posttest scores according to their learning styles when pretest scores are controlled for?

Method

Research Design

The study adopted a single-group pretest–posttest design. Subject scores regarding the dependent variable obtained prior to the study activities were referred to as the pretest scores, while scores obtained after the completion of the study activities were referred to as the posttest scores. Both types were obtained by using the same subjects and study tools (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2010).

Study Group

A purposive sampling method was used to determine the study group, which is a method that allows the in-depth evaluation of cases and situations with a wealth of information to consider (Patton, 1999). This study was conducted with a group of 39 students attending the course Special Teaching Methods as part of a pedagogical certification program provided at a state university in Turkey. Of the students in the study group, 28 (72%) were women and 11 (28%) were men.

Research Instrument and Procedure

Grasha–Riechmann Student Learning Style Inventory. This inventory developed by Grasha–Reichmann (Grasha, 2002) was used to determine students' learning styles. The scale was previously adapted to Turkish by Zereyak (2005), who also performed its associated validity and reliability studies. In this study, the inventory

was administered to 239 students receiving their education in four different departments of Ankara University's Faculty of Education. Based on data obtained from the study group, Cronbach's alpha internal consistency coefficient of the entire scale was .83, while the coefficient of the subdimensions varied from .53–.78. In this study, the internal consistency of the entire scale was .77.

Study process questionnaire. To assess students' study approaches, this study used the study process questionnaire developed by Biggs et al. (2001) for university students that was previously adapted to Turkish by Yılmaz and Orhan (2011). The questionnaire consisted of 20 items organized under two dimensions: deep learning and surface learning. Of the items on this questionnaire, 10 related to deep learning and the other 10 to surface learning. For the questionnaire, the Cronbach's alpha coefficient for the deep learning approach was .79, while the coefficient for the surface learning approach was .73. For this study, Cronbach's alpha coefficient for the deep learning approach was .81, while the coefficient for the surface learning approach was .75.

Procedure

The study was conducted for a period of 6 weeks with a group of 39 students attending the course titled Special Teaching Methods during the second semester of a pedagogical certification program in a Turkish state university. A week before commencing the study procedures, the Grasha–Riechmann Student Learning Style Inventory and study process questionnaire were administered to the students, who were also given information regarding the overall framework of the study procedures and the basic principles of cooperative learning and teamwork. Following this, the students were assigned into heterogeneous groups in consideration of their first-semester grades, inventory scores, gender, and department. To ensure that the groups socialized and developed a team spirit among their members, the master designer technique was employed (Açıkgöz, 1992). To further reinforce team spirit, each group was also instructed to choose a group name and group prize.

The theoretical and applied activities related to the instructional methods included in this study (i.e., cooperative learning, the 5E teaching method, multiple intelligence, six hats, examples, discussions, drama, role playing, problem-based teaching, and project-based teaching methods) were implemented during the 6-week study period by using different cooperative learning techniques (i.e., team game tournament, student teams achievement divisions, jigsaw, and group investigation). The principles of cooperative learning were followed during these study activities, and each week a lesson plan was formed regarding the method being used and implemented. Prior to applying assessment criteria regarding the lesson plans, students were informed of the criteria. Feedback regarding the activities and study process was also obtained every week. At the end of the study activities, the study process approach questionnaire was administered again.

Data Analysis

All statistical analyses of the study data were performed by using the Statistical Package for the Social Sciences version 17.0. Covariance analysis (ANCOVA) was performed for all of the study's research questions. Within the context of ANCOVA,

the LSD test was used to perform multiple comparisons of the mean scores. The level of statistical significance was accepted to be $p < .05$.

SD values were used to group learning style subdimensions. Score ranges within the five-point scales were determined based on a single SD value. Afterward, the arithmetic mean for each learning style was calculated for every student to determine his or her predominant learning style.

Table 1

Score Ranges for the Grasha–Reichmann Student Learning Style Inventory

Learning Style	Very Low	Low	Average	High	Very High
Independent	[1.0–3.0]	[3.1–3.4]	[3.5–3.9]	[4.0–4.4]	[4.5–5.0]
Avoidant	[1.0–2.0]	[2.1–2.3]	[2.4–2.7]	[2.8–3.1]	[3.2–5.0]
Cooperative	[1.0–2.7]	[2.8–3.3]	[3.4–3.9]	[4.0–4.5]	[4.6–5.0]
Dependent	[1.0–2.9]	[3.0–3.4]	[3.5–3.9]	[4.0–4.4]	[4.5–5.0]
Competitive	[1.0–1.2]	[1.3–1.9]	[2.0–2.7]	[2.8–3.5]	[3.6–5.0]
Participative	[1.0–2.2]	[2.3–2.7]	[2.8–3.3]	[3.4–3.9]	[4.0–5.0]

Table 1 provides the ranges used to evaluate scores from the Grasha–Reichmann Student Learning Style Inventory. To group students according to the subdimensions of the learning styles, the arithmetic means of their scores from the inventory were considered according to the ranges described above. For each student, a learning style whose range corresponded to the student's highest score was accepted as his or her predominant learning style. The frequency of learning styles among the students appears in Table 2.

Table 2

Frequency of Student Learning Styles

Style	Frequency	Percentage (%)
Independent	7	17.9
Avoidant	7	17.9
Cooperative	6	15.4
Dependent	5	12.8
Competitive	7	17.9
Participative	7	17.9
Total	39	100.0

As shown in Table 2, the distribution of learning styles among the 39 students was roughly equal. Independent, avoidant, competitive, and participative learning styles were each applicable for seven students, the cooperative learning style for six students, and the dependent learning style for five students.

Resulst

Findings Related to the First Research Question

To perform ANCOVA, it was necessary to satisfy assumptions regarding normality, the equation of the variance, and the equation of the regression lines. Based on analyses performed to satisfy the assumptions, it was determined with the Kolmogorov–Smirnov test that the pre- and posttest deep learning scores had normal distribution (pretest deep learning approach $z = .76$, $p = .61$; posttest deep learning approach $z = .82$, $p = .51$). Levene's test demonstrated that the variance of the data was homogenous ($F(5–33) = 1.79$; $p = .14$; $p > .05$). It was also observed that the effect of the group pretest results on posttest scores was not significant ($F(5–27) = 1.554$; $p = .21$, $p > .05$). Based on this observation, the slopes of the regression lines calculated for predicting posttest results were equal. The corrected means of the deep approach scores appear in Table 3.

Table 3

Corrected Mean Values of Deep Approach Scores

Variable	Mean	Corrected Mean
Independent	35.00	32.83
Avoidant	29.71	31.96
Cooperative	37.83	38.04
Dependent	32.20	31.76
Competitive	38.42	37.71
Participative	31.00	31.79

As shown in Table 3, cooperative and competitive learning styles had the highest mean values (38.04 and 37.71, respectively). ANCOVA was performed to determine whether there was any significant difference between the groups' corrected posttest scores, the results of which appear in Table 4.

Table 4

Covariance Analysis Results for Deep Learning Approach Posttest Scores

Source of Variance	Sum of Squares	df	Mean of Squares	F	p
Pretest	188.22	1	188.22	9.25	.005
Style	287.30	5	57.46	2.82	.03
Error	650.55	2	20.33		
Total	46431.00	39			
Corrected Total	1278.97	38			
Change in R2 = .49 (Corrected R2= .40)					

As presented in Table 4, a significant difference was observed between the groups concerning their posttest scores corrected according to their pretest ones ($F(5–32) = 2.82$, $p < .05$). To determine the source of this difference, a least significant difference (LSD) test was performed for the corrected mean scores, the results of which reveal a significant difference between the cooperative learning style and the avoidant, dependent, and participative learning styles, as well as between these three styles and the competitive learning style. It was thus observed that students with the cooperative ($X = 38.04$) and competitive ($X = 37.71$) learning styles had higher scores with the deep learning approach than students with the avoidant ($X = 31.96$), dependent ($X = 31.76$), and participative ($X = 31.79$) learning styles.

Findings Related to the Second Research Question

To perform ANCOVA, it was necessary to satisfy assumptions regarding normality, the equation of the variance, and the equation of the regression lines. Based on the analysis performed to satisfy the assumptions, it was determined with the Kolmogorov–Smirnov test that pre- and posttest surface learning scores had normal distribution (pretest surface learning approach, $z = 1.04$, $p = .22$; posttest surface learning approach, $z = .50$, $p = .96$). Levene's test demonstrated that the variances of data were homogenous ($F(5–33) = 1.67$; $p = .17$; $p > .05$). It was also observed that the effect of the group pretest results on posttest scores was not significant ($F(5–27) = 1.63$; $p = .19$, $p > .05$), which indicates that the slopes of the regression lines calculated for predicting the posttest results were equal. The values of the corrected means for the surface approach scores appear in Table 5.

Table 5

Corrected Mean Values for Surface Approach Scores

Variable	Mean	Corrected Mean
Independent	26.00	26.72
Avoidant	32.57	32.25
Cooperative	24.66	25.26
Dependent	30.00	29.58
Competitive	27.00	26.29
Participative	26.28	26.40

As shown in Table 5, the avoidant and dependent learning styles had the highest mean values (X = 32.25 and X = 29.581, respectively). ANCOVA was performed to determine whether there was any significant difference between the corrected posttest scores of the groups, the results of which are provided in Table 6.

Table 6

Covariance Analysis Results for Surface Learning Approach Posttest Scores

Source of Variance	Sum of Squares	df	Mean of Squares	F	p
Pretest	118.96	1	118.96	2.37	.13
Style	227.14	5	45.43	0.90	.48
Error	1601.51	32	50.04		
Total	31969.00	39			
Corrected Total	2005.89	38			
Change in R2 = .202 (Corrected R2= .052)					

As shown in Table 6, no significant difference was observed between the groups concerning their posttest scores corrected according to their pretest ones. As such, the posttest scores of the surface learning approach demonstrated no significance differences regarding student learning styles ($F(5–32) = 45.43$, $p > .05$).

Discussion and Conclusion

According to ANCOVA results for the first research question, students showing cooperative and competitive learning styles had higher deep learning approach scores than students with the avoidant, dependent, and participative learning styles.

A greater increase was observed in the deep learning scores of students with the cooperative and competitive learning styles than other students. This observation can be explained by the greater suitability of the teamwork approach used during this study for students displaying the cooperative learning style, as well as with the motivation resulting from the award described at the beginning of the study for students displaying the competitive learning style. At the same time, the results also indicated that students exhibiting the avoidant, dependent, and independent learning styles could not adapt to the cooperative learning method implemented during the 6-week study period. To explain, most likely the avoidant learning style is associated with a dislike of interactions, while the dependent learning style is more suitable for teacher-based approaches; at the same time, the independent learning style is more compatible with teaching based on more individualized steps and activities. In this context, it might be necessary to implement the cooperative learning approach for longer periods in order to obtain better results for all learning styles. As different researchers (Kreke et al., 1998; Shindler, 2004; Sonnenwald & Li, 2003) have described, a learning environment based on cooperation will provide a better opportunity for reaching students with different learning styles. The long-term application of this approach will also enlarge the student group that can be effectively reached. Many studies have described that student-centered models involving activities such as group problem-solving exercises, group presentations, and group homework have the effect of increasing the deep learning approach scores of students (Hall, Ramsay, & Raven, 2002; Liddle, 2000). Fok and Watkins (2007) implemented a cooperative learning approach supported by constructivist teaching methods to secondary-school students for a period of 2 months and described improvement in the deep learning approach of these students. Azmahani, Khairiyah, Amirmudin, and Jamaludin (2013), by contrast, implemented the cooperative problem-based learning approach to first-year university engineering students for three semesters and made similar observations regarding the increase in students' deep learning scores by the end of the period. In another study, courses for third-year teacher candidates were conducted by using the student teams achievement division technique for a period of 12 weeks, after which it was described that the technique increased the students' deep learning strategies in comparison to direct teaching approaches (Wyk, 2012).

Interestingly, the study procedures did not result in any significant difference in the scores of students showing the participative learning style. Considering the characteristics of the different learning styles, it was expected that cooperative learning activities, which follow a learner-centered approach, would positively impact the learning approaches of participative students. In the literature, methods involving discussion and cooperative learning are described as being effective for students exhibiting cooperative, competitive, and participative learning styles (Hamidah, Sarina, & Kamaruzaman, 2009). Similarly, in describing the characteristics of the participative learning style, Grasha (2002) described how individuals with this learning style could benefit from group discussion activities. Considering findings in current literature, the unexpected results of our study regarding the participative learning style might have stemmed from the difficulties experienced by group

members in properly structuring and organizing their discussion activities during teamwork-based activities.

Uysal (2010) determined that the cooperative learning academic contrast technique positively affected the problem-solving skills of students with cooperative and competitive learning styles. Based on the view that deep learners possess the necessary skills for effective problem solving, such as the ability to focus on chief points to solve a problem, and the ability to identify relationships between a problem and available evidence (Houghton, 2004), a parallel can be drawn between this study and Uysal's (2010). In the context of the current study, the increase in deep learning scores observed among students with cooperative and competitive learning styles can be described in a manner similar to Uysal (2010) as the result of an environment created by cooperative learning favorable to the development of positive learning characteristics in these students.

Based on ANCOVA results of the second research question, posttest surface learning scores did not demonstrate any significant difference regarding student learning styles. However, an evaluation of the corrected means indicated that surface learning scores were especially higher among students with the avoidant and dependent learning styles.

Dart (2000; cited by Ellezi & Sezgin, 2002) has described how the deep learning approach might be associated with constructivism insofar as individuals use cognitive processes and improve them in order to constitute knowledge and meaning. The surface learning approach, by contrast, is related to teacher-centered instruction in which information is instantly transferred from teacher to student. Though instructors' insist upon the opposite, it is known that surface learning continues as the predominant approach in institutions of higher education (Coffield, Moseley, Hall, & Ecclestone, 2004). Various researchers (Marburger, 2005; Millis, 2010; Shimazoe & Aldrich, 2010) have described cooperative learning as a learner-centered approach that is effective for reducing surface learning among students and promoting deep learning instead. However, these researchers have also expressed that, in light of current data and given its predominance in higher education, the surface learning approach is not likely to be abandoned in the near future.

No significant difference was observed in the current study between learning styles with respect to surface learning scores. However, an evaluation of the corrected means demonstrated that the dependent and avoidant learning styles had the highest means in terms of surface learning. Since these learning styles also represent the most distant to student-centered learning processes, the observed results are unsurprising given the learning styles' characteristics. For students with a dependent learning style, the teacher is the primary source of learning and guidance is continually necessary. Students with the avoidant learning style, by contrast, do not act in a participative manner during learning processes, show no willingness to participate in any activity, and avoid all responsibility (Jonassen & Grabowski, 2011). Students exhibiting the dependent and avoidant learning styles thus experience difficulties in adapting to cooperative learning environments that emphasize team

motivation, individual responsibility, and team dependence. In these environments, such students become introverted, preferring to engage more in surface learning and to work only to meet minimum requirements.

The results also indicated that students continued to maintain their long-standing surface learning approaches. Similarly, in a study conducted by Hermann (2013) of university students for one semester, it was observed that cooperative learning activities did not result in any significant difference regarding students' surface learning scores. Earlier, in a study conducted by Çolak (2006) of high-school students for 6 months without taking learning styles into account, it was demonstrated that cooperative learning did not have any significant effect on surface learning scores. Nevertheless, implementing cooperative learning for longer periods could prompt different results. The strong influence of cooperative learning on learning styles might have the potential to manifest among the surface learning points of different learning styles. In sum, study data indicated that surface learning cannot be changed by short-term activities among individuals with different learning characteristics, especially in the context of an education system based on traditional exams. Considering the didactic approaches to which students have been exposed during much of their academic lives, it can be expected that they will experience short-term difficulties in adapting to study groups operating according to different approaches.

Conclusion and Recommendations

In this study, posttest student scores for the deep learning approach demonstrated significant differences depending on the students' learning style. As such, it was observed that students with the cooperative and competitive learning styles had higher scores in the deep learning approach than students with the avoidant, dependent, and participative learning styles. By contrast, students' posttest scores for surface learning demonstrated no significance differences regarding student learning styles, though an evaluation of the corrected means indicated that the surface learning scores were especially higher among students with the avoidant and dependent learning styles.

For future studies of the subject, the researchers recommend increasing the duration of the study activities and focusing more on different techniques of cooperative learning. In cooperative learning activities, it is important for students to have a favorable attitude toward cooperative learning, as well as for instructors and students to have a similar understanding of the cooperative learning activities being performed. For this reason, it is critical for instructors to pay attention to the preliminary preparation of cooperative learning activities, to consider the basic principles of cooperative learning, and to ensure an effective design for the teamwork discussion activities performed during cooperative learning. In this sense, the researchers also recommend that instructors pay attention to all of the abovementioned aspects while implementing cooperative learning and provide creative and authentic learning tasks and activities that will pique students' interest.

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The Effect of Cooperative Learning on the Learning Approaches of Students with Different Learning Styles

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Özet

Problem Durumu: "Nitelikli öğrenmeyi nasıl sağlayabiliriz?" sorusu eğitim bilimleri alanında yapılan çalışmaların odak noktasını oluşturan bir sorudur. Nitelikli öğrenenler kendi öğrenme süreçlerinin farkında olan, amaca ulaşmak üzere öğrenme sürecini planlı bir şekilde anlamlı kılmaya çalışan öğrenenlerdir. Nitelikli öğrenmeye yönelik bu yaklaşım, öğrencilerin bir öğrenme görevine yönelik kullandığı iki yaklaşımdan biri olan derin yaklaşım olarak da tanımlanır. Öğrenciler nitelikli bir öğrenme sürecinden uzaklaşarak ezberlemeye ve dışsal motivasyon odaklarına yöneldiğinde ise öğrenme yaklaşımlarının diğer bir boyutu olan yüzeysel öğrenme ortaya çıkar. Kalıcı ve anlamlı bir başka deyişle nitelikli öğrenmeye ulaşmak ise ancak nitelikli bir öğrenme sürecine odaklanan derin öğrenme yaklaşımını kullanan öğrenciler için olası görülmektedir. O zaman tüm öğrencilerde bu yaklaşıma doğru bir yönelimin sağlanması önemli görülmektedir. Ancak bireylerin öğrenmeye yönelik farklı yolları vardır; öğrenme sürecinde rol oynayan pek çok değişken bulunmaktadır. Bu çalışmada bu değişkenlerden biri olan öğrenme stilleri de araştırma sürecine dahil edilmiştir. Buradaki temel gerekçe bireylerin öğrenmeye yönelik farklı yolları olduğu ve öğretim süreci bu stillere uyduğunda öğrenmenin sağlanacağı düşüncesidir. Bu bağlamda önemli olan da farklı öğrenme stillerine sahip tüm öğrencilerin nitelikli öğrenmeler sağlayabileceği, derin öğrenmeye ulaşabileceği ortamların yaratılmasıdır. Böyle bir ortamı yaratmada en önemli faktör ise kullanılacak öğretim yöntemidir. İşbirlikli öğrenmenin farklı öğrenme stiline sahip öğrencilerde öğrenmeyi sağlayabildiği belirtilmektedir. Çünkü takımlar halinde çalışmak ve gerçek yaşam bağlamlarını oluşturmak öğrencilerin kritik düşünme becerilerini arttırır ve teoriyi uygulamaya dönüştürmelerini destekler; bu

yolla derin öğrenenler olmalarının da kapısını açar. Çünkü işbirlikli öğrenmede, etkinlikler öğrenenlerde derin ve zengin öğrenmeyi sağlamak üzere yapılandırılır. İşte bu özellikleri nedeni ile işbirlikli öğrenme hem öğrenme stillerine duyarlı bir öğretim ortamı yaratmada hem de derin öğrenmeyi sağlamada önemli bir fırsat sunmaktadır. Çalışmada ayrışık gruplar anlayışı ile farklı özellikler taşıyan bireyleri takım çalışması içinde bir araya getiren işbirlikli öğrenme anlayışına yönelik bir öğretim süreci düzenlenmiş ve bu yolla farklı öğrenme stiline sahip öğrencilere ulaşılması hedeflenmiştir. Burada sorulması gereken asıl soru ise farklı öğrenme stillerine sahip öğrencilere ulaşmak amacı ile gerçekleştirilen bu öğretimin öğrencilerin öğrenme işine daha derinlemesine girişmelerine fırsat sağlayıp sağlamayacağıdır. Bu noktadan hareketle çalışmada "işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin derin öğrenme ve yüzeysel öğrenme yaklaşımından aldıkları puanlar öğrenme stillerine göre farklılık göstermekte midir?" problemi odak noktasına alınmıştır.

Araştırmanın Amacı: Çalışmada nitelikli öğrenmenin öneminden hareketle, öğrenme stillerine duyarlı bir yapı içeren işbirlikli öğrenmenin öğrencilerin derin öğrenmeye yönelmesini sağlamadaki etkisinin belirlenmesi amaçlanmıştır. Bu amaç çerçevesinde iki probleme cevap aranmıştır. (1) Öğrencilerin derin öğrenme öntest puanları kontrol edildiğinde işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin derin öğrenme sontest puanları öğrenme stillerine göre farklılık göstermekte midir? (2) Öğrencilerin yüzeysel öğrenme öntest puanları kontrol edildiğinde işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin yüzeysel öğrenme sontest puanları öğrenme stillerine göre farklılık göstermekte midir?

Araştırmanın Yöntemi: Çalışmada tek grup öntest sontest deseni kullanılmıştır. Deneklerin bağımlı değişkene ilişkin ölçümleri uygulama öncesinde öntest, sonrasında sontest olarak aynı denekler ve aynı ölçme araçları kullanılarak elde edilmiştir. Çalışma grubunun belirlenmesinde bilgi açısından zengin durumlarda derinlemesine çalışılmasına izin veren amaçlı örnekleme yöntemi kullanılmıştır. Araştırma bir devlet üniversitesinde pedagojik formasyon sertifika programı kapsamında Özel Öğretim Yöntemleri dersini almakta olan 39 kişilik bir öğrenci grubu üzerinde yürütülmüştür. Araştırmada öğrencilerin öğrenme stillerini belirlemek amacıyla, Grasha–Riechmann Öğrenme Stilleri ölçeği kullanılmıştır. Öğrencilerin öğrenme yaklaşımlarını belirlemek için ise üniversite öğrencileri için geliştirilen Ders Çalışma Yaklaşımı Ölçeği kullanılmıştır. Altı hafta süreyle gerçekleştirilen işbirlikli öğrenme uygulamasının başında öğrencilerin öğrenme stilleri belirlenmiş, işbirlikli öğrenme uygulamasının başında ve sonunda Ders Çalışma Yaklaşımı Ölçeği uygulanmıştır. Araştırmanın tüm denenceleri için kovaryans analizi (Tek Faktörlü ANCOVA) kullanılmıştır. Kovaryans analizi uygulanmadan önce dağılımın normaliği, varyansların ve regresyon doğrularının eşitliği varsayımları karşılanmıştır. Kovaryans analizi kapsamında ortalama puanlarının çoklu karşılaştırılmasında LSD Testi kullanılmıştır. Anlamlılık düzeyi olarak, $p < .05$ değeri alınmıştır.

Araştırmanın Bulguları: Araştırmada derin öğrenme son uygulamasından alınan puanların öğrenme stillerine göre anlamlı bir farklılık gösterdiği bulunmuştur. Buna

göre; işbirlikli öğrenme ve yarışmacı öğrenme stiline sahip öğrencilerin; kaçınan, bağımlı ve katılımcı öğrenme stiline sahip öğrencilere göre derin öğrenme yaklaşımından daha yüksek puan aldığı görülmüştür. Çalışmada yüzeysel öğrenme son uygulamasından alınan puanlar ise öğrenme stillerine göre anlamlı bir farklılık göstermemektedir. Ancak düzeltilmiş ortalamalar incelendiğinde özellikle kaçınan ve bağımlı öğrenme stiline ait yüzeysel öğrenme puanlarının daha yüksek olduğu gözlenmiştir.

Araştırmanın Sonuçları ve Önerileri: Elde edilen bulgular ilgili literatür bağlamında değerlendirilerek yorumlanmış; uygulayıcı ve araştırmacılar için öneriler geliştirilmiştir. Bu kapsamda, deneysel araştırmalarda uygulama süresinin daha uzun tutulması ve işbirlikli öğrenmenin farklı tekniklerinin odak noktasına alındığı araştırmalara yönelinmesi önerilmektedir. Deneysel çalışmaların nitel boyut katılarak zenginleştirilmesi, daha derinlemesine bir analize de fırsat sağlayacaktır. İşbirlikli öğrenme uygulamalarında, öğrenenlerin işbirlikli öğrenmeye yönelik olumlu bir tutum içinde olmaları, yöntemin uygulanışına ilişkin uygulayıcı ve öğrenenlerin aynı anlayışa sahip olmaları da önemlidir. Ayrıca işbirlikli öğrenmenin temel ilkelerine özen gösterilmesi, özellikle takım çalışmasının tartışma sürecini iyi bir şekilde yapılandıracak şekilde kurgulanmasına da dikkat edilmelidir. Bu açıdan öğreticilerin uygulama sürecinde belirtilen boyutlara önem vermesi ve tüm öğrenenlerin ilgisini çekecek yaratıcı ve özgün öğrenme görevlerinin işe koşulmasının sağlanması da önerilmektedir.

Anahtar Sözcükler: İşbirlikli öğrenme, öğrenme stili, derin öğrenme, yüzeysel öğrenme

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Architectural Design Education Program for Children: Adaptation into Turkish Culture and Analysis of its Effectiveness

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Abstract

Problem Statement: Design, which is a process of creating, supports individuals' pursuit, experience and discovery, and contributes to the improvement of higher-order thinking skills. A systematic design education offered in the early years of life boosts especially creative thinking and problem solving skills as well as awareness of the environment and nature. Such education programs have been implemented continuously in Europe and America. However, in Turkey, there is no design education for children.

Purpose of the Study: This research aims to adapt into Turkish culture the Architectural Design Education Program for American preschool and primary school children aged 6-11 and to analyze its effectiveness in improving the design skills of Turkish children. The effectiveness of the program is examined within the sub-question if there are any statistically significant differences between the experimental groups instructed by adapted program and the control groups instructed by conventional activities in the concept of design skills exhibited through performance-based assessments particular to each instructional session.

Method: The Architectural Design Education Program was adapted into the Turkish culture through studies carried out with expert groups. In the academic year 2011-2012, 177 children were given this education program in a primary school in Ankara. These students constituted six

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experimental groups that represented all levels of grade/age (i.e. preschool and primary education from 1st to 5th year students/aged 6-11). On the other hand, a total of 167 children in six control groups received a program consisting of conventional activities. Analytic rubrics were used to assess, at the end of each instructional session, the products designed by children in line with performance tasks. With a view to comparing the design skills of children in different programs, Mann Whitney U-test for independent samples was used for analysis.

Findings: The analyses show that there are significant differences in the development of design skills between the experimental groups and the control groups at all levels of grade/age, and that the difference was in favor of the experimental groups.

Conclusion and Recommendations: The results show that all instructional activities carried out within the scope of the Architectural Design Education Program are effective in social, emotional and cognitive development of children aged six to 11, improving their higher-order thinking processes based on design skills. It is recommended that this interdisciplinary program, making use of mathematics, history, science and arts, should be integrated with basic areas of instruction in education programs so that its effectiveness can be enhanced.

Keywords: Children, design, creativity, problem solving, education.

Introduction

On a global level, creative thinking and the ability to bring about innovation are important factors in the development of society. Hence, The European Council agreed to declare 2009 the Year of Creativity and Innovation by defining the objective of the year as promoting creativity for the development of personal, occupational, entrepreneurial and social competences through lifelong learning (European Commission, 2008, p. 5). As the ability to think creatively has been crucial, Rauth, Köppen, Jobst, and Meinel (2010) stated that design is a way of expressing and improving this skill in a certain way. Design is defined as the process of presenting ideas to form a new product in order to bring an aesthetic harmony into the physical world through creativity and problem-solving skills (Lindberg & Meinel, 2010; Woodman, 1993; Zeisel, 2006).

Several researches that are theoretically based on environmental, architectural and experimental psychology showed that the design of spaces and psycho-social environments has a significant influence on people's—especially children's—values, attitudes, achievements and learning processes (Bresnahan, 2014; Şahin, Tantekin-Erden, & Akar, 2011; Taylor, 1993). Making individuals a part of the design process (in other words, teaching design beginning at an early age) utilises and improves problem-based learning and creativity (Faizi, Azaria, & Maleki, 2013; Kinchin & O'Connor, 2012; Lozanovska & Xu, 2012; Meskanen & Hummelin, 2010; Taylor,

1993). Based on the constructive and experimental properties of the design process, which provides opportunities for children that help them gain competency in aesthetic judgement and form their own personal relationships with the built environment, design is no longer a field of activity where only adult professionals produce. Accordingly, the architecture and design education for children and young people was discovered in the 1980s and particularly in the 1990s as a part of general education policies in various cultures and countries in the world such as Finland, Austria, Colombia, Norway, Spain, Estonia, Japan, Mallorca, Hungary, United Kingdom, the United States and Panama. Thus, during the last 20 years, the concept of designing with children has established its place not only in continuous education programs (e.g. the K-12 education program by the Boston Society of Architects-AIA titled Learning by Design and the after-school design activities by Arkki School of Architecture for Children and Youth in Finland), but also in institutional initiatives intended to create design-centric curriculums, pedagodical models and projects for schools, museums and youth clubs (Meskanen, 2004; Tekkaya-Poursani, 2009; Räsänen, 2014). One of the most well-known programs in this concept is the Architectural Design Education Program for Children (Taylor, 1993; Taylor & Vlastos, 1983; Taylor, Vlastos, & Marshall, 1991). This multi-disciplinary program, having been implemented in United States schools for approximately three decades, has been developed for preschool and primary school-aged children and aims to enable them to acquire design skills. Based on the premise that all individuals are designers, the program is of particular importance as it allows children to use their creativity and problem-solving skills in a way that supports various developmental areas and treats each and every space as a learning environment (Taylor, Aldrich, & Vlastos, 1988). This nature of the Architectural Design Education Program gains more importance considering that children become owners of the cultural heritage and architects or users of the architecture. However, in Turkey, there is no systematic design education for children.

Probably the only noteworthy study conducted in Turkey to develop children's perception of space was "1000 Architects in 1000 Schools" launched in 2002 by the Ankara Chamber of Architects. In this project, 1300 children were offered education to help them gain environmental and spatial awareness and a consciousness of urban life. However, the architects offering the program reported having had problems knowing how to involve children in design processes because they did not know much about children's cognitive developmental characteristics (Gözcü, 2005). This is a case illustrating the importance of the contribution of educational sciences to a design education program for children. The objectives of this study are defined as follows:

1. Adapt into Turkish culture the Architectural Design Education Program for children from preschool to the 5th year of primary education (ages six to 11).
2. Analyze the effectiveness of the Architectural Design Education Program in improving the design skills of children in the Turkish context.

The following sub-question was used to test the effectiveness of the program: "Are there any statistically significant differences between the experimental groups instructed by the adapted Architectural Design Education Program and the control groups instructed by conventional architectural design activities in the concept of design skills exhibited through performance-based assessments particular to each instructional session?"

Method

Research Design

The adaptation process is a qualitative study that involves arrangements and descriptive analyses required for the use of an American design education program in the Turkish culture. The effectiveness of the program was examined through a quantitative research of an experimental design. Within the scope of this model, the adapted program was used in the experimental groups, and the control groups were offered conventional design activities. Because performance-based assessments were performed after the design activities, a pre-test was not conducted; a posttest-only control group design was carried out.

Research Sample

Participants in the adaptation process of the Architectural Design Education Program. Experts were included in the adaptation process. The prerequisite was volunteering for the study. Criterion sampling was used for the establishment of expert groups. Accordingly,

- The criteria considered for the process of translating the program content into Turkish and back-translation were "a good mastery of the English language, a graduate degree in arts, aesthetics or design, and experience in the application of these fields." Two groups consisting of architects and experts in child development and preschool education who fulfill the above criteria worked on the linguistic equivalence of the program. Then, a new group consisting of architects and Turkish language experts, English language experts, program development experts, preschool educators, child development specialists, and educational assessment experts worked on the experiential, conceptual and semantic equivalence of the program.
- The criteria considered for redesigning the program with elements specific to the Turkish culture were "a graduate degree in arts, aesthetics or design, and experience in the application of these fields." In this vein, a group of architects and child development specialists, preschool educators, and program development experts made some revisions on the program. To finalize the program, each module was evaluated individually by a new group of experts.

Participants in the analysis process of the effectiveness of the Architectural Design Education Program. Children aged six to 11 participated in this process. One primary school, representing the middle socio-economic status, was selected through random sampling from the list, grouping the settlement areas in the provincial center of

Ankara by socioeconomic level provided by the Turkish Statistical Institute (TÜİK) and the list of primary schools affiliated with the Turkish Ministry of National Education (MEB). The school had a total of 30 classes during the academic year 2011-2012. Two groups representing each level of grade/age—a total of 12 classes—were selected randomly among these classes, each to be designated as the experimental and control groups. The distribution is provided in Table 1.

Table 1
Distribution of Children According to Grade/ Age Level and Gender

Grade/Age Level	*Experimental group (E)*			*Control group (C)*		
	Female	*Male*	*Total*	*Female*	*Male*	*Total*
Preschool/Age 6	8	13	21	9	6	15
1th Grade/Age 7	13	15	28	16	12	28
2nd Grade/Age 8	9	18	27	11	13	24
3th Grade/Age 9	14	15	29	12	15	27
4th Grade/Age 10	18	16	34	16	19	35
5th Grade/Age 11	21	17	38	16	22	38
Total			177			167

Before the study was conducted, the groups were tested to determine whether they were equivalent in terms of design skills. For this purpose, the Taylor-Helmstadter Pair Comparison Test of Aesthetic Judgement (Taylor, 1971; Taylor & Helmstadter, 1971), which was adapted into Turkish culture by Acer (2006) and which tends to measure children's susceptibility of art, design and aesthetic based on the Gestalt Theory of visual perception, was used. Two-way ANOVA for independent samples, used to examine whether there is a significant difference between children's mean scores by the group in which they take place (experimental/control), the level of grade/age and the common impact of group and level of grade/age, yielded the following results:

- Being in the experimental or control group does not result in any significant difference at any level of grade/age with regard to sensitivity to arts, design and aesthetics [$F_{(1\text{-}332)}=0.01$, $p>.01$].
- Children's scores differ significantly by the level of grade/age, and children's level of aesthetic judgment increases as their level of grade/age increases [$F_{(5\text{-}332)}=114.40$, $p<.01$].
- The common impact of being in different levels of grade/age and being in either the experimental or the control group on the scores of the children is not significant [$F_{(5\text{-}332)}=0.06$, $p>.05$].

Thus, at the beginning of the study, the randomized experimental and control groups were equivalent at each level of grade/age.

Research Instruments and Procedure

Adaptation of the Architectural Design Education Program. The first stage—translating the Teacher's Manual, including all objectives and instructional activities and assuring the linguistic, experiential and semiotic equivalence—was carried out by five expert groups, as described under the previous title. During the second stage, the experts made some revisions on the program. These are:

- adding to the instructional activities in the program some buildings such as the Selimiye Mosque in Edirne, the Irgandı Bridge in Bursa, etc. with which Turkish children may be familiar (Acer & Gözen, 2013),
- transforming the program into a more simple structure by dividing the original 13 education sessions into 16 sessions,
- specifying the objectives of each session by using the cognitive taxonomy for higher-order thinking skills suggested by Haladyna (1997) in order to more fully integrate the instructional activities with today's curriculum and educational assessment terminology, and
- defining additional skills for the design process such as analytical thinking, investigating, verbal and visual communication, visual thinking, and group interaction.

Subsequently, the experts were asked to evaluate each module in the program in terms of criteria such as purpose, technique/methods, materials, and testing. The program was finalized in line with their suggestions.

Administration of the Architectural Design Education Program. The administration was carried out in the academic year 2011-2012. Two educators gave the design curriculum, and two researchers of architecture supported the process. The programs were initially planned to last for 16 weeks, sparing three course hours in a week for each of the 16 sessions. However, the final three sessions of the adapted program involved outdoor activities and city tours. Since the program was implemented in the winter and the children's needs in tours could not be met, only the first 13 sessions of the program were completed.

Performance tasks and rubrics. At the end of each session, the children fulfilled different performance tasks. The phases of the construction of these tasks were: a) identifying cognitive behaviors intended to be observed and associating the performance with the content of the relevant field/subject, b) assigning the task, c) drawing up the instructions and, d) determining the method of rating. Design means a wide range of activities linking creativity and problem-solving. However, due to limitations of the study, the content of tasks is restricted to the design of two- and three-dimensional illustrations of spaces (e.g. plan drawing, collage work, poster design, garden design, object design, maquette construction, modelling, etc.). In some cases, these illustrations are supported by dynamic/kinesthetic design contexts including the expression of several objects with bodies, role playing/dramatization, and verbal and worded design including oral/written expressions. Considering that

assessment is an integral part of teaching and learning and it covers a whole range of judgements about students (Filer, 2000), a formative assessment tool (Mitchell, 2006)—an analytic rubric—was used in assigning the level of design skills of children based on each performance task. These task-special rubrics, which provide detailed information about the design skill levels of children with regard to differential aspects of the developmental characteristics of each age group (six to 11), differ in terms of the quality and the quantity of criteria (e.g. spatial awareness, visual thinking, surveillance, technical competence, detail and holistic esthetics, etc.) and sub-criteria (e.g. sensitivity to physical environment, imagination, flexibility, use of interdisciplinary concepts, quality of materials, etc.) they involve (Gözen & Acer, 2012).

The validity of the rubrics was evaluated by an expert group in terms of language and expression, appropriateness of context, and appropriateness with respect to measurement and evaluation. Identifying whether multiple raters using the same rating scale at the same time and/or in different periods produce consistent rating or, in other words, testing the reliability of the rubrics, was also an aim. In order to assign reliability, the Pearson product-moment correlation coefficient (Magnusson, 1967, p. 42) was used to examine the level of consistency between two educators on the basis of total scores obtained from the rubrics, and Cohen's Kappa formula (Krippendorff, 2004) was used to handle the level of consistency between the two educators on the basis of each criterion in the rubric. The analyses showed that there were highly positive and significant correlations ($0.92 \leq r_{xy} \leq 0.99$, $p < .01$) between the scores. This finding confirmed that there was consistency between the two raters, and that the rubrics were reliable in terms of the total scores of children. Moreover, the measurements by Cohen's Kappa formula indicated that the consistency value for each criterion in each rubric was significant ($0.42 \leq k \leq 1.00$, $p < .01$ and $p < .05$). This finding confirmed that the rubrics involved reliable criteria.

Data Analysis

As the equivalence of the groups was tested in terms of design skills at the beginning of the study, the significant difference in the mean scores by the level of grade/age, resulting in an increase in level of design skills as the level of grade/age increases, is rather an inevitable finding. Thus, Parsons (1976) states that children ages two to seven make aesthetic judgement using their assessment skills, which is a staple skill in the design process and which is also accepted as a crucial component of critical thinking (Gibson, 1995), in accordance with their instant individual choices. On the other hand, as the age level increases, children make more conscious preferences in their aesthetic judgements. This important finding played a formative role in the development of the performance tasks and rubrics; in this manner, all performance-tasks and task-special rubrics were also constructed as grade and age level-specific. Thus, either based on the nature of these tools and the purpose of the study, the mean design skill scores were compared within each level of grade/age, not reciprocally for different levels of grade/age. For the purpose of this comparison, given that the sample size and normality of distribution determine the type of statistics to be used to test significance, the non-parametric Mann Whitney U-test for

independent samples was used for the analysis. In the analyses, .01 and .05 levels of significance were adopted; and for data analyses, EXCEL 7.0 and SPSS 17.00 were used.

Results

In this part, the results related to the design skills of children ages six to 11 are presented, respectively. The findings of the first comparison for six-year-old children in differential groups are provided in Table 2.

Table 2
Comparison of Mean Scores of Preschool/ 6-Year-Old Children

Design Product	*Group*	*N*	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	*U*	*p*
1	E	21	16.33	5.34	24.24	509.00	16.00**	.00
	C	14	8.14	0.36	8.64	121.00		
2	E	17	48.12	12.95	21.88	372.00	2.00**	.00
	C	13	21.38	3.55	7.15	93.00		
3	E	19	21.63	8.05	22.32	424.00	32.00**	.00
	C	14	10.14	0.36	9.79	137.00		
4	E	20	30.50	9.45	22.50	450.00	0.00**	.00
	C	12	10.83	0.94	6.50	78.00		
5	E	17	26.65	7.56	21.79	370.50	37.50**	.00
	C	15	16.00	0.00	10.50	157.50		
6	E	21	12.38	3.01	23.00	483.00	0.00**	.00
	C	12	6.50	1.09	6.50	78.00		
7	E	21	53.14	3.93	23.00	483.00	0.00**	.00
	C	12	27.00	6.25	6.50	78.00		
8	E	14	13.57	4.57	17.07	239.00	48.00**	.00
	C	13	9.62	1.39	10.69	139.00		
9	E	19	28.95	9.85	20.50	389.50	9.50**	.00
	C	11	12.82	1.83	6.86	75.50		
10	E	20	75.00	0.00	24.50	490.00	0.00**	.00
	C	14	25.00	0.00	7.50	105.00		
11	E	20	38.25	10.29	22.50	450.00	0.00**	.00
	C	12	16.33	1.50	6.50	78.00		
12	E	21	92.00	0.00	25.00	525.00	0.00**	.00
	C	14	23.21	0.80	7.50	105.00		
13	E	17	42.00	11.07	20.00	340.00	0.00**	.00
	C	11	14.18	0.60	6.00	66.00		

**p<.01

In the preliminary stage, descriptive statistics showed that the total number of six-year-old children in the experimental group differed between 14 and 21 within different performance tasks whereas the interval was 11-15 for the control group. The biggest difference in the mean scores, which occurred between experimental and

control groups, was observed for the 12th design product [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=23.21] while the smallest difference in the mean scores was observed for the 8th [$\overline{X}_{E(8)}$=13.57 and $\overline{X}_{C(8)}$=9.62]. For all products, the design skill levels of children in the experimental group were higher than the levels in the control group. The results also showed that the scores obtained from all products differed significantly by whether children were in the experimental or the control group ($0.00 \leq U_{6[DP(1-13)]} \leq 48.00$, $p<.01$). This finding indicates that the instructional sessions of the adapted program are more effective than the conventional program in improving the design skills of children six years old.

Related to the scores that 1st grade primary school children aged seven received for each performance product, analysis yields the findings presented in Table 3.

Table 3
Comparison of Mean Scores of 1st Grade Primary School/ 7-Year-Old Children

Design Product	*Group*	***N***	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	***U***	***p***
1	E	25	14.92	3.91	30.04	751.00	199.00*	.03
	C	25	12.48	2.84	20.69	524.00		
2	E	26	53.88	12.51	35.85	932.00	17.00**	.00
	C	23	26.13	6.36	12.74	293.00		
3	E	26	21.81	7.57	35.06	911.50	115.50**	.00
	C	26	14.69	4.05	17.94	466.50		
4	E	24	23.92	8.55	35.83	860.00	88.00**	.00
	C	27	14.07	4.02	17.26	466.00		
5	E	26	38.42	11.19	35.94	934.50	66.50**	.00
	C	25	21.48	4.50	15.66	391.50		
6	E	26	12.46	3.57	34.37	893.50	107.50**	.00
	C	25	8.72	1.74	17.30	432.50		
7	E	27	53.85	0.77	38.00	1026.00	0.00**	.00
	C	24	24.54	6.39	12.50	300.00		
8	E	25	13.20	3.79	30.28	757.00	143.00**	.00
	C	23	10.00	1.65	18.22	419.00		
9	E	27	36.26	7.96	39.89	1077.00	30.00**	.00
	C	27	20.89	1.74	15.11	408.00		
10	E	27	75.00	0.00	40.00	1080.00	0.00**	.00
	C	26	20.00	3.41	13.50	351.00		
11	E	22	45.00	13.89	33.89	745.50	13.50**	.00
	C	23	24.61	4.46	12.59	289.50		
12	E	25	92.00	0.00	36.00	900.00	0.00**	.00
	C	23	27.17	1.50	12.00	276.00		
13	E	22	44.55	10.26	36.50	803.00	0.00**	.00
	C	25	14.68	1.07	13.00	325.00		

*p<.05 **p<.01

The total number of seven-year-old children in the experimental group differed between 22 and 27 within differential performance tasks, whereas the range is 23-27 in the control group. Descriptive statistics suggest that the children in the experimental group had significantly higher scores than the children in the control group with regard to products in all sessions and the maximum mean scores' difference was observed for the 12th design product [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=27.17] while the minimum difference was observed for the 1st [$\overline{X}_{E(1)}$=14.92 and $\overline{X}_{C(1)}$=12.48]. In addition, the average ranks within the U-test again showed the same results, presenting that the scores children obtained from all products differed significantly by the group in which they had been ($0.00 \leq U_{7[DP(1\text{-}13)]} \leq 199.00$, $p<.05$ and $p<.01$). As was the case for children six years old, this finding shows that the adapted program is effective in improving the design skills of seven-year-old children.

A similar analysis was conducted for eight-year-old children in the 2nd grade and analysis yields the findings provided in Table 4.

Table 4

Comparison of Mean Scores of 2nd Grade Primary School/ 8-Year-Old Children

Design Product	*Group*	*N*	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	*U*	*p*
1	E	27	22.63	5.86	32.15	868.00	77.00**	.00
	C	21	15.57	2.77	14.67	308.00		
2	E	22	55.50	12.91	33.59	739.00	20.00**	.00
	C	23	27.39	8.27	12.87	296.00		
3	E	26	31.23	9.80	33.35	867.00	56.00**	.00
	C	22	14.91	4.31	14.05	309.00		
4	E	22	21.82	4.36	24.14	531.00	118.00*	.03
	C	18	17.78	4.22	16.06	289.00		
5	E	26	33.23	4.35	36.50	949.00	0.00**	.00
	C	23	18.87	4.70	12.00	276.00		
6	E	25	17.00	3.82	31.40	785.00	40.00**	.00
	C	20	9.90	2.63	12.50	250.00		
7	E	27	54.00	0.00	34.00	918.00	0.00**	.00
	C	20	29.95	6.38	10.50	210.00		
8	E	21	15.95	3.75	29.43	618.00	54.00**	.00
	C	21	11.24	1.92	13.57	285.00		
9	E	26	34.27	5.67	33.50	871.00	0.00**	.00
	C	20	16.00	0.00	10.50	210.00		
10	E	27	75.00	0.00	35.00	945.00	0.00**	.00
	C	21	25.48	1.25	11.00	231.00		
11	E	24	49.38	9.36	32.50	780.00	0.00**	.00
	C	20	17.65	2.60	10.20	210.00		
12	E	27	92.00	0.00	34.00	918.00	0.00**	.00
	C	20	26.75	1.33	10.50	210.00		
13	E	26	46.85	10.43	34.50	897.00	0.00**	.00
	C	21	15.71	2.05	11.00	231.00		

*p<.05 **p<.01

In consideration of the differential performance tasks, the total number of eight-year-old children in the experimental group differed between 21 and 27, whereas the total number of children in the control group ranged between 18 and 23. Descriptive statistics showed that the maximum mean scores' difference was observed for the 12th design product between differential groups [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=26.75], while the minimum difference was observed for the 4th [$\overline{X}_{E(4)}$=21.82 and $\overline{X}_{C(4)}$=17.78]. Accordingly, checking whether their performance scores differed significantly by whether they were in the experimental or the control group yields findings which indicated that, among eight-year-old children, there was a significant difference in the level of design skills for all design products, and children in the experimental group had higher levels of skills ($0.00 \leq U_{8[DP(1\text{-}13)]} \leq 118.00$, $p<.05$ and $p<.01$). Along the same lines with the findings for children ages six and seven, the adapted program is effective in developing the design skills of eight-year-old children.

These analyses were followed by those for 3rd grade children at the age of nine and the findings are available in Table 5.

Table 5

Comparison of Mean Scores of 3rd Grade Primary School/ 9-Year-Old Children

Design Product	*Group*	***N***	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	***U***	***p***
1	E	28	29.00	5.72	39.71	1112.00	22.00**	.00
	C	26	15.04	3.32	14.35	373.00		
2	E	29	59.97	11.50	38.05	1103.50	27.50**	.00
	C	24	34.83	8.12	13.65	327.50		
3	E	27	32.33	8.11	38.72	1045.50	7.50**	.00
	C	25	13.72	3.30	13.30	332.50		
4	E	28	33.21	8.19	37.64	1054.00	24.00**	.00
	C	24	13.38	4.06	13.50	324.00		
5	E	29	42.97	11.39	34.02	986.50	28.50**	.00
	C	20	21.10	5.11	11.93	238.50		
6	E	28	16.07	4.16	37.25	1043.00	119.00**	.00
	C	27	10.26	1.51	18.41	497.00		
7	E	29	54.00	0.00	38.00	1102.00	0.00**	.00
	C	23	30.30	6.50	12.00	276.00		
8	E	28	16.96	2.83	41.00	1148.00	14.00**	.00
	C	27	9.74	1.77	14.52	392.00		
9	E	27	34.63	7.29	39.26	1060.00	20.00**	.00
	C	26	16.88	5.09	14.27	371.00		

Table 5 Continue

Design Product	*Group*	*N*	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	*U*	*p*
10	E	29	75.00	0.00	39.00	1131.00	0.00**	.00
	C	24	27.96	2.63	12.50	300.00		
11	E	29	47.07	11.14	38.38	1113.00	18.00**	.00
	C	24	25.50	4.53	13.25	318.00		
12	E	29	92.00	0.00	42.00	1218.00	0.00**	.00
	C	27	27.00	1.44	14.00	378.00		
13	E	27	45.11	11.21	37.00	999.00	0.00**	.00
	C	23	15.61	1.67	12.00	276.00		

**p<.01

The total number of nine-year-old children attending the experimental group differed between 27 and 29 whereas the interval was 20-27 for the control group within differential performance tasks. The maximum difference in the mean scores was observed for the 12th design product between differential groups [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=27.00] while the minimum difference was observed for the 6th [$\overline{X}_{E(6)}$=16.07 and $\overline{X}_{C(6)}$=10.26]. Moreover, it was observed that the level of design skills of nine-year-old children in the experimental group was higher compared to children in the control group with respect to all performance products; and the analyses indicate that the difference between the two groups was significant ($0.00 \leq U_{9[DP(1-13)]} \leq 119.00$, p<.01). As was the case in the previous groups, this finding suggests that the program adapted is effective in improving the design skills of nine-year-old children.

For 4th grade children at the age of ten, the significance of the differences between mean performance scores is provided in Table 6.

Table 6

Comparison of Mean Scores of 4th Grade Primary School/ 10-Year-Old Children

Design Product	*Group*	*N*	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	*U*	*p*
1	E	34	25.68	5.76	47.76	1624.00	93.00**	.00
	C	33	15.94	3.76	19.82	654.00		
2	E	32	50.94	8.73	47.83	1530.50	53.50**	.00
	C	33	32.33	5.88	18.62	614.50		
3	E	32	32.38	7.87	49.14	1572.50	11.50**	.00
	C	33	13.12	3.13	17.35	572.50		
4	E	34	30.59	8.14	49.91	1697.00	20.00**	.00
	C	33	15.48	3.32	17.61	581.00		
5	E	34	49.88	10.98	52.50	1785.00	0.00**	.00
	C	35	16.00	0.00	18.00	630.00		
6	E	33	14.70	3.74	41.27	1362.00	255.00**	.00
	C	32	10.97	1.33	24.47	783.00		
7	E	34	54.00	0.00	49.50	1683.00	0.00**	.00
	C	32	26.66	5.13	16.50	528.00		

Table 6 Continue

Design Product	*Group*	***N***	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	***U***	***p***
8	E	32	15.78	3.83	44.16	1413.00	171.00**	.00
	C	33	10.70	1.31	22.18	732.00		
9	E	32	36.09	6.98	51.50	1648.00	0.00**	.00
	C	35	12.97	1.58	18.00	630.00		
10	E	34	75.00	0.00	52.50	1785.00	0.00**	.00
	C	35	33.03	2.42	18.00	630.00		
11	E	31	48.87	10.22	49.68	1540.00	10.00**	.00
	C	34	21.32	5.19	17.79	605.00		
12	E	34	92.00	0.00	52.50	1785.00	0.00**	.00
	C	35	26.77	1.33	18.00	630.00		
13	E	32	45.94	10.20	48.50	1552.00	0.00**	.00
	C	32	16.31	2.26	16.50	528.00		

**p<.01

The total number of 4th grade children attending the experimental group differed between 31 and 34, whereas this interval was 32-35 for the control group within differential performance tasks. The maximum difference in the mean scores was again observed for the 12th design product between differential groups [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=26.77] whereas the minimum difference was observed for the 6th [$\overline{X}_{E(6)}$=14.70 and $\overline{X}_{C(6)}$=10.97]. Comparison of mean scores shows that the group variable yielded a significant difference in mean scores that children obtained for each design product, and that the difference was in favor of the experimental group ($0.00 \leq U_{10[DP(1\text{-}13)]} \leq 255.00$, p<.01). This finding is comparable with the findings related to other age groups, suggesting that the program adapted is more effective than conventional activities in improving the design skills of children aged 10.

The final analysis was with the data collected from 5th grade children at the age of 11. The findings obtained are presented in Table 7.

Table 7
Comparison of Mean Scores of 5th Grade Primary School/ 11-Year-Old Children

Design Product	*Group*	***N***	$\overline{X}$	S_x	*Mean Rank*	*Sum of Ranks*	***U***	***p***
1	E	34	24.91	6.22	46.71	1588.00	95.00**	.00
	C	32	16.13	2.69	19.47	623.00		
2	E	35	55.11	9.84	54.33	1901.50	23.50**	.00
	C	37	35.38	3.47	19.64	726.50		
3	E	34	28.26	8.55	49.75	1691.50	127.50**	.00
	C	36	17.03	4.23	22.04	793.50		
4	E	37	30.30	7.22	51.70	1913.00	122.00**	.00
	C	36	18.56	3.52	21.89	788.00		
5	E	38	48.00	0.00	54.50	2071.00	0.00**	.00
	C	35	26.20	5.60	18.00	630.00		
6	E	38	14.87	3.18	52.55	1997.00	188.00**	.00
	C	38	10.42	1.22	24.45	929.00		
7	E	38	54.00	0.00	51.50	1957.00	0.00**	.00
	C	32	24.94	4.97	16.50	528.00		
8	E	34	15.74	4.63	44.15	1501.00	318.00**	.00
	C	36	10.92	1.98	27.33	984.00		
9	E	34	35.91	5.62	49.50	1683.00	0.00**	.00
	C	32	16.00	2.65	16.50	528.00		
10	E	38	75.00	0.00	54.50	2071.00	0.00**	.00
	C	35	29.57	2.64	18.00	630.00		
11	E	33	51.82	8.46	49.33	1628.00	22.00**	.00
	C	33	29.30	4.10	17.67	583.00		
12	E	38	92.00	0.00	57.50	2185.00	0.00**	.00
	C	38	26.79	1.34	19.50	741.00		
13	E	35	45.20	10.23	53.83	1884.00	6.00**	.00
	C	36	19.92	2.51	18.67	672.00		

**p<.01

In consideration of the differential performance tasks, the total number of 11-year-old children in the experimental group differed between 33 and 38 whereas the total number ranged between 32 and 38 for the control group. Descriptive statistics showed that the maximum difference in the mean scores was observed for the 12th design product between differential groups [$\overline{X}_{E(12)}$=92.00 and $\overline{X}_{C(12)}$=26.79] whereas the minimum difference was observed for the 6th [$\overline{X}_{E(6)}$=14.87 and $\overline{X}_{C(6)}$=10.42]. Analysis showed that the mean scores of 11-year-old children obtained in all performance tasks were significantly different in favor of children in the experimental group ($0.00 \leq U_{11[DP(1\text{-}13)]} \leq 318.00$, $p<.01$). This finding, consistent with the

findings for children in the age group six to 10, suggests that the instructional sessions implemented within the Architectural Design Education Program are more effective than conventional activities to improve the design skills of children aged 11.

Discussion and Conclusion

In an increasingly complex and rapidly-evolving society, there is an ever-growing need for solid cultural competencies and up-to-date knowledge in teaching and learning processes. As a result, more than ever, the new problems faced by educational and socio-cultural services call for individuals capable of performing higher-order thinking skills. It is no wonder that today both public and private socio-education services have witnessed an increasing demand for individuals with creativity. As a matter of fact, as mentioned by Piaget (1970), the main purpose of education is to raise individuals that not only repeat what the former generations did but are also powerful enough to do something new. Today, this point of view still finds support. Mentioning the common education policies around the world (e.g. set by Greek Government Law 1566/1985, Greek Pedagogical Institute, 2003; Department for Education and Employment/Qualifications and Curriculum Authority, 2004; Qualifications and Curriculum Authority, 2005; Ministerial Council for Education, Early Childhood Development and Youth Affairs, 2008), Kampylis (2010) points out that creative thinking is among the key thinking skills that students need to develop through formal education. Accordingly, findings of several researches (Faizi et al., 2013; Kinchin & O'Connor, 2012; Lozanovska & Xu, 2012; Meskanen & Hummelin, 2010; Rauth et al., 2010; Räsänen, 2014; Ulaş-Dağlı, Paşaoğluları-Şahin, & Güley, 2013) validate that design education, as a base of knowledge about creativity, could provide many benefits to children and youth—and, therefore, to the future society—such as increasing creative problem-solving ability, developing self-confidence, improving social skills and cultural knowledge and reinforcing aesthetic value and other applicable skills. Consistent with these determinations and expectations, the findings of this study suggest that there are significant differences regarding the development of design skills.at all levels of grade/age between the experimental group that participated in the Architectural Design Education Program and the control group that participated in conventional activities. Based on these findings and discussions through the relevant literature on the concept of design, it is thought that this significant difference in terms of design skills indicates a subsequent improvement in many complicated, high-level cognitive qualities, including particularly creative thinking and problem-solving skills.

The results obtained and given, respectively, in line with the purposes of this study are of particular significance because they suggest that the instructional sessions implemented within the Architectural Design Education Program which was adapted into Turkish culture are more effective than conventional activities to improve the design skills of Turkish children aged six to 11. Given that this program provides a rich learning environment in psychological, educational and social terms, the children furnished with the behaviors that the program intends to yield are

expected to be individuals that have a deep understanding of and question themselves, the space in which they are and the city in which they live, think critically and creatively, solve problems effectively and have developed perceptions and awareness of the environment. As the awareness level of the individuals that take this program increases, they are expected to be more open to communication, express themselves comfortably, and carry out teamwork collaboratively. Furthermore, as their aesthetic judgment develops, they will internalize and enjoy the arts. These personality traits will allow them to transform creatively all other beings that they interact with. Thus, based on all of the discussions given, it is concluded that the Architectural Design Education Program, adapted into the Turkish culture, plays an effective role in improving children's design skills and is useful for the social, emotional and cognitive development of children.

It is important to support and develop the design competence of the individuals from an early age through appropriate design-based art education programs that mainly focus on spaces, senses and the creative problem-solving skills of children. Thus, the need for learning through the arts and from the arts exists already in the child. Architecture and design-based art education has not yet, however, become an established part of the curricula of schools. In this respect, it is recommended that the Architectural Design Education Program, a multidisciplinary program making use of various fields such as mathematics, history, science and arts, is integrated with preschool, primary and secondary education programs to enhance its effectiveness. It is also important to carry out studies to determine the effectiveness of the program in different age groups and to adapt the program for different age groups.

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Çocuklar için Mimari Tasarım Öğretim Programı:

Türk Kültürüne Uyarlanması ve Etkililiğinin Analiz Edilmesi

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Özet

Problem Durumu: Tasarım; özgün bir ürün oluşturmak üzere fikir, çizim, bilgi vb. bileşenlerin bağdaştırıldığı karmaşık bir süreçtir. Fiziksel dünyayı değiştirerek ona estetik bir uyum vermek üzere çocukların özgün fikirler ortaya atmalarını desteklemek, onlarda arayış, deneyim ve keşif sürecini desteklemekte, başta yaratıcı düşünme ve problem çözme becerisi olmak üzere diğer pek çok üst düzey düşünme becerisinin gelişimine katkıda bulunmaktadır. Bu nedenle, doğuştan tasarımcı olan her insanın bu yetisinin, uygun eğitim programları ile erken yaşlardan itibaren desteklenmesi ve geliştirilmesi son derece önemlidir. Çocuklara içinde bulundukları çevreye, doğaya ve mekanlara ilişkin söz hakkı tanımak ve yaratıcı düşünen, problem çözebilen, eleştirel düşünen, kültürel birikim ve sorumluluk sahibi bireyler olmalarına katkıda bulunmak, onlara verilecek sistemli bir tasarım eğitimi ile mümkündür. Ancak Türkiye'de, çocuklara yönelik bir tasarım eğitimi programı bulunmamaktadır.

Araştırmanın Amacı: Bu çalışmanın amacı; anaokulundan lise çağına kadar olan çocuklara tasarıma ilişkin bilgi ve becerileri kazandıran, yaratıcı düşünme ve problem çözme becerilerinin gelişimini destekleyen, onları içinde bulundukları eğitim mekânlarını tasarlayabilen, içinde yaşadıkları dünyaya duyarlı bireyler haline getirmeyi amaçlayan ve Amerika Birleşik Devletleri'nde 30 yıla yakın bir süredir uygulanan Çocuklar için Mimari Tasarım Öğretim Programı'nı okulöncesi ve 1-5. sınıf düzeyinde öğrenim gören 6-11 yaş grubu Türk çocukları için uyarlamak ve uyarlanmış programın etkililiğini analiz etmektir.

Araştırmanın Yöntemi: Mimari Tasarım Öğretim Programı'nın Türk kültürüne uyarlanması, uzman gruplarının çalışmalarıyla gerçekleştirilmiş, uyarlamanın farklı adımlarında o adımın içeriğine (orijinal programın Türk diline çevrilmesi, orijinal dile geri-çeviri süreci, programın içeriğinin deneyimsel, kavramsal ve anlamsal eşdeğerliğinin belirlenmesi, içeriğin Tük kültürüne özgü öğelerle donatılması ve incelenmesi) bağlı olarak ölçüt örnekleme tekniğiyle oluşturulmuş beş farklı uzman grubu görev almıştır. Programın etkililiğinin belirlenmesinde son-test kontrol gruplu deneysel bir çalışma yürütülmüştür. Uyarlanan program 2011-2012 öğretim yılı güz

döneminde 13 hafta boyunca, Ankara ili merkez ilçesinde bulunan orta sosyoekonomik düzeydeki bir ilkokulun okulöncesi ve 1-5. sınıf düzeylerinde öğrenim görmekte olan 6-11 yaş arasındaki toplam 177 çocuğa uygulanmıştır. Bu çocuklar, her bir sınıf/yaş düzeyini temsil eden altı farklı deney grubunu oluştururken, aynı özelliklere sahip altı kontrol grubunda yer alan toplam 167 çocuğa ise daha geleneksel etkinliklerden oluşan bir program uygulanmıştır. Programın uygulanması süresince, her bir oturum sonrasında çocuklara mimari tasarım odaklı performans görevleri verilmiştir. Görevler doğrultusunda tasarlanan iki ve/veya üç boyutlu ürünler ise araştırmacı tarafından geliştirilen, geçerli ve güvenilir araçlar oldukları kanıtlanan göreve-özel analitik dereceli puanlama anahtarları ile değerlendirilmiştir. Bu anahtarlar ile yapılan değerlendirmelerin sonuçları, çocukların tasarım becerisi düzeylerinin göstergesi olarak tanımlanmıştır. Farklı yaş gruplarındaki çocukların estetik yargı açısından tercih yapma ve karar verme süreçlerindeki gelişimsel farklılıklar, tasarım odaklı performans görevlerinin ve her bir göreve özgü dereceli puanlama anahtarının geliştirilmesi sürecinde biçimlendirici bir rol oynamıştır. Tüm performans görevleri ve görevlere özel anahtarlar aynı zamanda "sınıf düzeyine ve yaşa özel" bir yapıya da sahip olacak şekilde (yaş gruplarına göre farklı sayıda ve nitelikte değerlendirme ölçütleri içerecek biçimde) geliştirilmiştir. Ölçme araçlarının bu yapısı ve araştırmanın amacı göz önünde bulundurularak, programın uygulandığı deney grubunda ve geleneksel tasarım etkinliklerini içeren öğretim programının uygulandığı kontrol grubunda yer alan çocukların tasarım ürünlerine dayalı performans puanlarının ortalamaları, farklı sınıf/yaş düzeyleri için karşılıklı olarak değil, her sınıf/yaş düzeyi için kendi içinde karşılaştırılmıştır. Bu karşılaştırmada, örneklem büyüklüğünün kullanılacak istatistiğin türü açısından belirleyici olması göz önünde bulundurularak parametrik olmayan bir istatistik olan ilişkisiz ölçümler için Mann Whitney U-testinden yararlanılmıştır. Analizlerde .01 ve .05 manidarlık düzeyleri benimsenmiş, EXCEL 7.0 ve SPSS 17.00 paket programlarından yararlanılmıştır.

Araştırmanın Bulguları: İstatistiksel analizler sonucunda; 13 farklı performans görevi ürününe dayalı tasarım becerilerinin gelişimi açısından, deney ve kontrol grupları arasında tüm sınıf/yaş düzeylerindeki deney gruplarının lehine manidar farklar elde edilmiştir.

Araştırmanın Sonuçları ve Önerileri: Yaratıcı düşünme; temel düzeydeki örgün eğitim ile geliştirilmesi zorunlu olan bir anahtar düşünme becerisidir. Tasarım eğitimi ise yaratıcılığın gelişiminde önemli bir görev görmektedir çünkü tasarımın kendisi başlı başına bir yaratma etkinliğidir. Bu araştırmanın bulguları, Türk kültürüne uyarlanan Mimari Tasarım Öğretimi Programı'nın 6-11 yaş çocuklarının tasarım becerilerini geliştirmede etkili bir program olduğunu göstermiştir. Programın, bu etkisiyle, çocukların başta yaratıcı düşünme ve problem çözme becerisi olmak üzere üst düzey düşünme süreçlerine dayalı bilişsel, sosyal ve duygusal gelişimlerini desteklediği söylenebilir. Bu göz önünde bulundurularak, matematik, tarih, fen ve sanattan yararlanan, çoklu zekaya dayalı ve disiplinler arası bir program olan Mimari Tasarım

Öğretimi Programı'nın, okulöncesi, ilkokul, ortaokul ve lise öğretim programlarındaki temel öğrenme alanları (dil bilgisi, matematik, fen ve teknoloji, sanat vb.) ile bütünleştirilmesi ve böylece etkililiğinin artırılması önerilmektedir.

Anahtar Sözcükler: Çocuk, tasarım, yaratıcılık, problem çözme, eğitim.

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Investigation of the Relationship between Learning Process and Learning Outcomes in E-Learning Environments

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Abstract

Problem Statement: Learners can access and participate in online learning environments regardless of time and geographical barriers. This brings up the umbrella concept of learner autonomy that contains self-directed learning, self-regulated learning and the studying process. Motivation and learning strategies are also part of this umbrella concept. Taking into consideration learning processes and outcomes together, Biggs' *3P* model of learning is used as the theoretical framework. The first *P* was defined as learning presage and included learning inputs such as learner variables, prior knowledge, learner readiness, personality, etc. The second *P* was considered the learning process, which covers learner motivation and learning strategies. The last *P* was suggested as learning outcomes (product) which consist of the results of formal and informal assessment, perceived learning, self-concept, satisfaction, etc.

Purpose of Study: In this study, we especially considered the learning process and the learning outcomes and investigated the effects of learning process on learning outcomes. In addition, we took into consideration the two dimensions of learning outcomes as *a)* perceptions of learning, and *b)* performances of learning, respectively. Also, we investigated the relationship between learners' perceptions of learning and performance of learning.

Methods: Relational scanning model was used based on the 3P model. Within the Computer Networks and Communication Course, 68 students participated in the study. Study Process Questionnaire, Online Learning

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Perception Scale and performance test were used to identify student learning processes and outcomes. Associations between these psycho-educational constructs were examined through Structural Equation Model (SEM).

Findings and Results: According to SEM analysis, learners' approaches to learning have a significant effect on their perception of learning. Conversely, the effects of surface approaches on learners' perception of learning was not statistically significant ($p>.05$). Whereas deep strategy approaches have significant effects on performance of learning, the relationship between deep motivation and performance of learning was not significant. Performance of learning was negatively affected by surface approaches ($p<.05$). Interestingly, there was no significant relationship between perceived and actual learning performance.

Conclusions and Recommendations: Results showed autonomous learners (those with deep strategy and motivation) have better perceived learning outcomes. However, having deep motivation and high perception of learning is not necessarily correlated with high performance. This asserts that performance in an online learning environment independent of learner's motivation and perception about learning. One possible reason is that assessment of perception of learning is norm- referenced, while performance of learning is criterion referenced.

Keywords: E-learning, learning management system, perception of learning, performance of learning, learning outcomes.

The use of web technologies in distance education is currently increasing. In this setting, learners generally use online learning activities which are structured in accordance with instructional design bases. The quality of online interactions and learning activities is examined in the context of instructional design, while learners' approaches to these interactions and activities are considered as learner characteristics. Learner characteristics focus on two points: learner motivation and learning strategies. These two components are also named as approaches to learning. Because online learning began in higher education, and andragogical learning is more prominent than pedagogical learning for higher education, learner motivation and strategies are crucial in the higher education context. Effective learning in online learning environments is facilitated when the learner participates responsibly and motivationally in the learning process. Andragogical learning is the essential concept of self-directed learning, self-regulated learning and autonomous learning (Knowles, 1979). According to these learning approaches, an efficient learning process depends on a learner's self-knowledge, self-motivation and utilization of learning strategies.

In higher education, learner autonomy is one of the key concepts that make learners responsible for their own learning process, and autonomy is an umbrella concept covering the concepts of self-directed learning, self-regulated learning, and the studying process (Tanyeli & Kuter, 2013). The common components of these psycho-learning constructs, taken as part of the learning process, are the motivation

and learning strategies of learners. Mutlu and Eröz-Tuğa (2013) defined learner autonomy as acquiring learning strategies and the methods of using these strategies that lead learners to taking control of their own learning. Taking into consideration the learning processes and the outcomes, Biggs' *3P* model of learning is used as the theoretical framework. The first *P* was defined as learning *presage* and includes learning inputs such as learner variables, prior knowledge, learner readiness, personality, etc. The second *P* was considered as the learning *process* which covers learner motivation, learner behavior, and learning strategies. Finally, the last *P* was suggested as learning outcomes (*product*) which consist of the results of formal and informal assessment, perceived learning, self-concept, satisfaction, etc.

Approaches to learning are psycho-educational constructs that consist of a learner's motivation and strategies (Biggs, 1982; Enwistle & McCune, 2004). This construct is examined in two dimension; deep learning and surface learning. Deep and surface learners and their learning outcomes in the online environment are the main objectives of this study. Learning outcomes mean perception of learning and performance of learning.

Deep and surface learning/learner

Although learners engage with the same content in the same class, they learn in different ways. In an educational context, these different ways are referred to as *approaches to learning* (Biggs, 1994; as cited in Lee, 2013). According to Diseth and Martinsen (2003: 195), "Approaches to learning refers to individual differences in intentions and motives when facing a learning situation, and the utilization of corresponding strategies." Individual differences arise from different personalities and motivations (Enwistle & McCune, 2004). Based on descriptions, approaches to learning consist of learner motivation and learning strategies (Biggs, 1982; Enwistle & McCune, 2004). These variables are also components of learner autonomy (Moore, 1972). According to Struyven, Dochy, Janssens and Gielen (2006), approaches to learning are not characteristics of learners, but are choices determined by learners based on context.

Marton and Säljö (1976) firstly distinguished between deep and surface approaches; they defined the deep approach as being intrinsically interested in the topic and making an effort to understand the content (as cited in Baeten, Struyven & Dochy, 2013). In the surface approach, on the other hand, learners are extrinsically motivated to avoid failure, and they tend to work with a lot of information in a given period of time and mechanically store it (Baeten, Struyven & Dochy, 2013; Enwistle & McCune, 2004).

When definitions of deep and surface approaches are examined, they are associated with Ausubel's rote and meaningful learning. According to Ausubel, learners learn in different ways; therefore, they have different achievement scores under the same conditions. These different perspectives refer to rote and meaningful learning. Ausubel (1968) distinguished between rote and meaningful learning as follows;

> Meaningfully and rotely learned materials are learned and retained in qualitatively different ways because potentially meaningful learning tasks are, by definition, relatable and anchorable to relevant established ideas in cognitive structure. They can be related to existing ideas in ways making possible the understanding of various kinds of significant (derivative, correlative, superordinate, combinatorial) relationships… Rotely-learned materials, on the other hand, are discrete and relatively isolated entities that are relatable to cognitive structure only in an arbitrary, verbatim fashion, not permitting the establishment of the above-mentioned relationships (p.107-108).

According to definitions, rote learning is related to the surface approach and meaningful learning is related to the deep approach. However, characteristics of the deep approach demonstrate more elaborated than meaningful learning. In the literature, some of the characteristics of deep learners are listed as follows (Klinger, 2006):

- willing to understand learning material
- interact with content intensively and critically
- become actively interested in the course content
- integrate ideas and establish cause-and-effect relationship
- associate ideas with prior knowledge and experiences
- be aware of own learning and improvement
- creating new information from information that was collected, using hypotheses and quotes

On the other hand, surface learners memorize the information in order to pass exams and achieve higher grades; they do not try to understand relationships between concepts or think about how to apply information in different ways (Laird, Seifert, Pascarella, Mayhew & Blaich, 2014).

Internet-based information and communication technologies provide flexible and motivating learning environments based on interaction and collaboration, and this type of environment fosters deep and meaningful learning (Garrison & Kanuka, 2004). In parallel with the developments in information and communication technologies, online learning environments are becoming increasingly common. Köksal and Çöğmen (2013) stated that lifelong learning requires an individual to participate in his/her own learning, and a growing interest in lifelong learning in higher education and supportive learning environments are became a necessity. In online learning environments, self-directed and self-regulated learners who take responsibility for their own learning and determine their learning goals and necessities are required (Bracey, 2010). In such an environment, a learner's success depends not only on taking responsibility for his/her own learning but also

following an appropriate strategy. Learners following the deep strategy can most benefit from the online learning environment.

In online learning, learners' approaches to learning are influenced by some individual and environmental factors. According to Struyven et al. (2006), one of the factors that influences student approaches to learning is the learning environment itself. Student-activated learning environments and alternative assessment methods can deepen student approaches to learning. The study also concluded that student approaches to learning are dynamic concepts which are changeable based on learners' educational experiences. Individual factors include learner motivation, prior knowledge, learner interest in the topic and prior skills; whereas, content, teaching and presentation method, presentation time and learning environment are environmental factors (Platow, Mavor & Grace, 2013). Depending on these factors, learners adopt deep or surface approaches to learning. For further insight into this issue, it is useful to review the literature. Kyndt, Dochy, Struyven & Cascallar (2011) investigated the effect of motivation on student approaches to learning; in an authentic learning context, students were asked to undertake different assignments and their perception of workload was measured. According to the results, under high workload conditions, autonomously motivated learners primarily adopted a deep approach to learning. Beccaria, Kek, Huijser, Rose & Kimmins (2014) investigated the impact of group work on student approaches to learning in higher education with regard to Biggs' 3P model. Their study focused on the presage and process components of the model and examined the relationships between students' individual characteristics, group work and approaches to learning. Researchers found that individual characteristics (age) and metacognitive awareness within the group work were the predictors of adoption of deep approaches to learning. Paechter, Maier & Macher (2010) investigated students' expected e-learning course characteristics and course experiences as they related to their perceived learning achievement and course satisfaction. Researchers found that students' perceived learning outcomes are affected by their achievement goals because they make more effort to learn. As course outcomes, students' e-learning experiences are influenced by instructor support and expertise. The structure of course and learning materials, stimulation of learner motivation and facilitation of collaborative learning are other factors that affect students' perceived learning outcomes. Gijbels, Van de Watering, Dochy and Van den Bossche (2005) examined the relationship between students' approaches to learning and learning outcomes based on problem-based learning. In their study, Biggs, Kember and Leung's (2001) Study Process Questionnaire, final exam results of the course were used to determining learning outcomes. The results of a correlational analysis showed no relationship between students' approaches to learning and problem-based learning outcomes.

In reviewing the literature, it is clearly necessary to investigate the effects of study processes on learning outcomes in e-learning environments in higher education. Learning outcomes refers to a set of observable and demonstrable statements about what the learner knows and understands at the end of the learning experience or course (Yueng & Ong, 2012). Therefore, in addition to students' self-

reported experiences, it would be helpful to examine performance of learning in order to understand e-learning course success. This study took place in an online learning environment, and learning is discussed as perceived learning and actual learning. Perception of learning is reflected in the learner's self-reported quality and quantity of learning. According to Fritzsche (1977), perception of learning shapes the learner's challenge and attitude towards learning content and environment. The term 'challenge' is related to the learner's intrinsic or extrinsic motivation. The deep approach to learning is controlled by intrinsic motivation (Biggs, 1993, 1994; as cited in Lee, 2013). Consequently, perception of learning is related to motivation; motivation is associated with approaches to learning.

In this study, relations between the process (approaches to learning) and product (perception of learning and academic achievement) dimensions of the 3P model are investigated. The correlations are shown in Figure 1. In the study, the following hypotheses were tested:

H1: There is an effect of *using deep strategy* on the learner's *perception of learning*.

H2: There is an effect of *using surface strategy* on the learner's *perception of learning*

H3: There is an effect of *using deep strategy* on the learner's *performance of learning*.

H4: There is an effect of *using surface strategy* on the learner's *performance of learning*.

H5: There is an effect of *using deep motivation* on the learner's *perception of learning*.

H6: There is an effect of *using surface motivation* on the learner's *perception of learning*.

H7: There is an effect of *using deep motivation* on the learner's *performance of learning*.

H8: There is an effect of *using surface motivation* on the learner's *performance of learning*.

H9: There is a relationship between *the perception of learning* and the *performance of learning*.

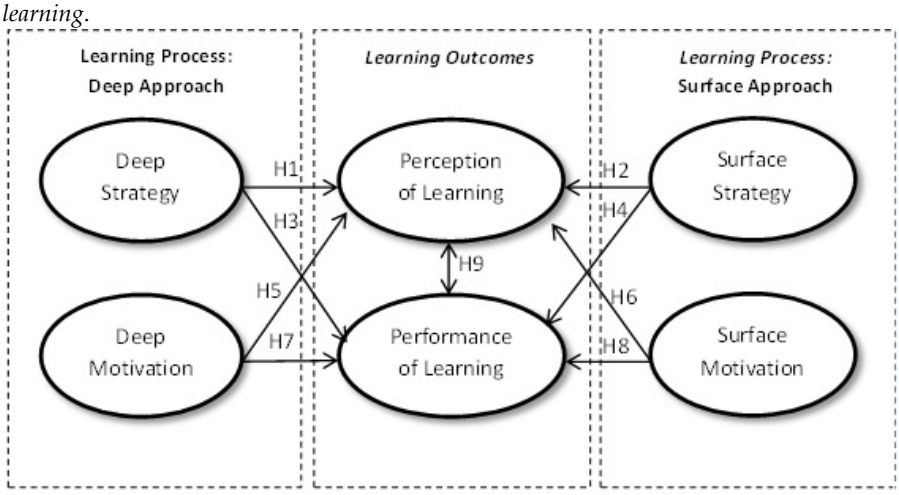

Figure 1: Pattern and hypothesis of the study

Method

Research design

In this study we examined interrelationships among psycho-educational constructs appearing in Biggs' 3P model. Correlational research study is carried out in an e-learning course. In order to investigate relations between process and product aspects of the learning environment, structural equation modeling was used.

Research Sample

A total of 68 the participants in this research were undergraduate students in a CNC course. All participants had previous experience with online courses. Because of this, we were not concerned with the mediated and/or moderated effects of learner experiences on learning process (Haverila, 2012). The course was on a learning management system (LMS) developed to allow the three types of interactions (learner-content, learner-instructor, and learner-learner) defined by Moore (1989; as cited in Sims, 2003).

Research Instruments

To measure the students' *learning outcomes,* two measurement tools were used separately at the end of the course. The first was administered to the participants to measure the students' *perception of learning*. This questionnaire (Online Learning Perception Scale- OLPS) was developed by researchers for this study and includes 6 items on a Likert–type scale. The items in this scale are given in Table 1.

Table 1.
The Items on OLPS

Through this online learning environment, I have experienced meaningful learning about course content.
Through this online learning environment, I have better learned concepts in course content.
This online learning environment reduced my learning quality.
This online learning environment encouraged me in the course.
It was enjoyable learning in this online learning environment.
This online learning environment increased my interest in course topics.

The data set obtained from OLPS was analyzed with confirmatory and exploratory factor analysis. According to the results in Figure 2, uni-dimensionality of the scale scores are demonstrated. Thus, factorial validity of OLPS was assured and we could sum item scores on OLPS.

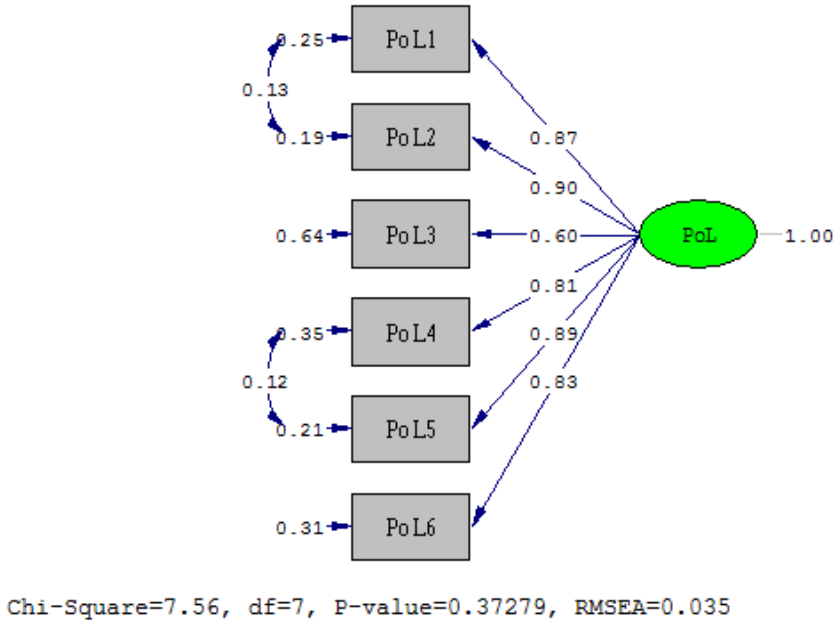

Figure 2: Factorial structure of OLPS (PoL: Perception of Learning)

To determine students' academic achievement, a 20-item multiple choice achievement test was designed on a blueprint of this course for content validity and administered to obtain the students' *performance of learning* in terms of summative assessment. The test was prepared for the content of the CNC course and in this test every right answer was coded as 1, the wrong answers were coded as 0, and the total of right answers demonstrated a student's academic achievement score. The coefficient alpha was found at .76 demonstrating internal consistency of the achievement scores.

In this study, to determine the students' approaches to learning in the *learning process,* we used the Study Process Questionnaire (SPQ) developed by Biggs (1987; as cited in Biggs, Kember, and Leung, 2001) and revised by Biggs, Kember, and Leung (2001). This R-SPQ-2F scale was adopted into Turkish by Batı, Tetik, and Gürpınar (2010). The scale consists of 20 items and 2 sub-dimensions; 10-items on this scale measure the deep approach (da) to learning and the other 10-items measure the surface approach (sa) to learning. In the reliability analysis, for each sub-dimension Cronbach-alpha values were calculated. For the deep approach, Cronbach's Alpha was 0.77, and for the surface approach, this value was calculated as 0.80. Also, the deep and surface approaches were themselves separated into deep strategy (ds) and deep motivation (dm); surface strategy (ss) and surface motivation (sm).

Procedure

Initially students had six weeks of online learning experience in a LMS. Throughout the course all students actively participated in the online learning environment. At the end of this period, students had SPQ, OLPS and an achievement test.

Data Analysis

After the online learning process, we examined learners' approaches to learning, perception of and performance of learning and interrelations among these variables (Figure 1). Each of these variables is a psycho-educational construct; we used a structural equation model to examine the relationships. The Structural Equation Model was based on covariance and therefore sensitive for sample size (Tabachnick & Fidell, 2007). In this study our sample was limited to 68 students. This number may cause initial hesitation, but in our structural model, data-model fit indices are satisfied. This is explained by MacCallum, Widaman, Zhang and Hong (1999), that although sample size is small, in the case where quality measurement (communality values) is high, the sample is qualified to represent the population[3].

Results

Descriptive statistics of learners' *perception of* and *performance of learning* in an online learning environment are shown in Table 2.

Table 2.
Descriptive Statistics of Learners' Perception of and Performance of Learning

	N	*Means*	*Sd*	*Min*	*Expected Rank Value*	*Max*
Perception of Learning	68	27.2	8.77	6	24	42
Performance of Learning	68	8.07	3.47	1	9	17

Table 2 presents descriptive statistics for the *perception of learning* scale and the multiple choice achievement test. According to this, students had higher average scores than expected when ranking value for *perception of learning*. Students' scores of *performance of learning* are an approximate rate of the expected rank value. These values were obtained from different scales and could not be directly compared. Because of this, expected rank values were compared, instead of means of scores. In consideration of this, while the mean of *perception of learning* exceeded the rank value, the mean value of *performance of learning* could not exceed the rank value. Accordingly, we can assume that in online learning environments students' perceived learning scores higher than their actual learning scores. Descriptive

[3] In this study process we ensure learners' active involvement. Throughout the process we share the purpose and findings of the study with students, and questionnaires have been answered reliably.

statistics about students' preferences of approaches to learning in each sub-scale of SPQ are presented in Table 3.

Table 3.
Descriptive Statistics of Students' Scores in Each Sub-Scale of the SPQ

Sub Scales	***Mean***	***Std. Deviation***
Dm	15.32	2.84
Ds	16.66	2.95
Sm	12.75	3.40
Ss	15.00	2.80

Table 3 shows learners' scores in the study process approaching each sub-scale of the SPQ. In SPQ, because each sub-scale consists of an equal number of items, we compared scores of sub-scales directly. According to this, the maximum mean score of participants is ds (16.66), and the second is dm (15.32). According to this, learners mostly follow a deep approach to learning.

Effects of approaches to learning on perception of learning

Learning outcomes in the e-learning process are affected by learner motivation, learning strategies and the way the learner performs learning activities. In this study, as seen in Figure 1, learners' navigation-interaction behaviors in an e-learning system (e-learning experiences) are excluded from study and psycho-educational variables (approaches to learning, perception of and performance of learning) are included in a causative model. This model is analyzed based structural equation model principles and has produced some structural parameters. As demonstrated in Figure 1, we analyzed the *direct effects* of each sub-dimension of approaches to learning on learning outcomes instead of total effects. In this way, ds, dm, ss and sm are turned into unrelated variables (Kline, 2011: 166), and so structural parameters (also hypothesis in Figure 1) indicate each of the sub-dimensions' direct effects on learning outcomes. Goodness of fit indices of model-variable are CFI=0.90, GFI=0.92, NNFI=0.92, and RMSEA=0.06. According to these values, data-model fit is satisfied. The structural parameters obtained by estimating the models were given schematically in Figure 3 and numerically in Table 4.

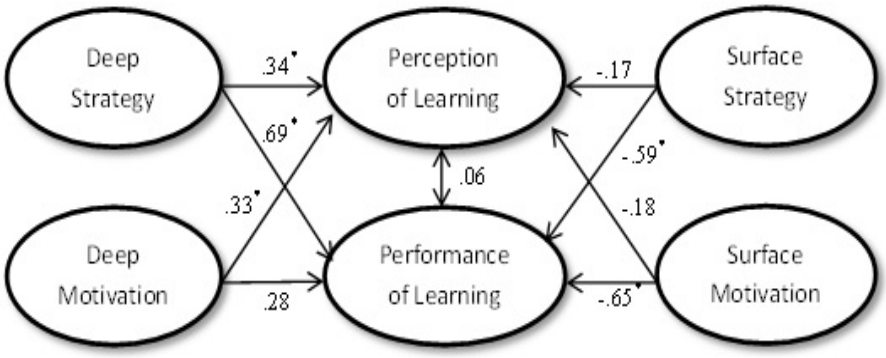

Figure 3: Relationships between approaches to learning and learning outcomes

As shown in Figure 3, deep motivation and deep strategy have a positive and significant effect on learners' perception of learning (H1 and H5 were confirmed). On the other hand, sub-dimensions of surface motivation and surface strategy have negative but not significant effect on perception of learning (H2 and H6 not confirmed). Accordingly, perception of learning is directly affected by the deep approach and is independent of the surface approach. Correlations are also shown in Table 4.

Effects of approaches to learning on performance of learning

The effect of deep strategy on performance of learning is significant; deep motivation, on the other hand, has no significant effect. A remarkable finding is that learners' performance of learning is negatively affected by the surface approach sub-dimensions. According to this, it is said that in an online learning management system, having surface motivation and strategy lead to ineffective performance. Effects of approaches to learning sub-dimensions on learners' performance of learning are shown in Table 4.

Table 4.
Correlations Between Learning Processes and Outcomes

		Learning Outcomes			
		Perceptions of Learning		***Performances of Learning***	
Learning Processes	Sub-scales	□	T values	□	T values
	Ds	0.34* (*H1*)	2.42	0.69* (*H3*)	2.13
	Dm	0.33* (*H5*)	2.17	0.28 (*H7*)	1.41
	Ss	-0.17 (*H2*)	-0.98	-0.59* (*H4*)	-2.22
	Sm	-0.18 (*H6*)	-1.29	-0.65* (*H8*)	-2.76
	Correlation	0.06 (*H9*)			

(*) is significant at $p \leq 0.05$ and □□ is standardized structural regression parameters

As shown in Table 4, deep strategy has a positive effect on performance of learning (H3 was confirmed). The effect of deep motivation on performance is not significant (H7 was not confirmed). Correlations between sub-dimensions of the surface approach (surface strategy and surface motivation) and performance of learning are negatively significant (H4 and H8 confirmed negatively). The last finding, surprisingly, was that there is no correlation between learners' perception of learning and performance of learning (r=0.06). Therefore, H9 was not confirmed.

In this study, learners taking the CNC course had an online learning experience in an LMS. After the learning period, there was a significant effect noted from the deep approach (both deep strategy and deep motivation) on perceived learning. In addition, learners' perception of learning is independent for the surface approach.

Discussion and Conclusion

In online learning environments deep learners have higher perceived learning outcomes than surface learners. Rote learners who have a fear of failure and focus only on passing exams have low perceptions of learning, while deep learners have more positive perceptions about the learning environment and perceived achievement than surface learners (Geçer, 2012; Parpala, Lindblom-Ylänne, Komulainen, Litmanen & Hirsto, 2010). The surface approach to learning has negative effects on learner performance of learning. Meanwhile, the abovementioned rote learners have failed in online learning environments. Lazarević and Trebješanin (2013) found significant positive correlation between the deep approach and academic achievement of prospective teachers.

The last finding of this study, perception of learning, demonstrated no significant effect on performance of learning. One probable reason for this finding is that perception of learning is norm referenced, while performance of learning is criterion referenced. While learners interact and discuss with each other (discussion environments in LMS), their perception about what they learned may change. In addition, in a well-structured learning environment, the quality of interactions (learner-learner or learner-teacher) may affect learners' perception of learning. Sims (2003) stated interrelationships between learner–learner, learner–content, learner–teacher and learner–interface interaction allow learners to feel comfortable and involved, make students more active and in control of the environment and process. On the other hand, in online courses, learners tend to compare their learning with peers and they shape a relative learning perception.

In this study it is found that autonomous learners have higher perception of learning; learning performance was independent of learner motivation. Learning strategies are a crucial element for achieving online learning goals for autonomous learners. Another finding is that performance of learning and perception of learning are independent from each other. In an online learning environment, with learner-learner interaction (Moore, 1972) cause perception of learning is norm referenced. As

learners' roles change in distance learning, their perceptions about learning change. In an online setting, perception of learning is affected by a well-constructed environment, interaction among learners and teacher and quality of discussions (Sun, Tsai, Finger, Chen & Yeh, 2008). According to Paechter, Maier and Macher (2010), in an e-learning environment learners' perceived learning outcomes (perception of learning and satisfaction) are influenced by many factors: course structure, facilitation of collaborative learning and the stimulation of learning motivation. In this study learners who have deep motivation but do not follow deep strategy have not produced high-performance learning. One possible reason is that some of the course objectives were not meet to learners' achievement goals.

In this study, online CNC allowed interactions among students and teacher and facilitated discussions at any time. We can assume that these interactions and discussions increase learner interest in online courses and positively affect learners' perception of learning. Similarly, the positive correlation between learning perception and deep motivation is related to motivated learners' efforts to achieve course objects.

Deep motivation reflects a learner's interest in the learning material and it affects learning positively. Contrary to the literature, deep motivation and academic performance are not correlated in this study. This shows that intrinsic motivation does not increase achievement in any way. According to Martens, Gulikers ve Bastiaens (2004), deeply motivated learners in an online learning environment tend to be interested in different content, while students with high intrinsic motivation have more curiosity, so that does not mean that they achieve better grades every time. Zainal et al. (2012) point out that deep and intrinsic motivation affect learners' perceived learning but do not estimate academic success.

In conclusion, academic performance is not determined only by approaches to learning. Following a deep strategy has a significant effect on performance of learning; however, deep motivation and perception of learning do not predict high performance every time. Because perception of learning is based on a learner's self-reported learning level, it is different from performance of learning which is assessed by achievement tests. In addition, a learner may have a good experience in an online LMS and his/her perception may be positive. However, in a limited period of time, making satisfying academic performance was influenced by many other factors. According to Lee (2013), we hope that following a deep approach will lead to high academic performance, but other factors should be taken into account. Teaching and evaluation techniques, structure of course and learning material, and learner's workload in a unit may be counted among these factors. Future research is necessary to reveal other factors that affect learning outcomes in an online learning setting.

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Çevrimiçi Öğrenme Ortamlarında Öğrenme Süreçleri ve Öğrenme Çıktıları Arasındaki İlişkinin İncelenmesi

Atıf:

Yurdugül, H.& Menzi Çetin, N. (2015). Investigation of the relationship between learning process and learning outcomes in e-learning environments. *Eurasian Journal of Educational Research, 59*, 57-74
http://dx.doi.org/10.14689/ejer.2015.59.4

Özet

Problem durumu: Geleneksel öğrenme ortamlarından çevrimiçi ortamlara geçişte öğrenen profili de değişime uğramıştır. Zaman ve mekan kısıtlaması olmaması çevrimiçi öğrenme ortamlarında bireyi bağımsız hale getirerek öğrenen özerkliği kavramını gündeme getirmiştir. Bireyin kendi öğrenmesinin sorumluluğunu almaya yönelik becerisi şeklinde tanımlanan özerklik, öz-düzenlemeli öğrenme, öz-güdümlü

öğrenme ve üstbiliş çalışma süreçlerini içine alan bir şemsiye kavramdır. Birer psiko-eğitsel yapı olan motivasyon ve öğrenme stratejileri de bu şemsiye kavramın altında yer almaktadır. Biggs ve Moore'un önerdiği öğrenmede 3P modeli, öğrenme süreçleri ve çıktıları için uygun bir kuramsal çerçeve sunmaktadır. Modele göre ilk *P* (presage),öğrenme sürecinin öğrenen ile ilgili değişkenlerini, öğrenenin ön bilgilerini, kişilik özelliklerini ve hazır bulunuşluğunu ifade etmektedir. İkinci *P* (process), öğrenme sürecinde bireyin motivasyonu, davranışları ve öğrenme stratejilerini içermektedir. Diğer bir deyişle süreç değişkeni belirli bir öğrencinin girdi unsurlarını ele alış biçimini göstermektedir. Son *P* (product) ise öğrenme çıktılarının niteliği ve niceliği ile ilgilidir. Öğrenme ürünlerinin formal ve informal değerlendirmesi, algılanan öğrenme ve tatmin düzeyi bu sürecin öğeleridir. Bu çalışmada modelin süreç ve çıktı değişkenleri üzerinde durularak öğrenme süreçlerinin öğrenme çıktıları üzerindeki etkisi incelenmiştir. Öğrenme çıktıları ise a)algılanan öğrenme düzeyi ve b) gerçekleşen öğrenme düzeyi olarak iki farklı formda ele alınmış, aynı zamanda bu iki öğrenme çıktısı arasındaki ilişki incelenmiştir.

Araştırmanın amacı: Bu çalışmada 3P modelinin süreç ve çıktı değişkenleri üzerinde durularak öğrenme süreçlerinin öğrenme çıktıları üzerindeki etkisi incelenmiştir. Öğrenme çıktıları a)öğrenme algısı ve b)öğrenme performansı olmak üzere iki boyutta ele alınmış, öğrenme algısı ile öğrenme performansı arasındaki ilişki incelenmiştir.

Araştırmanın Yöntemi: Çalışmada 3P modeli temelinde ilişkisel araştırma deseni kullanılmıştır. Bilgisayar Ağları ve İletişim dersine devam eden lisans düzeyinde 68 öğrenci çevrimiçi öğrenme ortamında Öğrenme Yönetim Sistemi aracılığıyla öğrenme yaşantısı geçirmişlerdir. Çalışmada öğrencilerin öğrenme çıktılarını belirlemek amacıyla iki farklı ölçme aracı kullanılmıştır: a) Algılanan öğrenme düzeyi, 6 maddeden oluşan Çevrimiçi Öğrenme Algısı Ölçeği ile belirlenmiştir. Ölçekte yer alan 6 maddenin öz değeri 1'den büyük tek faktör altında toplandığı görülmüştür. Araştırmacılar tarafından geliştirilen ölçeğin Cronbach Alfa değeri .93 olarak bulunmuştur. b) Gerçekleşen öğrenme düzeyini ortaya koymak amacıyla 20 maddelik akademik başarı testi uygulanmıştır. Uzman görüşleri ve dersin kazanımlarına dayalı olarak kapsam geçerliği sağlanan bu testin iç tutarlık katsayısı .76 olarak bulunmuştur. Araştırmada kullanılan üçüncü ölçme aracı olarak öğrenenlerin öğrenme yaklaşımlarını (derin ve yüzeysel) Öğrenme Yaklaşımları Ölçeği kullanılmıştır. Belirtilen psiko-eğitsel yapılar arasındaki ilişkiler Yapısal Eşitlik Modellemesi (YEM) ile incelenmiştir.

Araştırmanın Bulguları: YEM analizine göre öğrenenlerin öğrenme yaklaşımları öğrenme algısı üzerinde anlamlı bir etkiye sahiptir. Diğer yandan yüzeysel yaklaşımın öğrenme algısı üzerinde anlamlı bir etkisi görülmemiştir ($p>.05$). Derin strateji yaklaşımı öğrenme performansını olumlu yönde etkilerken derin motivasyon ve öğrenme performansı arasında anlamlı bir ilişki ortaya çıkmamıştır. Öğrenme performansı yüzeysel yaklaşımlardan olumsuz yönde etkilenmektedir ($p<.05$). Beklenmeyen bir şekilde algılanan öğrenme ile öğrenme performansı arasında anlamlı bir ilişki ortaya çıkmamıştır.

Araştırmanın Sonuçları ve Önerileri: Sonuçlar özerk öğrenenlerin (derin strateji ve motivasyona sahip) algılanan öğrenme çıktılarının daha yüksek olduğunu göstermektedir. Çevrimiçi öğrenme sürecinin sonunda öğrencilerin algılanan

öğrenme düzeyleri üzerinde derin yaklaşımın (derin strateji ve derin motivasyon) anlamlı bir etkisi görülmüştür. Buna ek olarak; öğrenme algısı yüzeysel yaklaşım düzeylerinden etkilenmemektedir. Burada ortaya çıkan sonuca göre; mekanik öğrenmeyen ve not kaygısı taşımayan öğrencilerin öğrenme algıları yüzeysel öğrenenlere göre daha yüksek bulunmuştur. Öğrencilerin öğrenme algıları yanı sıra öğrenme performansları üzerinde yüzeysel yaklaşımın (surface strategy and surface motivation) negatif ve anlamlı bir etkisi bulunmuştur. Bir diğer ifade ile öğrenmeden daha çok not kaygısı olan öğrencilerin başarıları daha düşük çıkmıştır.

Akademik başarı ile derin strateji arasında pozitif yönde ve anlamlı bir ilişki olduğu görülürken derin motivasyon alt boyutunda anlamlı bir ilişki gözlenmemiştir. Bu bulguya göre derin yaklaşımın her iki alt boyutunun bağımsız hareket ettiği söylenebilir. Son olarak algılanan ve gerçekleşen öğrenme düzeyleri arasında anlamlı bir ilişki ortaya çıkmamıştır. Çevrimiçi öğrenme yaşantısı sonucunda edinilen öğrenme algısı öğrencinin akademik başarısına yansımamıştır. Bu durum norma dayalı bir ölçüm olan algılanan öğrenme düzeyinin öğrencilerin kişisel beyanlarına dayanması ve öğrencinin çevrimiçi ortamda (discussion environments in LMS) iletişime girdikçe diğer öğrencilerden daha iyi öğrendiğini düşünmesi ve kendi öğrenmesini diğerleriyle kıyaslamasından kaynaklanıyor olabilir. Özetle tercih edilen öğrenme yaklaşımı ve öğrenme algısının akademik başarıyı tam anlamıyla etkilemediği ortaya çıkmıştır. Derin strateji yaklaşımını izlemenin başarı üzerinde anlamlı bir etkisi vardır ancak derin motivasyona sahip ve öğrenme algısı yüksek olan bireylerin her zaman yüksek performans sergilemediğini söyleyebiliriz. Gelecek çalışmalarda, çevrimiçi öğrenme ortamlarında öğrenme çıktılarını etkileyen bir takım çevresel değişkenlerin tespit edilerek incelenmesi süreçteki değişkenlerin açığa çıkması bakımından faydalı olacaktır. Çevrimiçi öğrenme ortamlarında kullanılan öğretim ve değerlendirme yöntemi, ders içeriği ve yapısı, işyükü (workload), ortamın teknik özellikleri vb. bu değişkenlerden bazıları olabilir.

Anahtar Sözcükler: E-öğrenme, öğrenme yönetim sistemi, öğrenme algısı, öğrenme performansı, öğrenme çıktıları.

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The Relationship between Teachers' Emotional Labor and Burnout Level[1]

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Abstract

Problem Statement: In the present educational perception, teachers are expected to fulfill many roles, such as becoming role models for students, guiding them, teaching them to learn and instilling democratic attitudes and values within them. In addition, teachers should be in collaboration with the school administration, colleagues, parents and other stakeholders for effective teaching and learning. While fulfilling these roles, teachers should make a conscientious effort not to reflect their personal problems onto their relationships in schools, and should try to behave in compliance with formal and informal norms as professionals. However, it is possible to predict that the regulation of emotions may have a negative impact on teachers in terms of their psychology. Burnout can be described as one of those impacts.

Purpose of the Study: The purpose of this research is to determine the relationship between teachers' emotional labor and burnout level.

Method: The sample for this survey study consists of 410 teachers working in the schools located in the city center of Kütahya. The data was collected

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using the Emotional Labor Scale and the Burnout Scale. Descriptive statistics, t-tests, ANOVA and regression analysis were used for analyzing the data.

Findings: Results indicate that the teachers exhibit surface acting the least in terms of emotional labor. This is followed by deep acting and naturally-felt emotions. In terms of burnout, teachers have the highest burnout level when they experience emotional exhaustion, which is followed by a lack of personal accomplishment and depersonalization, respectively. Results of the regression analysis show that surface acting and naturally-felt emotions are the important predictors for both emotional exhaustion and the depersonalization of teachers. However, deep acting does not have a significant impact on emotional exhaustion and depersonalization. Teachers' lack of personal accomplishment is predicted by all aspects of emotional labor. Aspects of emotional labor, as a whole, explain 7% of the emotional exhaustion level of teachers, 16% of depersonalization, and 15% of the lack of personal accomplishment.

Conclusion and Recommendations: This study considers emotional labor as a role that should be taken by teachers as a part of their occupational professionalism. However, it is possible that the roles expected from teachers may be based on dominance, non-professional or unethical behaviors. Thus, it is important to reveal the reasons behind teachers' surface acting behaviors. Therefore, designing such studies on the basis of a qualitative approach will contribute to a deeper understanding of these behaviors.

Key Words: Burnout, emotional labor, public schools, teachers

Introduction

The teaching profession is, by nature, an occupation directly related to human beings; therefore, as in all other human-intensive professions, it requires a regulation of emotions. This phenomenon, which may be called emotional labor, is also expected from teachers as a professional requirement. Teaching is an educational profession with individual, social, cultural, scientific and technological aspects. In the present educational perception, teachers are expected to take upon themselves a variety of roles, such as becoming role models for students, guiding them, teaching them to learn, and instilling democratic attitudes and values upon them. In addition, teachers should be in collaboration with the school administration, colleagues, parents and other stakeholders for effective teaching and learning. While fulfilling these roles, teachers should make a conscientious effort not to reflect their personal problems onto their relationships in schools, and should try to behave in compliance with formal and informal norms as professionals. However, it is possible to predict that the regulation of emotions may have a negative impact on teachers in terms of their psychology. Burnout can be stated as one of those impacts. This study aims to

determine the impact of teachers' emotional labor on their burnout level. In this regard, this study deals primarily with emotional labor and burnout, followed by the relationship between emotional labor and burnout based on literature.

Emotional Labor

Emotional labor in organizational life may be defined as employees regulating and managing their emotions while doing their jobs, as well as exhibiting professional behaviors (Morris & Feldman, 1996). Emotional labor, in this regard, is accepted as a kind of impression management (Eroğlu, 2010). Hence, employees are able to manage the social perceptions toward them through emotional labor. Emotional labor is considered to be more about observable behaviors than the internal management of emotions (Ashforth & Humphrey, 1993).

There are different classifications regarding emotional labor behaviors in the literature; however, this difference is caused by perspective rather than components of emotional labor. For instance, Morris and Feldman (1996) consider emotional labor under four dimensions attracting the attention to frequency, duration and intensity of exhibiting such behavior as well as rules of behaviors. Emotional labor research, in general, focuses on how employees exhibit behaviors expected from them. In this context, previous emotional labor behaviors shown under two dimensions, surface acting and deep acting (Hochschild, 1983), have been supplemented by an expression of naturally-felt emotions in the following studies (Diefendorff, Croyle, & Gosserand, 2005).

Surface acting is the act of employees hiding their real feelings, yet having different emotional exhibitions towards others in organizations. This means that employees pretend to feel with their words and body language although they do not, in reality, feel these emotions (Ashforth & Humphrey, 1993; Basim & Begenirbas, 2012). Deep acting is an individual's efforts to try to really feel those emotions that he is required to feel because of the rules of behavior. In deep acting, emotions are actively encouraged, suppressed or shaped (Basim & Begenirbas, 2012). This means that the individual tries to feel that behavior. Hence, empathy skills are at stake in deep acting (Rupp, McCance, Spencer, & Sonntag, 2008). Here, the individual puts himself in another's place before exhibiting a behavior, and acts on the basis of his forecast of the other's reaction to potential behavior.

Naturally-felt emotions do not include an 'obligation' as in surface or deep acting, yet employees reflect their emotions as they feel (Basim & Begenirbas, 2012). The fundamental difference between these three dimensions is the level of internalization of behaviors. Surface acting involves non-internalized behaviors, while naturally-felt emotions involve internalized emotions. The internalization level in deep acting is more than that of surface acting, but less than naturally-felt emotions.

Burnout

Burnout is defined as a physical, emotional and mental state observed in people in constant face-to-face professional interaction with other people, involving physical fatigue, long-term exhaustion, desperateness and hopelessness, as well as the concept

of a negative self, feeling of inefficiency and negative attitude towards others (Maslach & Jackson, 1981). Maslach (1981) examined three dimensions of burnout: 'emotional exhaustion,' 'depersonalization,' and 'lack of personal accomplishment.'

Emotional exhaustion. This is when an individual feels overwhelmed and has lost their own emotional resources due to their occupation (Maslach & Jackson, 1981). Emotional exhaustion is the most fundamental component of burnout syndrome. As an internal dimension of burnout, emotional exhaustion describes situations of physical and emotional fatigue.

Depersonalization. As a reaction to emotional exhaustion, employees exhibit mean, indifferent, and cynical behaviors towards others deprived from their senses (Maslach & Jackson, 1981).

Lack of personal accomplishment. This is when an individual is inclined to assess himself in a negative manner. This situation is seen in employees as a decrease in feelings of accomplishment and an increase in personal inefficiency beliefs. Additionally, it indicates low motivation, lack of control, despair, and even loss of self-respect (Maslach & Jackson, 1981).

Relationship between Emotional Labor and Burnout

Emotional labor is one area of research that has attracted attention in the literature in recent years. In this regard, there have been numerous studies on the relationship between emotional labor and several variables under various sample groups. Participant groups in such studies are naturally those occupational groups with intensive human relationships. Since emotional labor may be defined as the management of emotions and behaving accordingly, such studies have generally focused on the relationship between emotional labor and the attitudes and behaviors of employees. A review of the literature shows that there are studies of the relationships between emotional labor and burnout (Erickson & Ritter, 2001; Hochschild, 1983; Morris & Feldman, 1996). There are also, although limited, a number of studies conducted on teachers' emotional labor and level of burnout, which is the purpose of this study (Chang, 2009; Hargreaves, 2000; Isenbarger & Zembylas, 2006; Lois, 2006; Naring, Briet, & Brouwers, 2007; Noor & Zainuddin, 2011; Sutton & Wheatley, 2003; Zhang & Zhu, 2008). Nonetheless, it has been possible to uncover only one research in Turkey on this subject matter (Basim, Begenirbas, & Yalcin, 2013), where the researchers examined the impact of elementary and high school teachers' personality characteristics on emotional exhaustion, and the intermediary role of emotional labor behaviors. In this context, the purpose of this research is to determine the relationship between teachers' emotional labors and their burnout level. To this aim, answers have been sought for the following research questions:

1. What is the level of teachers' emotional labor and burnout?

2. Do teachers' emotional labor and burnout levels differ according to gender, marital status, school type and subject matter?
3. Does the emotional labor of teachers predict their level of burnout?

Method

This study used the survey method in order to determine the relationship between teachers' emotional labor and their burnout level.

Research Sample

The population of this study was 5,600 teachers working in the Kutahya province of Turkey during the 2013-2014 academic year. A disproportionate cluster sampling method was employed to select the participant teachers. The sample size was calculated as 360 for a 95% confidence level. It was decided to seek responses from 500 teachers to allow for a low response rate and for non-usable surveys due to imprecise completion. Data analysis was conducted with 410 precise data collection tools. Of all of the participants, 43.7% are female (n=179), and 56.3% male (n=231); 14.6% (n=60) are school administrators whereas 85.4% (n=350) are teachers; 26.8% (n=110) work in elementary education schools, 34.6% (n=142) in general high schools, 26.3% (n=108) in vocational high schools, and 12.2% (n=50) in traditional high schools; 26.6% (n=109) are classroom teachers, 60.7% (n=249) are subject matter teachers, and 12.7% (n=52) are vocational teachers. Time in service varies from one to 41 years. The percentage of teachers with less than 10 years of service is 56.1% (n=230), for 10–19 years, 30.5% (n=125), and for 20 years or more of service, 13.4% (n=55). Seventy-one percent of the participants (n=291) are married, 28% (n=115) are single, and 1% (n=4) are divorced or separated.

Research Instruments

The Emotional Labor Scale and Maslach Burnout Inventory were used as data collection tools in this study. The Emotional Labor Scale was developed by Diefendorff et al. (2005) and adapted to Turkish by Basim and Begenirbas (2012). The Emotional Labor Scale includes 13 Likert-type items to determine the emotional labor levels of teachers. The Emotional Labor Scale is comprised of surface acting, deep acting, and naturally-felt emotions. Scale items are scored from "1-Never" through "5-Always." There aren't any reverse-scored items in the scale. Participants do not receive a total score from the overall scale. The higher the score, the higher the emotional labor level of teachers for that particular dimension. Explanatory and confirmatory factor analyses were conducted for construct validity of the scale by Begenirbas (2012). As a result of the explanatory factor analysis, factor loading values of the scale were reported to be 0.53-0.81 for surface acting, 0.72-0.88 for deep acting, and 0.82-0.89 for naturally-felt emotions. Surface acting dimension explains 34.09% of total variance on its own, while deep acting explains 20.99%, and naturally-felt emotion explains 11.47%. Confirmatory factor analysis was applied to the scale's 13-item structure, grouped under three factors at the end of the explanatory factor

analysis. Confirmatory factor analysis was used to calculate chi-square (x2) statistical significance levels (x2/sd=4.32) suitable for the established model. Other goodness of fit indexes (GFI=0.96, AGFI=0.93, RMSEA=0.064, CFI=0.96) also indicated goodness of the proposed model. Reliability of the scale was examined through Cronbach's Alpha coefficient. This coefficient was 0.84 for surface acting dimension, 0.90 for deep acting dimension, and 0.83 for the naturally-felt emotions dimension. Reliability of the scale was re-tested in this study, and Cronbach's Alpha coefficients were found to be 0.84 for surface acting, 0.85 for deep acting, and 0.77 for naturally-felt emotions.

Developed by Maslach and Jackson (1981), the Maslach Burnout Inventory was adapted to Turkish by Ergin (1992). Maslach Burnout Inventory includes 22 Likert-type items to determine the level of burnout. The Maslach Burnout Inventory is comprised of three dimensions: Emotional Exhaustion, Depersonalization and Personal Accomplishment. Scale items are scored from "1-Never" through "4-Always." Items under the Personal Accomplishment dimensions are reverse-scored. That is why this dimension is named 'lack of personal accomplishment' in this study, and is interpreted accordingly. Scores obtained from the scale are explained as follows: 0.00-0.79 (very low), 0.80-1.59 (low), 1.60-2.39 (moderate), 2.40-3.19 (high), and 3.20-4.00 (very high). In the Turkish adaptation process, Cronbach's Alpha reliability coefficients were found to be 0.83 for the emotional exhaustion dimension, 0.71 for depersonalization, and 0.72 for the personal accomplishment dimension. Reliability coefficients obtained within this study, on the other hand, were 0.82 for emotional exhaustion, 0.72 for depersonalization, and 0.79 for personal accomplishment.

Data Analysis

Descriptive analysis was used to determine the teachers' emotional labor and burnout levels, t-test for dual comparisons, and one-way analysis of variance (ANOVA) for comparisons with three or more dimensions. For significant F values, the Tukey test was used to determine the source of significance. Multiple regression analysis was also used to determine whether teachers' emotional labor predicts burnout level in a significant manner. A correlation coefficient between 0.70-1.00 as an absolute value was interpreted as a high level of relationship, between 0.69-0.30 as a moderate level of relationship, and between 0.29-0.00 as a low level of relationship (Buyukozturk, 2005).

Results

This section primarily reveals findings regarding the participants' emotional labor and burnout levels. Then, it tries to determine to what extent the emotional labor has predicted their burnout level.

Respondent teachers exhibited surface acting the least (M=2.51, S=0.95) in terms of emotional labor. This was followed by deep acting (M=3.71, S=0.92), and naturally-felt emotions (M=4.16, S=0.72). In terms of burnout, teachers possess the

highest burnout level for emotional exhaustion (M=1.51, S=0.70), which was followed by personal accomplishment (M=1.36, S=0.63) and depersonalization (M=1.03, S=0.77). The burnout level of teachers is medium for the emotional exhaustion dimension, and low for personal accomplishment and depersonalization dimensions.

Teachers' emotional labor differs according to variables such as gender, marital status, responsibility, school type, and subject matter expertize. Male teachers are more inclined to perform surface acting compared to female teachers [$t_{(408)}$=3.10; p<.05]; married teachers to single teachers [$t_{(408)}$=2.62; p<.05]; and school administrators to teachers [$t_{(408)}$=2.24; p<.05].

Teachers, on the other hand, exhibit more natural emotions compared to school administrators [$t_{(408)}$=2.10; p<.05]. In addition, elementary education teachers tend to exhibit more surface acting [$F_{(3\text{-}406)}$=4.13; p<.05] and deep acting [$F_{(3\text{-}406)}$=2.62; p<.05] compared to traditional high school teachers, and more naturally-felt emotions [$F_{(3\text{-}406)}$=6.69; p<.05] compared to traditional and vocational high school teachers.

Table 1.
Multiple Regression Analysis Results for Prediction of Emotional Exhaustion Level

	B	*Standard error*	*β*	*T*	*p*	*Zero-order*	*Partial*
Constant	1.502	0.240	-	6.262	0.00	-	-
1. Surface acting	0.173	0.036	0.233	4.777	0.00	0.24	0.23
2. Deep acting	-0.007	0.038	-0.009	-0.191	0.84	-0.01	-0.01
3. Natural emotions	-0.096	0.048	-0.099	-1.982	0.04	-0.13	-0.10
R=0.26; R^2=0.07			$F_{(3\text{–}406)}$=10.03, p=0.00				

Burnout levels of teachers do not differ according to gender, marital status or position (school administrator or teacher); however, they do differ according to school type. The depersonalization level of teachers working in vocational high schools [$F_{(3\text{-}406)}$=4.53; p<.05] is higher than those teachers working as elementary education teachers. The tables show the results obtained from the regression analysis conducted to determine to what extent teachers' emotional labor predicts burnout level. Table 1 gives the results of the multiple regression analysis conducted to see whether teachers' emotional labor predicts their emotional exhaustion level.

According to Table 1, there is a positive but low relationship between the emotional exhaustion dimension of burnout and surface acting dimension of emotional labor (r=0.24), and the negative yet low relationship with naturally-felt emotions (r=-0.13). There is no statistically significant relationship between deep acting and emotional exhaustion. Based on a review of other variables, a positive yet low relationship has been found between emotional exhaustion and the surface

acting dimension of emotional labor (r=0.23), and the negative yet low relationship with naturally-felt emotions (r=-0.10). All dimensions of emotional labor give a low, significant relationship with teaches' emotional exhaustion levels (R=0.26, p<0.01).

According to standardized regression coefficient (β), the relative order of importance of predicting variables on teachers' emotional exhaustion are naturally-felt emotions, surface acting, and deep acting. Having examined the results of t-tests regarding the significance of regression coefficients, surface acting and naturally-felt emotions have been seen as important predictors of the emotional exhaustion of teachers. Nonetheless, deep acting is not significantly effective on emotional exhaustion. All dimensions of emotional labor explain 7% of emotional exhaustion levels of teachers. Based on the obtained findings, the regression equality of emotional exhaustion is as follows:

Emotional Exhaustion = 1.502 + 0.173 Surface Acting - 0.007 Deep Acting - 0.096 Natural Emotions

Table 2 gives the results of the multiple regression analysis conducted to see whether the emotional labor of teachers predicts their depersonalization level.

Table 2.
Multiple Regression Analysis Results for Prediction of Depersonalization Level

	B	*Standard error*	*β*	*T*	*p*	*Zero-order*	*Partial*
Constant	1.650	0.247	-	6.668	0.00	-	-
1. Surface acting	0.229	0.037	0.283	6.128	0.00	0.31	0.29
2. Deep acting	-0.018	0.039	-0.022	-0.463	0.64	-0.05	-0.02
3. Natural emotions	-0.270	0.050	-0.255	-5.417	0.00	-0.29	-0.26
R=0.40; R^2=0.16			$F_{(3-406)}$=26.39, p=0.00				

According to Table 2, there are positive and moderate relationships between depersonalization and surface acting dimension of emotional labor (r=0.31), yet negative and low relationships with naturally-felt emotions (r=-0.29). There is no statistically significant relationship between deep acting and depersonalization. Having controlled other variables, there appeared to be a positive and low relationship between depersonalization and the surface acting dimension of emotional labor (r=0.29), yet a negative and low relationship with naturally-felt emotions dimension (r=-0.26). All of the dimensions of emotional labor give a moderate and significant relationship with depersonalization levels of teachers (R=0.40, p<0.01). According to standardized regression coefficient (β), the relative order of importance of predicting variables on teachers' depersonalization level are naturally-felt emotions, surface acting, and deep acting. Having examined the results

of the t-test regarding the significance of regression coefficients, surface acting and naturally-felt emotions have been seen as important predictors of depersonalization of teachers. Nonetheless, deep acting is not significantly effective on emotional exhaustion. All of the dimensions of emotional labor explain 16% of depersonalization levels of teachers. Based on the obtained findings, the regression equality of depersonalization is as follows:

Depersonalization = 1.650 + 0.229 Surface Acting - 0.018 Deep Acting - 0.270 Natural Emotions

Table 3 gives the results of the multiple regression analysis conducted to see whether the emotional labor of teachers predicts their personal accomplishment level.

Table 3.
Multiple Regression Analysis Results for Prediction of Personal Accomplishment Level

	B	*Standard error*	*β*	*T*	*p*	*Zero-order*	*Partial*
Constant	2.692	0.205	-	13.103	0.00	-	-
1. Surface acting	0.066	0.031	0.099	2.126	0.03	0.12	0.11
2. Deep acting	-0.109	0.033	-0.159	-3.345	0.00	-0.22	-0.16
3. Natural emotions	-0.262	0.041	-0.301	-6.337	0.00	-0.35	-0.30
$R=0.39$; $R^2=0.15$				$F_{(3-406)}=23.99$, $p=0.00$			

According to Table 3, there are positive and low relationships between the personal accomplishment dimension of burnout and the surface acting dimension of emotional labor (r=0.12), yet a negative and moderate relationship with naturally-felt emotions (r=-0.35), and a negative and low relationship with deep acting (r=-0.22). Having controlled other variables, there appeared to be a positive and low relationship between personal accomplishment and the surface acting dimension of emotional labor (r=0.11), yet a negative and moderate relationship with the naturally-felt emotions dimension (r=-0.30), and a negative and low relationship with deep acting dimension (r=-0.16). All dimensions of emotional labor give a moderate and significant relationship with personal accomplishment levels of teachers (R=0.39, $p<0.01$). According to the standardized regression coefficient (β), the relative order of importance of predicting variables on teachers' personal accomplishment levels are naturally-felt emotions, deep acting, and surface acting. Having examined the results of the t-test regarding the significance of regression coefficients, all dimensions of emotional labor have been seen as important predictors of the personal accomplishment of teachers. All dimensions of emotional labor explain 15% of the

personal accomplishment levels of teachers. Based on the obtained findings, the regression equality of personal accomplishment is as follows:

Personal Accomplishment = 2.692 + 0.066 Surface Acting - 0.109 Deep Acting - 0.262 Natural Emotions

Discussion, Conclusion and Recommendations

This study aims to determine the relationship between teachers' emotional labor behaviors and burnout levels. Teachers exhibit surface acting the least in terms of emotional labor. This is followed by deep acting and naturally-felt emotions. Teachers' emotional labor is at a 'moderate' level for surface acting dimension, and 'high' for dimensions of deep acting and naturally-felt emotions. This finding overlaps with other research findings in the literature. The research study conducted by Begenirbas and Meydan (2012) with high school education teachers has shown that teachers mostly display naturally-felt emotions in terms of emotional labor, yet surface acting the least. Emotional labor behavior, in a way, reveals employees' performance of their occupational roles. From this perspective, the high levels of deep acting and naturally-felt emotions of teachers may be interpreted in such a way that teachers have internalized these roles. Teachers' use of such behaviors is an indicator of their occupational professionalism. This is because emotional labor involves regulating and managing their real emotions in order to display certain behaviors compliant with organizational goals and workplace rules as a requirement of their occupational professionalism (Ashforth & Humphrey, 1993; Basim & Begenirbas, 2012; Diefendorff et al., 2005; Isenbarger & Zembylas, 2006; Morris & Feldman, 1996). In this regard, it is a positive thing that teachers try not to reveal their private problems to their colleagues or to their students, but continue their work professionally, through deep acting and naturally-felt emotions instead of on the surface.

The emotional labor of teachers differs according to gender, marital status, position, school type and subject matter expertise. Male teachers display more surface acting compared to females, married teachers to single, and from school administrators to teachers. Teachers, on the other hand, display more natural emotions compared to school administrators. In addition, elementary education teachers display more surface and deep acting compared to traditional high school teachers, and more naturally-felt emotions compared to general and vocational high school teachers. There are few studies in the literature that have examined emotional labor according to personal variables. These studies have provided different results. A study by Kose, Oral and Turesin (2011) on doctors did not result in a difference between emotional labor behaviors of doctors according to gender, marital status, age, amount of service in current workplace, or total amount of service. Studies conducted by Begenirbas and Yalcin (2012), as well as Basim et al. (2013), have examined whether demographic variables have predicted emotional labor. The study by Begenirbas and Yalcin (2012) revealed that surface acting is explained significantly only by gender among other demographic variables; demographic

variables did not have an impact on deep acting, and gender and level of education have predicted naturally-felt emotions in significant terms. The study by Basim et al. (2013), however, concluded that gender and age had a negative impact on surface acting, yet it had a positive impact on naturally-felt emotions. Nonetheless, neither study reported in whose favor these impacts have been.

In terms of burnout, teachers achieved the highest level of burnout for emotional exhaustion. This is followed by personal accomplishment, and depersonalization. Teachers' burnout level has been at a 'moderate' level for the emotional exhaustion dimension, and at a 'low' level for personal accomplishment and depersonalization. This finding generally overlaps with other research studies in the literature. Cemaloglu and Erdemoglu-Sahin (2007) and Yilmaz (2014) concluded in their study conducted on the teachers that teachers experienced the highest burnout level in terms of emotional exhaustion, and the lowest in terms of depersonalization. It is a positive finding that teachers' burnout levels are low except for emotional exhaustion, because a high level of burnout may cause employees to have negative attitudes towards their occupations, thereby resulting in low performance. Such negative attitudes could also cause problems in their social relations. Yellice-Yuksel, Kaner and Guzeller (2011) have determined that the burnout level of teachers receiving professional and social support is lower than of those who do not receive such support. From this perspective, particular measures should be taken to minimize the emotional exhaustion of teachers.

The burnout level of teachers does not differ according to variables such as gender, marital status and position, yet it does differ according to the school type. Depersonalization levels of vocational school teachers are higher than for elementary education teachers. This may be caused by the operations and cultures of these schools, in that they are different from other schools. Purvanova and Muros' (2010) meta-analysis study conducted on 409 research studies has determined that women experience emotional exhaustion more than men, and men feel depersonalization more than women. This study has also concluded that women's emotional exhaustion level is higher as well as men's depersonalization level, yet this difference has not been found to be statistically significant. Research studies in the literature have revealed different results about the differentiation of burnout emotions according to demographic variables. Considering that burnout studies generally use the Maslach Burnout Inventory, the reason behind such differences such as found in demographic variables may be due to sample characteristics. Recently, there have been many studies on teachers' burnout in Turkey. Therefore, it will be very useful to conduct meta-analysis studies to determine the impact of demographic variables on teachers' burnout to ensure a better understanding of this phenomenon.

The last goal of the study has been to determine whether emotional labor predicts teachers' burnout level. Regression analysis has been applied to determine this. According to the results of regression analysis, both surface acting and naturally-felt emotions are important predictors of emotional exhaustion and depersonalization of teachers. However, deep acting does not have a significant impact on emotional exhaustion and depersonalization. Teachers' feelings about a lack of professional

accomplishment, on the other hand, are predicted by all dimensions of emotional labor. Dimensions of emotional labor, as a whole, explain 7% of teachers' emotional exhaustion level, 16% of depersonalization, and 15% of personal accomplishment. There is a positive and low relationship between emotional exhaustion and surface acting, yet a negative and low relationship with naturally-felt emotions. There is also a positive and moderate relationship between depersonalization and surface acting, yet a negative and low relationship with naturally-felt emotions. There is no relationship between deep acting and emotional exhaustion and depersonalization. There is a positive yet low relationship between personal accomplishment and surface acting, a negative yet low relationship with deep acting, and a negative yet moderate relationship with naturally-felt emotions. This finding generally overlaps with the research studies in the literature. Studies by Naring et al. (2007) have resulted in a parallel relationship between surface acting and emotional exhaustion and depersonalization. Another study by Kinman, Wray and Strange (2011) also find a parallel relationship between emotional labor and emotional exhaustion. Brotheridge and Grandey's (2002) study, on the other hand, found a reverse relationship between deep acting and personal accomplishment.

Findings from this study have revealed that surface acting, which is to pretend to be feeling a certain emotion through words and body language, even if not felt at that moment, leads to burnout. This is, in fact, an expected situation because it is natural for non-internalized emotions to have a negative impact on the individual. The literature has several findings that support the notion that such a situation may not only lead to burnout, but also have a negative impact on employees' attitudes towards their occupation. Hülsheger and Schewe's (2011) meta-analysis study on emotional labor also partially overlaps with the findings. The study resulted in a reverse relationship between employees' surface acting behavior and their attitude toward their occupation as well as job performance, and in a parallel relationship with their deep acting behavior. This study has considered emotional labor as roles that should be played by teachers as part of their occupational professionalism. Nonetheless, it is possible that the roles expected from teachers may be based on dominant, non-professional or unethical behaviors. Therefore, it is important to reveal the reasons behind the surface acting behaviors of teachers. Designing such studies on the basis of a qualitative approach will contribute to a deeper understanding through having more detailed information.

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Öğretmenlerin Duygusal Emekleri ile Tükenmişlik Düzeyleri Arasındaki İlişki

Atıf:

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Özet

Problem Durumu: Öğretmenlik mesleği, özelliği itibari ile doğrudan insan ile ilgili bir iştir. Bu nedenle insan ilişkileri yoğun her meslekte olduğu gibi duygu düzenlemesini zorunlu kılmaktadır. Duygusal emek olarak adlandırılabilecek bu olgu, mesleki profesyonellik gereği olarak da öğretmenlerden beklenmektedir. Öğretmenlik, bireysel, sosyal, kültürel, bilimsel, teknolojik boyutları olan profesyonel statüde bir eğitim mesleğidir. Günümüz eğitim anlayışında öğretmenlerden, öğrencilere rol model olmaları, rehberlik etmeleri, öğrenmeyi öğretmeleri, demokratik tutum ve değerleri kazandırmaları gibi pek çok rol beklenmektedir. Bunun yanında öğretmenlerin, eğitim ve öğretimin etkililiğinin sağlanmasında okul yöneticileriyle, meslektaşlarıyla, velilerle ve diğer paydaşlarıyla işbirliği içerisinde bulunmaları da gerekmektedir. Öğretmenlerin bütün bu rolleri yerine getirirken, bir profesyonel olarak, kişisel sorunlarını ilişkilerine yansıtmamaya özen göstermesi, görev yaptığı okulun formal ve informal normlarına uygun davranmaya çalışması gerekmektedir. Ancak bu anlamda duyguların yönetilmesinin, psikolojik olarak öğretmenler üzerinde olumsuz etkilerinin olabileceği öngörülebilir. Bu etkilerden biri de tükenmişlik duygusudur.

Araştırmanın Amacı: Öğretmenlerinin duygusal emekleri ile tükenmişlik düzeyleri arasındaki ilişkinin belirlenmesinin amaçlandığı bu araştırmada şu sorulara yanıt aranmıştır: 1) Öğretmenlerin duygusal emek ve tükenmişlik düzeyleri nasıldır? 2) Öğretmenlerin duygusal emek ve tükenmişlik düzeyleri, cinsiyet, medeni durum, görev, okul türü ve branş değişkenlerine göre farklılaşmakta mıdır? 3) Öğretmenlerin duygusal emekleri tükenmişlik düzeylerini yordamakta mıdır?

Araştırmanın Yöntemi: Araştırma, tarama modelinde desenlenmiştir. Araştırmanın evrenini 2013-2014 eğitim öğretim yılında, Kütahya ilinde görev yapan 5600 öğretmen oluşturmaktadır. Örnekleme girecek öğretmenlerin belirlenmesinde oransız küme örnekleme tekniği kullanılmıştır. Örneklem büyüklüğü, % 95 güven düzeyi için 360 olarak hesaplanmıştır. Ölçeklerin geri dönüşünde eksiklikler ve özensiz doldurma gibi nedenlerle araştırmada kullanılamayacak ölçekler olabileceği düşüncesi ile 500 öğretmenden görüş alınmasına karar verilmiştir. Elde edilen veri toplama araçlarından kullanılabilir durumda olan 410 tanesi ile analizler yapılmıştır. Araştırmada veri toplama aracı olarak Duygusal Emek Ölçeği ve Maslach Tükenmişlik Ölçeği kullanılmıştır. Araştırmada öğretmenlerin duygusal emek ile tükenmişlik düzeylerini belirlemek amacıyla betimsel istatistikler, ikili karşılaştırmalarda t-testi, üç ve daha fazla boyutu olan karşılaştırmalarda tek yönlü varyans analizi (ANOVA) kullanılmıştır. Öğretmenlerin duygusal emeklerinin, tükenmişlik düzeylerini anlamlı bir şekilde yordayıp yordamadığını belirlemek için ise Çoklu Regresyon analizi kullanılmıştır.

Araştırmanın Bulguları: Araştırmaya katılan öğretmenler duygusal emek açısından, en az yüzeysel rol yapma (AO=2.51, S=0.95) davranışında bulunmaktadır. Bunu, derinden rol yapma (AO=3.71, S=0.92) ve doğal duygular (AO=4.16, S=0.72) izlemektedir. Tükenmişlik açısından ise öğretmenler en yüksek tükenmişlik düzeyine duygusal tükenme (AO=1.51, S=0.70) boyutunda sahiptir. Bunu sıra ile kişisel başarısızlık (AO=1.36, S=0.63) ve duyarsızlaşma (AO=1.03, S=0.77) boyutları takip etmektedir. Öğretmenlerin tükenmişlik düzeyleri, duygusal tükenme

boyutunda "orta", kişisel başarısızlık ve duyarsızlaşma boyutlarında ise "düşük" düzeydedir. Öğretmenlerin duygusal emekleri cinsiyet, medeni durum, görev, okul türü ve branş değişkenlerine göre farklılaşmaktadır. Erkek öğretmenler kadın öğretmenlere göre [$t_{(408)}$=3.10; p<.05]; evli öğretmenler evli olmayan öğretmenlere göre [$t_{(408)}$=2.62; p<.05]; okul yöneticileri öğretmenlere göre [$t_{(408)}$=2.24; p<.05] daha fazla yüzeysel rol yapma davranışı göstermektedir. Öğretmenler ise okul yöneticilerine göre [$t_{(408)}$=2.10; p<.05] daha fazla doğal davranışlar göstermektedir. Ayrıca ilkokul öğretmenleri genel lise öğretmenlerine göre daha fazla yüzeysel [$F_{(3-406)}$=4.13; p<.05] ve derinden rol yapma [$F_{(3-406)}$=2.62; p<.05], genel lise ve meslek lisesi öğretmenlerine göre [$F_{(3-406)}$=6.69; p<.05] daha fazla doğal davranışlar göstermektedir. Öğretmenlik tükenmişlik düzeyleri, cinsiyet, medeni durum ve görev (okul yöneticisi, öğretmen) değişkenlerine göre farklılık göstermemekte; ancak görev yapılan okul türü değişkenine göre farklılaşmaktadır. Meslek liselerinde görev yapan öğretmenlerin duyarsızlaşma düzeyleri [$F_{(3-406)}$=4.53; p<.05], ilkokullarda görev yapan öğretmenlerden daha fazladır. Öğretmenlerin duygusal emeklerinin, duygusal tükenmişlik düzeylerini yordayıp yormadığının belirlenmesi amacı ile yapılan çoklu regresyon analizi yapılıştır. Regresyon analizi sonuçlarına göre yüzeysel rol yapma ve doğal duygular, öğretmenlerin hem duygusal tükenmesinin hem de duyarsızlaşmasının önemli yordayıcılarıdır. Ancak derinden rol yapma duygusal tükenme ve duyarsızlaşma üzerinde anlamlı düzeyde etkili değildir. Öğretmenlerin kişisel başarısızlık duygusunu ise duygusal emeğin boyutlarının tümü yordamaktadır. Duygusal emeğin boyutları tümü birlikte, öğretmenlerin duygusal tükenmişlik düzeylerinin % 7'sini, duyarsızlaşmanın % 16'sını, kişisel başarısızlık duygusunun ise % 15'ini açıklamaktadır. Duygusal tükenmişlik ile yüzeysel yapma arasında pozitif ve düşük (r=0.24); doğal duygular ile negatif ve düşük (r=-0.13) düzeyde bir ilişki bulunmuştur. Duyarsızlaşma ile yüzeysel yapma arasında pozitif ve orta (r=0.31); doğal duygular ile negatif ve düşük (r=0.31) düzeyde bir ilişki bulunmuştur. Derinden rol yapma ile duygusal tükenme ve duyarsızlaşma arasında ilişki bulunmamaktadır. Kişisel başarısızlık duygusu ile yüzeysel yapma arasında pozitif ve düşük (r=0.12); derinden rol yapma ile negatif ve düşük (r=-0.22), doğal duygular ile negatif ve orta (r=-0.35) düzeyde bir ilişki bulunmuştur.

Araştırmanın Sonuç ve Önerileri: Araştırma sonucuna göre, öğretmenlerin duygusal emekleri, onların hem duygusal tükenmişliklerini hem de duyarsızlaşmalarını önemli düzeyde düzeyde yordamaktadır. Bu araştırmada duygusal emek, öğretmenlerin mesleki profesyonellik gereği oynaması gereken roller olarak ele alınmıştır. Ancak çalışanlardan beklenen rollerin örgütlerde tahakküme dayalı, profesyonelliğe ve etik ilkelere uymayan, davranışlar olması olasılığı da bulunmaktadır. Bu nedenle öğretmenlerin yüzeysel rol yapma davranışlarının nedenlerinin ortaya konulması önemlidir. Bu çerçevede bu konuda yapılacak araştırmaların nitel olarak desenlenmesi de derinlemesine ve daha ayrıntılı bilgi edinmeye katkı sağlayabilir.

Anahtar Kelimeler: Tükenmişlik, duygusal emek, kamu okulları, öğretmenler

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Use of Integrated Curriculum Model (ICM) in Social Studies: Gifted and Talented Students' Conceptions

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Abstract

Problem Statement: There have been several studies that have investigated curricular interventions for gifted students to address their educational needs. For most courses and disciplines, a standard curriculum may not be sufficient for the majority of gifted students. Here, among other curricular efforts in the education of the gifted, an Integrated Curriculum Model (ICM)--which can be assumed to be responsive because of the interrelated dimensions of its structure and its dimensions such as an epistemological concept, advanced content, and the process-product--was assessed to address different aspects of gifted children. In literature, propositions of social studies curricula and instruction for gifted and talented learners indicate the necessity for the implementation of programs projected in the Integrated Curriculum Model (ICM). A review of the literature on social studies and gifted education also indicates that it may be important to study the lack of implementations for gifted and talented learners in the area of social studies by highlighting students' thoughts in an implemented curriculum unit.

Purpose of the Study: This study examines students' thoughts on a differentiated social studies unit based on the ICM and its instruction. The aim of the study is to identify gifted students' conceptions when the Integrated Curriculum Model is used in social studies.

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Method: This study aims to explore individual gifted and talented student views on a differentiated social studies curriculum unit, namely, *luckily it is present* (good to have it); thus, a qualitative research design was used to enable the incorporation of views, ideas, feelings, and perceptions. Following a two-month implementation of differentiated social studies instruction, twelve students were asked about their views regarding the social studies course. A written, open-ended questionnaire, which was developed by the researchers, was used to collect data. The data were analyzed via a content-analysis method.

Findings: The findings of the study identified positively changing student views on the differentiated social studies unit in terms of the Integrated Curriculum Model and its instruction.

Conclusion and Recommendations: In this study, the thoughts and experiences of gifted and talented students regarding the Integrated Curriculum Model's implementation were highlighted. An examination of gifted and talented students' thoughts in light of the ICM shed light on curricular and instructional considerations for creating a good social studies education for gifted and talented learners.

Keywords: Social Studies Education, Integrated Curriculum Model, Gifted and Talented Education

Introduction

In Turkey, social studies is broadly defined as "a curriculum which uses combined information of social sciences and humanities and aims educating effective citizens who can solve problems and make decisions in changing world and country in every respect" (Öztürk, 2007, p. 24). It is apparent in the literature that there is an emerging and overlapping concurrence of social studies and gifted and talented education; this concurrence has occurred since Delisle (1991) brilliantly speculated this conjunction by asking the following question: "If the gifted are to be our 'leaders of tomorrow', for what kinds of leadership should we be educating them? Is it sufficient for them to be creative, productive scientists, or should we be concerned with their morality, their ethics, and their social responsibility as well?" (Delisle, 1991, p. 181). According to VanTassel-Baska and Stambaugh (2006), social studies is an important area of specialization for gifted and talented students to study the social phenomena and aspects of societies and cultures. They add that "some gifted students have natural talents for study and growth in the social studies disciplines" (p. 141).

There have been several studies that have examined the curricular interventions that address the educational needs of gifted students (VanTassel-Baska & Stambaugh, 2006). For most courses and disciplines, a standard curriculum may not be sufficient for the majority of gifted students (VanTassel-Baska, 2009). Composed of three significant curricular and instructional dimensions, the Integrated

Curriculum Model (ICM) is one program that can be used in the differentiation or program model for social studies. As Maker & Schiever (2010) stated, according to VanTassel-Baska, the dimensions of the ICM are responsive to the diverse specifications of gifted and talented students, such as "a) emphasizing advanced content in disciplines of study, b) providing higher order thinking and processes, and c) focusing learning experiences around real-world issues, themes, and ideas" (Maker & Schiever, 2010, p. 20).

Literature Review

Although there are research studies regarding the thoughts or views of social studies education, the services and implementation of social studies curricula for gifted and talented students are quite limited in Turkey. There are several research studies that have examined the effectiveness of instructional designs and student attitudes towards the course in regular school settings, which is not related to gifted and talented students. For example, Öztürk and Baysal (1999) identified a relationship between student achievements and attitudes; meaningful differences were identified regarding positive student attitudes when teachers preferred to use an instructional approach rather than a lecture or textbook-based instruction (Öztürk & Baysal, 1999). Öztürk and Baysal (1999) also stated that of the many factors that affect social studies education, one factor is the negative attitudes towards social studies in nearly every grade level. The authors state that according to research studies, students generally do not believe that social studies is an important course or that it should be a primary area of study (Öztürk & Baysal, 1999).

According to the Turkish Ministry of National Education, social studies carries importance throughout the history of education in the Turkish Republic; for example, social studies was one axis course together with science education in the 1998 curriculum similarly with antecedent social studies curricula. Social studies was given a similar level of importance by the Ministry of National Education regarding curricula (Öztürk, 2007). In another research study, Ada, Baysal, and Kadioglu (2009) demonstrated that project-based learning positively affects students' attitudes towards a social studies course. According to Karakus' (2009) experimental study on constructivist learning and student attitudes, constructivist learning has positive effects on student attitudes towards a social studies course. Similarly, Deveci (2002) demonstrated that problem-based learning has a positive effect on students' attitudes regarding social studies.

An examination of these studies indicates that in the Turkish context in general, research studies in school settings experimentally tested variables such as constructivist learning, problem-based learning, and project-based treatments on attitudes as the independent variables. Moreover, a review of the literature in Turkish school settings also indicates that the concept of differentiation for students with different needs was predominately not taken into account. It should be noted that even though there has been growing interest in gifted and talented education in Turkey, aside from fragmental efforts to facilitate some programs and services for gifted and talented learners, the programs and services are rather limited for these

students. As a result, despite some academic efforts to serve gifted and talented education, empirical evidence of specific social studies curricula or programs in the Turkish context for gifted and talented students could not be identified.

An outstanding study by Little, Feng, VanTassel-Baska, Rogers, and Avery (2007), which evaluates a differentiated social studies curriculum for gifted and talented students that was implemented in a heterogeneous research setting with both gifted and non-gifted students, identified important findings for discussion regarding social studies instruction for gifted and talented learners. The study demonstrated that the challenging and integrated curriculum they designed, as well as the instruction catered to gifted and talented students' needs, can promote the development of achievement for gifted and talented learners and for students who were not identified as gifted. This finding may be important for all heterogeneous classroom settings. The study also concludes that basic standards can be used as a framework for more multifaceted learning and teaching in social studies (Little et al., 2007). The study findings may be significant for the Turkish context because teachers may encounter mostly unidentified learners; at the same time, they may need to facilitate advanced dimensions of social studies in more depth with higher order thinking skills, which can be beneficial for all levels of learners.

Other studies mainly focus on the importance of differentiated curricula and modes of instruction to engage the goals of both social studies and gifted and talented education. Troxclair (1998) states that gifted students did not receive an education based exactly on their needs in regular classroom settings, because educational programs were not supportive of their educational needs. She advises teachers to implement differentiation strategies to meet gifted and talented learners' educational needs. For example, to build a challenging course for these students, she proposes a compact curriculum, conceptual thematic units, independent studies, and mentorship for differentiation in social studies. There have been some models and features with respect to differentiation for gifted and talented learners in a social studies curriculum. One main feature is the advanced content because of gifted and talented students' characteristics and learning needs, whereas the second feature is the complexity of the curriculum for the gifted and talented. The third feature is the differentiation of a social studies curriculum in consideration of the depth of engagement in problem-based learning activities. Another aspect can provide students with creative opportunities in social studies curricula and instruction methods. Finally, a social studies curriculum for gifted and talented learners should address an abstract level to introduce them to real-world problems (VanTassel-Baska, 2009). In summary, these propositions in literature regarding social studies curricula and instruction methods for gifted and talented learners indicate the necessity of implementing the programs projected in the Integrated Curriculum Model. A review of the literature also indicates that the lack of implementation for gifted and talented learners in the area of social studies may be important to study by highlighting students' thoughts in an implemented curriculum unit.

Purpose of the Research

The aim of the study is to identify gifted students' conceptions regarding a differentiated social studies unit in terms of the Integrated Curriculum Model. Among other curricular efforts in the education of the gifted, the Integrated Curriculum Model can be assumed to be responsive because of the interrelated dimensions of its structure, which comprises dimensions such as an epistemological concept, advanced content, and the process-product that may address different aspects of gifted children (VanTassel-Baska & Stambaugh 2008; VanTassel-Baska, 2009; Renzulli et al., 2009). Thus, this study aims to explore students' thoughts on a differentiated social studies unit based on the ICM and its instruction methods.

Implementation of the Integrated Curriculum Model in a Social Studies Unit

The Integrated Curriculum Model (ICM) is a curriculum model for gifted and talented students to integrate interdisciplinary concepts, advanced content, and critical reasoning in social studies (Little et al., 2007). In this study, the unit, which is referred to as *luckily it is present* (good to have it) [*iyi ki var*], was developed by researchers and implemented for approximately two months in accordance with the Integrated Curriculum Model (ICM) created by VanTassel-Baska (2009). However, it should be noted that the social studies unit was developed in an authentic manner following the Turkish Ministry of Education's objectives and the Integrated Curriculum Model's framework. The social studies unit was specified as comprehensive for different relevant disciplines under a comprehensive theme entitled "change." The unit was designed with real-world problems and activities to be solved with higher order thinking skills such as critical thinking, creativity, decision making, and problem solving. The unit also used structured activities and questions as a part of the interdisciplinary unit proposed by in the ICM to make students active learners. Because the Integrated Curriculum Model offers advanced content and a deep understanding of concepts, it makes it possible to develop an advanced content and course structure for gifted and talented students (Little, Feng, VanTassel-Baska, Rogers, & Avery, 2007).

In the development of the luckily it is present unit of social studies, these strands were followed: First, the objectives of the luckily-it-is-present unit were revised while abiding by the present objectives proposed by the Turkish Ministry of National Education and considering the general characteristics of gifted and talented learners and the new objectives developed in accordance with Benjamin Bloom's revised taxonomy of objectives (Anderson & Krathwohl, 2001). In the development of these new objectives, importance was placed on higher order thinking skills, especially regarding analysis, evaluation, and creation. Maker and Shiever (2005) suggest that higher order thinking carries importance in process implementation. In summary, the developed unit aimed to focus on higher order thinking skills, real-life problems, and higher level objectives.

Second, the unit's content was developed in accordance with the change theme that uses enrichment activities and the engagement of discipline specialists in pursuance of the advanced content factor of the Integrated Curriculum Model. For example, connections with other disciplines were established--namely, the course of science and technology--via field specialist involvement regarding the use of radioactivity, cell phones, and health relations.

Third, the process of the unit was built to develop higher order thinking, independent research ability, and problem-solving skills as previously discussed. Structured real-life problem scenarios were prepared, and these classroom scenarios were planned to solve these problems and create alternative solutions to the ones provided in the lesson plans. In the real life problem solving components, problem based strategies were gradually used that could be used advisedly in the Integrated Curriculum Model (ICM). Most activities were planned as collaborative based to engage all students in the learning process.

As previously discussed, in addition to the three major characteristics planned or organized into a Turkish social studies unit, the curriculum unit is designed for Turkish gifted and talented students via enrichment of the content, engagement in higher order thinking skills, the use of flexible grouping, and problem based learning activities with real world issues as proposed in the Integrated Curriculum Model (VanTassel-Baska, 2003).

Social Studies for Gifted and Talented Children

As a subject matter, social studies education for all students offers the use of a knowledge base of social science disciplines and the opportunity to be active citizens of their world. One of the important roles of a social studies curriculum is to provide the skills, knowledge, and values necessary to educate students for active participation in civic life both at the national and worldwide levels (Banks & Banks, 1999).

Three traditions regarding social studies education are defined: (1) citizenship transmission, (2) social science approach, and (3) reflective inquiry (Barth & Shermis, 1970); citizenship education can be defined as a common thread alongside all of the disagreements on the definition (Cole & Schreyer, 2007).

According to VanTassel-Baska (2006), social studies can provide "excellent opportunities to engage gifted and talented students in complex, challenging cognitive activities… [they] can learn the skills of critical and creative thinking and the control functions of metacognition" (p. 142). Some gifted and talented learners may exhibit a special interest and talent for the subjects of social studies. This conjunction of giftedness and interest in social studies subjects may be incorporated to serve the aims of both social studies education and gifted and talented student educational needs.

In consideration of the educational institutions' changing roles at both the global and national levels, the fundamental roles of educational institutions are to educate effective citizens in changing roles; to realize this aim, students should be given the proposed knowledge, skills, and values. In Turkey, which is similar to the United States, the proposed knowledge, skills, and values can be learned through social studies. Furthermore, global issues such as environmental issues, economics, wars, hunger, poverty, and human rights are primarily social studies topics that coincide with other subject areas or courses. The similarities of the objectives of both social studies and gifted and talented education--such as the inquiry of primary sources or documents for social sciences, decision-making skills, creative and critical-thinking skills, and the investigation of real-life problems--provide an answer regarding social studies' appropriateness for the content focus for gifted and talented students (Steward, 1985; Delisle, 1991).

Method

Research Design

This study has been carried out according to qualitative research procedures and methods in order to examine the concern in line with its purpose. In the research, since it aims to highlight gifted and talented students' thoughts on an implemented social studies curriculum unit. This study was designed according to a phenomenological research design. This study aims to explore individual gifted and talented students' views on a differentiated social studies curriculum unit, namely, *luckily it is present*; thus, a qualitative research design was used to enable the incorporation of views, ideas, feelings, and perceptions (Bogdan & Biklen, 1998). Creswell (2008) highlighted some traditions regarding qualitative inquiry, and Denzin and Lincoln (2000) elucidated qualitative research designs under eight main headings. Furthermore, it is important to note that Denzin and Lincoln (2000) also cite that qualitative inquiry "does not belong to a single discipline. Nor does qualitative research have a distinct set of methods that are entirely its own" (p. 6).

While considering the traditions or applications of qualitative research in educational settings, the study may be referred to as phenomenological research. Bogdan and Biklen (1998), when describing phenomenological research, said "researchers in the phenomenological mode attempt to understand the meaning of events and interactions to ordinary people in particular situation" (p. 23). Similarly, Johnson and Christensen (2004) explain phenomenological study attempts to understand "how people experience a phenomenon from the person's own perspectives" (p. 46). In this study, gifted and talented students' experiences on a developed social studies curriculum unit were highlighted as a phenomenon from their own perspectives. Taking into account Johnson and Christensen (2004) and Bogdan and Biklen's (1998) approach to qualitative research, this study aims to identify and understand students' views following the implementation of a social studies curriculum unit.

Research Sample

The study was conducted by the Ministry of National Education with the cooperation of Istanbul University in a primary school in which a unique state-based educational setting identified gifted and talented students. Children were identified

via IQ tests, and they had the right to register with the school as gifted and talented based on the rank of their score. The study participants comprised nine (five boys, four girls) 4th grade gifted and talented students. While the participants of the study were being determined, it was considered that they should be willing to frankly explain their experiences and thoughts. Since the research context is a unique state elementary school serving gifted and talented students, it should be stated that a purposeful sampling method was applied among experienced differentiated curricula and instruction methods in accordance with the Integrated Curriculum Unit in social studies. All student participants were 10 years old. Following the implementation of a differentiated social studies unit/instruction, the gifted and talented students were asked about their views on the social studies course. As stated above, the participants were selected among volunteer students who experienced the instruction of the social studies unit; this approach is referred to as a purposive or purposeful sample by Merriam (2002). Merriam (2002) explains this participant selection, saying, "it is important to select a sample from which the most can be learned" (p. 12). In accordance with research ethics, participants' names were not used; instead, participants were referred to by numbers in the tables.

Research Instrument and Procedure

A written, semi-structured, and open-ended questionnaire was developed by the researchers and used to collect the data. Open-ended questions were edited by two other scholars who counseled in the area of gifted and talented and social studies education. The readability of the questions was examined and edited by two Turkish language teachers as well. The study's core source of data was the open-ended questionnaire. The open-ended, written questionnaire was shaped into a final form after receiving these multiple evaluations from the field experts. Data were collected after the implementation of the whole social studies curriculum unit, dedicated a course hour upon request and availability of the participants. Participants were instructed to write down their views and experiences as the questions were asked. Moreover, students were asked to add whether they wanted to express their thoughts on the course and its implementation. It should be noted that, to provide a trustworthy atmosphere, it was made clear to students that these questions were not proposed to evaluate their course achievement.

Validity and Reliability

For the credibility of the research, interpretations from all of the responses were shared by the experts of the qualitative research and by experts in both social studies and gifted education. In order to preserve the objectivity of the research, all of the data elicited from participants were retained by the researchers to be submitted for examination by the related authorized persons. All answers to the questions are provided in tables in the framework of four focus questions.

Data Analysis

As Cohen, Manion, and Morrison (2007) stated, "there is no one single or correct way to analyze and present qualitative data" (p. 461). In the study, questions provided the framework for the themes of the data. This framework allowed researchers to see the whole picture from the pieces of information from each participant student's thoughts and experiences. The data were analyzed via a content-analysis method (Bogdan & Biklen, 1998; Mayring, 2000). Because programs

and services for gifted and talented students in school settings are rather limited in Turkey, this research setting for gifted and talented studies is unique as a state school; thus, the number of participant students in this study at this grade level was rather small. Therefore, a phenomenological design is appropriate in such a study that is interpretive in nature. The questions served as a framework during the data analysis because the nature of the study is descriptive, as is the nature of phenomenological research studies.

In considering what Cohen, Manion, and Morrison (2007) suggested when they said that "qualitative data analysis involves organizing, accounting for and explaining the data; in short, making sense of data in terms of the participants' definitions of the situation, noting patterns, themes, categories and regularities" (p. 461), all answers of the gifted and talented students were presented. As noted earlier, each response of a single participant was presented, and then the presentation of a studied phenomenon moved to a new question of the research. As Cohen, Manion, and Morrison (2007) put it, "this preserves the coherence and integrity of the individual's response and enables a whole picture of that person to be presented" (p. 467).

Results

The students were asked four questions: (1) What do you think about social studies? (2) What do you think about the social studies course during this term? (3) Would you please specify the points that you like and do not like regarding this social studies course? (4) What do you think about the differences between the social studies courses and the social studies courses during this term?

Table 1.

Gifted and Talented Students' Thoughts Regarding Regular Social Studies Courses

Students	***Question: What do you think about social studies?***
1(Male)	To me, it is absolutely boring.
2 (Male)	I do not like social studies since it is boring, and especially memorizing times of important events is very boring.
3 (Male)	I think social studies course subjects are very comprehensive. This makes the course unattractive.
4 (Male)	It was boring until the social studies courses given this term.
5 (Male)	I did not view this course as positive until this term. Although I do not like the regular social studies courses, I liked the courses given this term.
6 (Female)	The most hated course to me was social studies. But it was funny with these different social studies courses.
7 (Female)	I started to like this term. I hate social studies the most among the courses.
8 (Female)	I do not want to lie. I hated this course until this term.
9 (Female)	It was boring our regular social studies courses, but this term I started to like social studies. It was very exciting.

As shown in Table 1, the students most frequently use the word "boring" to describe social studies. The gifted and talented students make no connection to social studies; as a result of this disconnection, "boring" became the most used adjective regarding social studies. Understanding the meaning of what students are

attempting to convey can be represented by the answers provided by Participants 2 and 3. The answer of Participant 2 provides an idea regarding the curricular and instructional implementations. Instructional designs primarily depend on textbooks, and the order of topics in textbooks may be the cause of this answer.

The second preferred word the students most frequently used regarding their conceptions of social studies is "hate." However, it should be noted that this hate could easily be shifted to sympathy towards the social studies course. In the examination of the students' answers to the question, it is not asked; thus, they practically answered "I started to like social studies this term" (Participant 7). There may be another important point to explain some students' descriptions of why it is boring. While most students did not prefer to explain why social studies is a boring school subject, some students explained it from their point of view. For example, one gifted and talented student explained that social studies is about "memorizing times of important events" (Participant 2). This answer can be explained by the instructional design of the course the student encountered. While the course's aim is built simply on recitation, individual differences such as interest, learning style, and the type of giftedness or talent are ignored. Without taking into consideration the characteristics of the students and whether they are gifted or non-gifted, this finding can be explained as the mode of instruction with the term used by Tomlinson as "one size fits all" (Tomlinson, 2001, viii). Therefore, while the students simply were expected to recite the events and times, it is explained as being boring according the students' answers.

Table 2.

Gifted and Talented Students' Thoughts Regarding Differentiated Social Studies

Students	***Question: What do you think about the social studies course during this term?***
1 (Male)	It was like we were not in a course. It was amazing.
2 (Male)	After these courses, I was totally satisfied. The courses were very funny. The course methods and materials used made us think it was great. I think the best side of the course was we tried to solve real-life problems.
3 (Male)	My exam was 81, but it became 98. No need to say something more.
4 (Male)	I can describe the social studies during this term as funny, enjoyable, informative, and nice.
5 (Male)	My point average increased during this term from 73 to 100. It was an enjoyable course.
6 (Female)	I do not want to turn back to our regular social studies courses.
7 (Female)	We discussed everything, especially problems, and we tried to solve problems. It was intriguing.
8 (Female)	I was waiting impatiently for the social studies course. I think the problems of our daily life made it possible to better understand social studies.
9 (Female)	Even though some information given in the course I could not understand, it was useful to me. Some other information given in the course came in handy in my daily life. The most useful part of the course was making the connection to daily life with social studies.

As shown in Table 2, more detailed accounts regarding the differentiated social studies unit were discussed by the students. For example, the answer of Participant 2 was very striking: "Methods and materials used made us think it was great. I think the best side of the course was we tried to solve real life problems." As previously described, the designed unit was built in accordance with advanced content that had higher level objectives of cognitive taxonomy and higher level thinking skills with problem-based learning under the umbrella of the three dimensions of the Integrated Curriculum Model. This differentiation of curriculum and instruction might be a trigger to activate student interests in social studies, which may have previously been present. It might also be argued that solving real-life problems is another important connection experienced with the new connection to social studies. Two participants simply explained their grade development in the course. According to these students, the development of course grades can be the best indicator of what they think about social studies. Because the social studies curriculum and instruction attracted them, they succeeded and demonstrated this success with better grades. Solving problems faced in real life is one of the significant subjects of social studies embedded in the course content and the process explained as "intriguing" by Participant 7. Issues regarding the incorporation of daily-life problems into the curriculum to attempt to solve them with higher order thinking-skill activities and ensuring student participation by enjoying the course were present in the responses of Participants 7 and 8.

Table 3.

Gifted and Talented Students' Thoughts on What They Like in Differentiated Social Studies

Students	***Like***	***Did not like***
1 (Male)	My grades got higher.	Sometimes the courses become detailed.
2 (Male)	I learned to be creative. It was great for better thoughts to be expected from us. My friends and my teacher could understand when I presented my ideas.	Sometimes we needed more time to share more ideas.
3 (Male)	Everything.	Our teacher talked in detail.
4 (Male)	Everything. I developed my course grade.	Nothing.
5 (Male)	Everything.	Nothing.
6 (Female)	My social studies course grade got better.	We were expected to write too much.
7 (Female)	Our teacher understood us. It was better with activities.	Sometimes activities took too long. I was bored.
8 (Female)	Problems from daily life made me better understand social studies.	Sometimes it was boring while we were writing.
9 (Female)	I like these courses' activities. I can explain the importance of social studies to me: it was 70, and now it is 98.	Sometimes some of my friends did not obey some classroom rules in group studies. But courses were great.

As shown in Table 3, new dimensions were expressed on a differentiated social studies curriculum unit by the gifted and talented students. The "Like" column of answers is similar to the student answers to the prior questions. Praises were primarily expressed regarding the differentiated curriculum unit. Similarly, the specifications such as real-life problems and creative thinking were noted as positive ways in which the unit was implemented. The students expressed that writing was boring, which might explain gifted and talented student characteristics, because they might have viewed writing as an unnecessary task. One answer of a student may be important; thus, it intimates a satisfaction of the challenges in the course. This point should be addressed based on one student's thoughts that "It was great for better thoughts to be expected from us" (Participant 2). As previously discussed, this statement may prompt the question of challenging as an important consideration in educating an advanced level of learners. Two participant students expressed the same notion regarding the teacher's recognition of their thoughts. This factor highlights the notion of the teacher factor in the education of gifted and talented learners for both the levels of understanding and the communication skills to address these students' educational needs.

Table 4.

Gifted and Talented Students' Thoughts Regarding Regular and Differentiated Social Studies

Students	***Question: What do you think about the differences between the social studies courses and the social studies courses during this term?***
1 (Male)	The social studies course was terrible before we experienced social studies this term.
2 (Male)	This social studies course is more instructive, which is why it affected my social studies course grade. I should say that it was entertaining.
3 (Male)	Regular social studies was boring. I could slightly speak. In this course, I could speak more and I had fun.
4 (Male)	This social studies is more informative and entertaining.
5 (Male)	The regular social studies was terrible; this one is much, much better.
6 (Female)	Social studies is always boring.
7 (Female)	There is a huge difference between the two courses. I got bored in normal social studies courses, but now it is funny. My grade is now better.
8 (Female)	Social studies in this term is magnificent. I wish school to end early but not social studies.
9 (Female)	I can describe social studies in this term as entertaining and informative; the normal social studies course is terribly boring.

As shown in Table 4, the students stated their thoughts regarding the experience of the disparity between the regular and differentiated social studies. Similarly to previous questions, the students predominately stated that the regular social studies they practiced was boring. However, they use some instructive descriptors to explain their views regarding the differentiated social studies unit; entertaining; informative; much, much better; and magnificent. In summary, the gifted and talented students rated the differentiated social studies unit as ultimately better according to their answers to the questions.

Discussion and Conclusion

The research findings demonstrated that while the gifted and talented students' thoughts regarding social studies were not positive, what they experienced with the differentiated curriculum unit could shift their negative views about the course. The research findings also indicated that the differentiated curriculum unit based on the Integrated Curriculum Model (ICM) met and exceeded the expectations of the gifted and talented students, according to their statements. The study findings reminded us of the significance of differentiation in the subject matters of social studies (Tomlinson, 2005; VanTassel-Baska & Stambaugh, 2006). Most gifted and talented students who participated in the study stated that their predominately negative views regarding social studies changed and that they started to like social studies subjects because of its relation to real-world problems; furthermore, they enjoyed being a part of the learning process.

The study supports the suggestions for gifted and talented students in social studies education proposed by VanTassel-Baska (2007). These considerations include the advanced content, the complexity of the topics that engage problem-based learning, the differentiation of social studies that engages depth, the creative opportunities provided to learners, and the more abstract level of engagement in real-world issues (VanTassel-Baska, 2007). The implementation of a social studies unit based on the Integrated Curriculum Model successfully changed or reshaped their thoughts on social studies.

An examination of the tables also indicates that there would be a connection between student responses and characteristics that can be found in the literature as general characteristics of gifted students. Although the concept of giftedness is multidimensional, Popham (1971) suggests that "no single criterion provides a valid measure of its presence in any individual" (Popham, 1971, p. 8); thus, some general characteristics of intellectual giftedness were stated for gifted and talented students in social studies:

> (1) facility in verbal and written expression; (2) skill in reading for speed and comprehension; (3) intellectual curiosity; (4) capacity for generalization and perception of relationships; (5) ability to understand and formulate abstract

> concepts; (6) ability to think logically; (7) retentive memory; (8) capacity for self-direction; and (9) resourcefulness in problem solving. The gifted student learns rapidly. Because of his speed in learning, he will require less detailed, repeated instruction. He may exhibit an amazing degree of imagination, initiative, originality, resourcefulness, creativity, and inventiveness. He has superior powers of artistic self-expression and may demonstrate surprising skills with several art media (Popham, 1971, p. 9).

According to the student responses, we can conclude that social studies was perceived by students in accordance with their general academic characteristics. Thus, in the linkage, what is proposed regarding their general academic ability can be explained by the gifted and talented students' comments regarding social studies. For example, according to Popham (1971), gifted and talented students desire "less detailed and repeated instruction" (p. 9). Similarly, Cole and Schreyer (2007) explain the importance of connection with curriculum and instruction and the characteristics of gifted and talented learners:

Particularly within the gifted and talented student population, the young learner must be presented with opportunities to explore and to define his or her personal interests and to investigate material in an independent but supported manner. Natural curiosity especially prominent in the gifted learner should be fueled by a rigorous and diverse social studies curriculum (Cole & Schreyer, 2007, p. 814).

When we revisit what the students explained regarding why they did not like the social studies unit, the responses "sometimes the courses become detailed" (Participant 1) and "our teacher was talking in detail" (Participant 3) are consistent with the general academic characteristics stated in the literature (Popham, 1971; Cole & Schreyer, 2007; Delisle, 1991; Steward, 1985). Moreover, VanTassel-Baska (2008) argues there have been some lists of characteristics of gifted and talented learners for curriculum studies, and the three aspects of gifted and talented students are as follows: precocity, intensity, and complexity. These factors remain essential in the planning and implementation of the Integrated Curriculum Model in differentiated units of studies.

The study highlights students' views in an interpretive manner via the juxtaposition of dimensions, and it needs to be considered in social studies curriculum for gifted and talented learners, which are based on research evidence, suggestions in the literature, and the student responses provided in this study. Student responses regarding regular social studies were qualified as "boring," "hate," and "unattractive," might be found in the roots of the curricular and instructional implementations. However, the roots of the positive student responses such as "magnificent," "instructive," and "entertaining" similarly, but in a reverse direction, could depend on the potential success of research based offerings both in the curricular and instructional levels proposed in the Integrated Curriculum Model. Because the students' thoughts regarding social studies easily shifted to positive in

the implemented unit, this finding may remind us of the need to reconsider social studies education for gifted and talented students. Furthermore, we should note that the main limitations of the study should be considered. For example, as Delisle (1991) stated regarding some empirical research evidence on social studies for the gifted and talented, he explains that many studies focused on short-term gains in student attitudes and achievements. This issue is applicable to the current study in which the students were asked about their thoughts after a two-month implementation. This approach can be considered a limitation of the study; thus, there is a need for future longitudinal research studies.

Another point that should be emphasized is that this study does not aim to evaluate current social studies curricula, programs, instructional practices, or implementations in Turkey or the research setting. The study, simply put, clearly highlights students' thoughts regarding what they experienced in a social studies course. Thus, social studies in Turkey was articulated to describe a setting in general while explaining students' thoughts.

The Social Studies curriculum in Turkey was restructured in 2004 in accordance with a constructivist approach and emphasizes higher order thinking skills, critical thinking, creative thinking, problem solving, and decision making, which are also stressed in educational programs and models for gifted and talented education. In the 2004 social studies curriculum, which is currently in use, some basic skills that must be gained by students were stated as follows: (1) critical-thinking skills, (2) creative-thinking skills, (3) communication and empathy skills, (4) research skills, (5) problem-solving skills, (6) decision-making skills, and (7) use-of-information-technologies skills (Ministry of National Education, 2012). An investigation of the current curriculum in Turkey may raise the question previously proposed by Steward (1985) in consideration of the general structure of the current social studies curriculum for gifted and talented education. How should social studies for the gifted and talented be different from a good social studies education or from best practices in social studies? Steward's (1985) answers to this question are first to identify the link between the characteristics of the gifted and talented and then to determine our goals in the education of the gifted and talented. After he explains the common classroom practices' insufficiency to challenge gifted and talented students, he continues to describe what might be the vision of social studies for gifted and talented students:

Social studies for the gifted should focus on developing creative producers in the social sciences, persons who might add something new to a discipline or even change its direction. It should also encourage creative producers who can bridge social science disciplines, synthesize them, and gives us visionary leadership (Steward, 1985, p. 242).

Although somehow limited, the gifted and talented students' thoughts in this study, in a sense, corroborate previous research studies (Steward, 1985; Popham,

1971; Cole & Schreyer, 2007; Delisle, 1991; VanTassel-Baska, 2008; VanTassel-Baska & Stambaugh, 2006; VanTassel-Baska, 2009a, 2009b). Thus, social studies curricula and instruction methods may be planned and taught as a social science among three traditions, because this approach may provide students the opportunity for more creative opportunities and more research-based, discipline-based, problem-based, and advanced content. It may also demonstrate their talents in independent and group studies that meet gifted and talented students' characteristics and expectations as stated in the student statements.

In this study, thoughts regarding the Integrated Curriculum Model's implementation were highlighted. An examination of gifted and talented students' thoughts in light of the ICM shed light on curricular and instructional considerations for creating a good social studies education for gifted and talented learners. Taking into account student characteristics, the curricular and instructional interventions that were developed in accordance with social studies and gifted education represent an important implication of the study. The students' thoughts clearly support the curricular dimensions of the ICM, the advanced content and strategies, problem-based learning, flexible grouping studies, and classroom discussions with field experts. The relatively short gifted and talented student answers can be considered a limitation of the study. However, these written responses provided frank and direct answers from students regarding what they thought in both regular and differentiated social studies in accordance with the Integrated Curriculum Model they experienced. Other research studies must be employed in different school settings, with different gifted and talented students, and with other models and programs in addition to the ICM to develop an understanding of how to better meet student needs in every content area, including social studies.

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Sosyal Bilgiler Öğretiminde Entegre Müfredat Modelinin (EMM) Kullanımı: Üstün Zekâlı ve Yetenekli Öğrencilerin Düşünceleri

Özet

Atıf:

Kahveci, N. G., & Atalay, Ö. (2015). Use of Integrated Curriculum Model (ICM) in Social Studies: Gifted and Talented Students' Conceptions. *Eurasian Journal of Educational Research*, 59, 91-112
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Problem Durumu: Üstün zekâlı ve yetenekli öğrencilerin eğitimsel ihtiyaçlarıyla ilgili alan yazında eğitim programlarına ve öğretime yönelik birçok araştırma bulunmaktadır. Farklı birçok disiplin ve derslerde öğrenciler için hazırlanan eğitim programları üstün zekâlı ve yetenekli öğrencilerin eğitimsel ihtiyaçlarını karşılamaktan oldukça uzaktır. Bu çalışmada, üstün zekâlı ve yetenekli öğrenciler için önemli olduğu düşünülen birçok eğitim programı modeli içerisinden Entegre Müfredat Modeli (EMM) ne dayalı sosyal bilgiler dersi İyi ki var ünitesi Milli Eğitim Bakanlığı Eğitim Programı kazanımları korunarak farklılaştırılmış ve yeniden düzenlenmiştir. Entegre Müfredat Modelinin üstün zekâlı ve yetenekli öğrenciler için ünite planının geliştirilmesinde temel alınmasının en önemli nedeni yapısındaki disiplinler arası ilişkiler ağına önem vermesi ve yine yapısal olarak üstün zekâlı ve yetenekli öğrencilerin özelliklerine uygun olarak Epistemolojik kavram, ileri içerik, süreç-ürün boyutlarının birbirleriyle ilintili bir biçimde kullanılması bulunmaktadır. Alan yazın incelendiğinde Entegre Müfredat Modeline yönelik araştırmaların gerekliliğine vurgu yapıldığı görülmektedir. Alan yazın incelendiğinde Entegre Müfredat Modeli ile ilgili deneysel araştırmaların varlığı söz konusu olmakla birlikte, üstün zekâlı ve yetenekli öğrenciler için sosyal bilgiler öğretiminde bu konudaki araştırmalara ihtiyaç olduğu ifade edilmelidir. Bundan dolayı, Entegre Müfredat Modelinin uygulamasına yönelik öğrencilerin bu konudaki görüşlerini inceleyen bu araştırmanın bu konudaki araştırma çabaları açısından önemli bir adım olacağı düşünülmektedir. Bazı üstün zekâlı ve yetenekli öğrencilerin sosyal bilgiler dersine yönelik özel yeteneklerinin olabileceği alan yazında belirtilmiştir. Özellikle dünyada karşılaştığımız birçok tarihsel ve güncel sorun sosyal bilgiler dersi konu kapsamında incelenebilir. Üstün zekâlı ve yetenekli öğrencilerin bu karmaşık olguların ve problemlerin çözümlenmesinde gelecekte önemli roller üstlenebilecek potansiyelleri

göz önünde bulundurularak eğitim programlarının düzenlenmesi, bu öğrencilerin eğitim süreçlerinde düşünülmesi gereken önemli bir husustur. Alan yazında Üstün zekâlı ve yetenekli öğrencilerin eğitimi ve sosyal bilgiler öğretimi ile ilgili eğitimsel önlemlerin birbirine benzer olduğu ve bu alanların doğal bir bağlantısı bulunduğu ifade edilebilir. Özellikle, üst düzey düşünme becerileri kapsamında ifade edilen eleştirel düşünme, yaratıcı düşünme, problem çözme, karar verme, birinci elden kaynakları inceleme, gerçek yaşam problemlerine çözüm bulma gibi konular her iki alanın birbiriyle bağlantısını göstermesi açısından önemlidir.

Araştırmanın Amacı: Bu araştırmanın amacı Entegre Müfredat Modelinin uygulanması ile ilgili öğrenci görüşlerini incelemektir. 8 hafta üzerinden Entegre Müfredat Modeli esas alınarak yapılandırılmış ve planlanmış olan İyi ki var ünitesi ifade edilen modelin temel özellikleri ve üstün zekâlı ve yetenekli öğrencilerin genel ve bireysel özellikleri de göz önünde bulundurularak, bu modelin öngördüğü üst düzey düşünme becerileri ve problem temelli öğrenme gibi beceriler, öğretim yöntem teknikleri işe koşularak hem ünite planında hem de öğretimde önemli farklılaştırmalar yapılmış ve bunun sonucunda öğrencilerden bu ders ve öğretim ile ilgili düşüncelerini ifade etmeleri istenmiştir. İstanbul ilinde Milli Eğitim Bakanlığı' na bağlı bir birim olan Rehberlik ve Araştırma Merkezi tarafından çoklu değerlendirmelerle tanılanıp resmi devlet okuluna 1. Sınıftan itibaren kayıt yaptırmış ve eğitim görmekte olan, 4. Sınıf (10 yaş)12 üstün zekâlı ve yetenekli öğrenci gönüllü olarak çalışmaya katılmıştır.

Araştırmanın Yöntemi: Bu çalışma sosyal bilgiler dersinde Entegre Müfredat Modeli ne dayalı olarak geliştirilen iyi var ünitesi kapsamında öğrencilerin görüş, düşünce ve duygularını açıklamaya yönelik bir nitel çalışmadır. Öğrenci görüşlerini içeren veriler üstün zekâlı ve yetenekli öğrencilerin eğitimi ile sosyal bilgiler alan uzmanları ve öğretmenlerinin görüşlerine başvurularak 4 açık uçlu sorudan oluşan bir yazılı veri toplama aracı araştırmacılar tarafından geliştirilmiş. Toplanan veriler içerik analizi tekniğine uygun bir şekilde analiz edilmiş ve sunulmuştur.

Araştırmanın Bulguları: Araştırmanın bulguları Entegre Müfredat Modeline göre oluşturulmuş sosyal bilgiler dersinin üstün zekâlı ve yetenekli öğrencilerin bu derse yönelik düşüncelerini olumlu yönde değiştirdiğini göstermektedir.

Araştırmanın Sonuçları ve Önerileri: Bu çalışmada üstün zekâlı ve yetenekli öğrencilerin Entegre Müfredat Modelinin sosyal bilgiler dersinde uygulamasına yönelik düşünceleri ve deneyimleri incelenmiştir. Bu araştırma üstün zekâlı ve yetenekli öğrencilerin eğitimsel ihtiyaçları göz önünde bulundurularak yapılandırılmış bir ders ünitesinin ve buna uygun öğretimsel müdahalelerin öğrencilerin ders hakkında düşünce ve yaklaşımlarını olumlu yönde değiştirdiğine ilişkin sonuçlara varılabilir. Sosyal bilgiler öğretiminin önemi ve amacı göz önünde bulundurulduğunda, bu ders ile üstün zekâlı ve yetenekli öğrenci özellikleri arasında doğal bir ilişki olduğu ifade edilebilir. Üstün zekâlı ve yetenekli bireylerin toplumların ilerlemesinde, sosyal problemlerin çözümünde, demokratik yaşam kültürünün geliştirilmesinde ve sosyal bilgilerin içerisindeki sosyal bilimlerde

önemli gelişmeleri ortaya koyabilecek potansiyelleri bulunmaktadır. Sosyal bilgiler dersi ve öğretiminin üstün zekâlı ve yetenekli öğrencilerin eğitimsel ihtiyaçları üzerinde araştırma yapılarak gelişime sürekli açık olan eğitim program modellerinin araştırılması, geliştirilmesi, uygulanması ve değerlendirilmesinin önemi oldukça açıktır. Bu çalışma, sosyal bilgiler dersinde üstün zekâlı ve yetenekli öğrencilerin bu düşünce ve deneyimlerini ortaya koyması açısından önem taşımaktadır. Bu araştırma üstün zekâlı ve yetenekli öğrencilerin sosyal bilgiler derslerinde kendi eğitimsel ihtiyaçlarına yönelik müdahalelerin önemine vurgu yapması açısından da önem taşımaktadır.

Anahtar Kelimeler: Sosyal Bilgiler Eğitimi, Entegre Müfredat Modeli, Üstün Zekâlı ve Yeteneklilerin Eğitimi

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Contact Disturbances, Self-Esteem and Life Satisfaction of University Students: A Structural Equation Modelling Study

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Abstract

Problem Statement: A literature analysis revealed that contact disturbances, self-esteem and life satisfaction have been examined in different studies separately. In particular, the researchers observed that the studies conducted on Gestalt contact disturbances are limited in number. In this study, the variables of contact disturbances, self-esteem and life satisfaction have been examined all together, and their correlations with one another will be examined though path analysis in the structural equality model.

Purpose of Study: The aim of the study is to test the model developed in order to determine whether there is a causal relationship among contact disturbances, self-esteem and life satisfaction of university students.

Method: This study utilised a qualitative and relational model to examine the correlations among variables. Data for the study was collected through the Gestalt Contact Disturbances Scale, the Short Form of Coopersmith's Self-Esteem Inventory and the Life Satisfaction Scale. The data were analysed using SPSS and LISREL programs. Students in the research group were composed of a total of 414 students (290 females and 124 males) studying in various departments of the faculty of education of Mehmet Akif Ersoy University.

Findings: The standardised path values were found to be 0.18 and 0.75 between the contact disturbances potential variables and self-esteem, and 0.61 between the self-esteem potential variable and the life satisfaction potential variable. When the model was tested it was observed that statistically significant correlations were present between contact level and self-esteem ($t = -3.42$, $p<.05$), full contact level and self-esteem ($t = -8.96$, $p<.05$), dependent contact level and self-esteem ($t = 3.14$, $p<.05$), post-

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contact level and self-esteem ($t = 2.35$, $p<.05$), and self-esteem and life satisfaction ($t = 8.81$, $p<.05$).

Conclusion and Suggestions: The structural model developed based on the causal correlations between contact disturbances, self-esteem and life satisfaction was verified. The researcher also observed that the fit indices of the structural model developed generally met the acceptance value conditions; t values of correlations among all values were significant. Researchers can develop models by using Gestalt contact disturbances and different concepts and can carry out comparative studies by examining Gestalt contact disturbances of different ages and professional groups. Furthermore, psychological counsellors who apply Gestalt therapy can use the Gestalt contact disturbances scale in their studies.

Key Words: Gestalt, contact disturbances, self-esteem, life satisfaction.

Introduction

As a social being, a human should live along with other humans in order to survive in his environment. Humans accommodate the model's needs and grow mature owing to their relationship with the environment. In other words, a human goes into contact with other human beings and their nature. The approach that focuses most on the concept of contact is Gestalt Therapy. Contact is an important concept used in Gestalt Therapy to understand the individual.

In Gestalt Therapy contact is required for realisation of development. Once contact is made with the environment, change is inevitable. Contact takes place through activity such as seeing, hearing, touching, smelling and moving. An effective contact is communication of an individual with others and his environment without losing his sense of self. Humans make contact with others and their environments within their own borders. They are sometimes afraid of establishing proper contact. Humans need to protect themselves from the environment; they think that they will be harmed if they go into contact with it (Jacobs, 2007).

In Gestalt therapy, the focus of the therapy process is on contact but would also involve the process of contact disturbances and the awareness of them. What gives the therapy its shape and what is in the forefront of the therapy is the contact itself. People get into contact by hearing, touching, smelling, seeing, tasting, speaking and moving (Voltan-Acar, 2006). The relationship of an organism with the environment is often called a "Contact Process," "Contact Cycle" or "Gestalt Formation and Undoing Cycle" in the Gestalt Approach (Kirchner, 2000). Spagnuolo (2005) suggests that the contact cycle is composed of fore-contact, contact, full contact and post-contact processes. In the fore-contact stage, the individual takes in a newly-emerging situation. This projection expresses a contact disturbance and it takes place during the contact stage. If it is an appropriate situation for the person, the individual accepts it, and it is therefore balanced. If it is not appropriate and if the individual cannot cope with it healthily, the said individual then deflects or makes a retroflection of it, which expresses the full contact stage. If the situation is not appropriate for the individual, the said individual does not accept it or simply rejects

it by saying "no." If the individual fails to finalize this stage healthily, the individual will eventually withdraw; or, in other words, terminate the contact, or enter the post-contact stage. Lack or ambiguity of borders in the contact process, or using the confluence of borders, is an unhealthy situation. It might result in problems if an individual misuses the confluence of borders beyond the contact stage. In the post-contact stage, the individual normally digests the contact and internalizes this new situation the individual has acquired. The individual would be satisfied with its self and the process the individual went through. If the individual experiences a problem in the contact process and uses contact disturbances, the process is interrupted and not finalised (Kirkpatrick, 2005).

In the Gestalt Contact Disturbances Scale developed in accordance with Turkish culture, the factor containing the projection contact disturbance items is called "contact," while the factor containing retroflection and deflection contact disturbance items is called "full contact;" the factor containing confluence of borders and proflection contact disturbance items is called "dependent contact," and the factor containing the withdrawal contact disturbance items is called the post-contact (Tagay and Voltan-Acar 2012a). Projection disturbance, which exists in the contact stage, is a process in which an individual directs towards other people his inherent feelings, behaviours and thoughts that he rejects and projects them as if they do not belong to the said individual (Latner, 1992).

In retroflection, contact disturbances occur during the full contact stage in which the individual focuses on his own feelings and thoughts. Individuals who have retroflection contact disturbance do not take action towards their environment, but rather flex it back upon themselves (Sills, Finch and Lapworth, 1998). Examples of retroflection include self-hatred, self-love, self-control, narcissism, nail-biting, lip-biting and eating disorders. Retroflection may do harm to the individual if conducted unwittingly (Voltan-Acar, 2006).

In deflection contact disturbance, individuals are unable to express their feelings directly and they use indirect ways to do so. These individuals display irrelevant behaviours to divert from the primary topic in their interpersonal relations, and they frequently make jokes in order to ignore the issue when people talk about topics that irritate them (Kepner, 1982). In other words, in deflection contact disturbances it is more likely that the individual would use diversion away from the person who is to be contacted directly. Retroflection and deflection contact disturbances exist in the full contact stage.

The dependent contact stage is composed of the confluence of borders contact disturbance and proflection syndrome contact disturbance. In confluence of borders contact disturbance, the border between the individual and others becomes vague (Latner, 2000). In proflection syndrome contact disturbance, individuals treat others in the way that they would like to be treated. When individuals fail to express their needs or their desires, they help by accommodating the needs of others, which they do unwittingly (Voltan-Acar, 2006).

In the withdrawal contact disturbance of the post-contact stage, individuals might sometimes need to withdraw to digest the situation after some intensive experience. Withdrawal is necessary to move away from the environment, to rest one's head and to process what has been experienced. Sometimes, one might need to

withdraw in order to draw a boundary. These are healthy withdrawals. An unhealthy withdrawal is the one that an individual experiences unwittingly (Voltan-Acar, 2006).

In addition to contact, another concept that also gives shape to the relationships of one individual with others is self-esteem. Sam, Sam & Öngen (2010) suggest that the concept of self is defined as the whole of perceptions, feelings and thoughts that are fundamental and very critical to human personality. In other words, the concept of self is the way an individual perceives and comprehends himself. Self-esteem is the totality of expectations an individual has of himself to be accepted or rejected, as well as the thoughts of the individual about himself.

The summation of the facts suggests that if an individual has a positive attitude about his self-evaluation, his self-esteem will be high; whereas, if the individual has a negative attitude, his self-esteem will be low. With respect to the studies, the individuals who would prove to have a high self-esteem were those people who respect themselves and consider themselves as valuable figures within society. On the other hand, a person with lower self-esteem would always consider himself negatively (Rosenberg, 1965; Fennell, 1997). Studies suggest that individuals with high self-esteem can establish close relationships and have strong overcoming skills (Baumeister, Campell, Kruger & Vohs, 2003).

An analysis of studies on self-esteem reveals that researchers examined the correlations of self-esteem with academic performance, interpersonal achievements, happiness and a healthy lifestyle (Baumeister, Campbell, Krueger & Vohs, 2003), with recklessness (Kahriman, 2005), with approaches to coping with stress (Hamarta, Arslan, Saygın & Özyeşil, 2009), with loneliness and psychological resilience (Güloğlu & Karaırmak, 2010), with social support and despair (Savi Çakar & Karataş, 2012), with loneliness and life satisfaction (Kapıkıran, 2013), and with social support and subjective well-being (Kong, Zhao & You, 2013).

Furthermore, when the researcher analysed the studies, they noted several that suggest a correlation between self-esteem and life satisfaction (Chow, 2005; Zhank, 2005, Kapıkıran, 2013). Life satisfaction is among the subjects of psychology that focuses on the positive attributes of human nature. Diener & Diener (1995) suggests that life satisfaction emphasizes the cognitive aspect of subjective well-being as a concept concerning the happiness of individuals. Life satisfaction is not satisfaction about a given situation; rather, it encompasses satisfaction with life in general. Happiness expresses a state of well-being from different aspects, such as morale (Wilson & Peterson, 1988).

A literature analysis revealed that contact disturbances, self-esteem and life satisfaction were examined in different studies separately. In particular, the researchers observed that the studies conducted on Gestalt contact disturbances are limited in number. In this study, the variables of contact disturbances, self-esteem and life satisfaction have been examined all together, and their correlations with one another will be examined though path analysis in structural equation modelling. The aim of the study is to test the model developed in order to determine whether there is a causal relationship among contact disturbances, self-esteem and life satisfaction of university students.

The Structural Model Proposed

The study first defined three potential variables on a theoretical basis: Gestalt contact disturbances, self-esteem and life satisfaction. Gestalt contact disturbances have four sub-dimensions: contact, full contact, dependent contact and post-contact. The Short Form of Coopersmith's Self-Esteem Inventory and Life Satisfaction Scale determine the total score. The structural model proposed is presented in Figure 1. In order to verify the structures established in the model proposed, first the measurement model was examined along with the data collected under this study, and then the correlations among these structures were analysed by means of structural equation modelling.

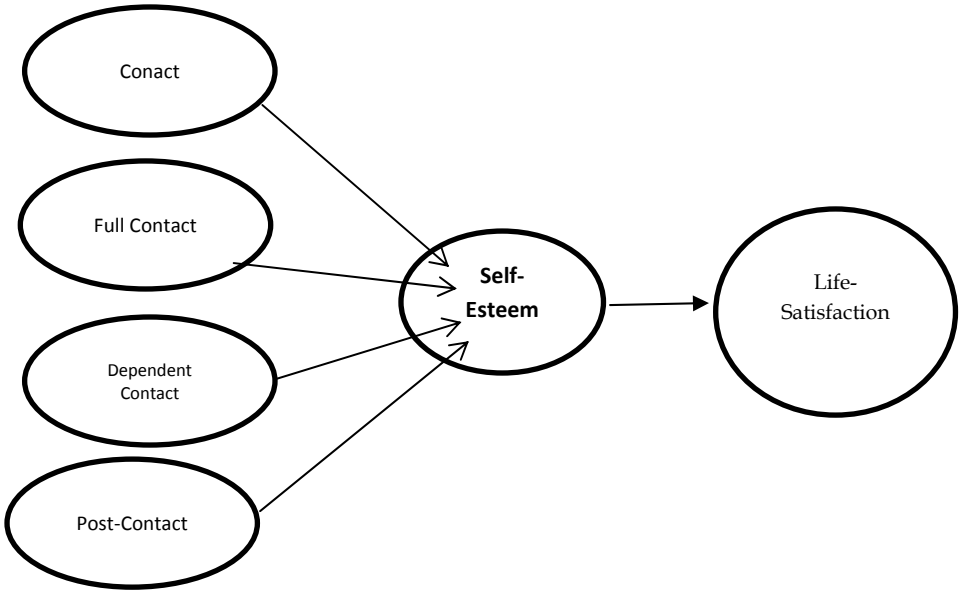


Figure I. The Structural Model Proposed

Method

Research Design

This study utilised a qualitative and relational model to examine the correlations among variables. Data for the study were collected through the Gestalt Contact Disturbances Scale, the Short Form of Coopersmith's Self-Esteem Inventory and the Life Satisfaction Scale. The model established was tested using Structural Equation Modelling.

Research Group

Students in the research group were composed of a total of 414 students (290 females and 124 males) studying in various departments of the faculty of education of Mehmet Akif Ersoy University. For the research group that received the questionnaire in academic year 2011-2012, we originally reached out to 445 students. However, 31 students were excluded from the analysis because they failed to fill out the questionnaire completely.

Research Instrument

In this study, the Gestalt Contact Disturbances Inventory, Coopersmith's Self-Esteem Inventory and the Life Satisfaction Scale were used as data collection tools.

Gestalt Contact Disturbances Scale: The study used the Gestalt Contact Disturbances Scale (GCDS) developed by Tagay (2010b) in order to measure the contact disturbances of university students. GCDS is composed of 24 items and 4 sub-scales such as contact, full contact, dependent contact and post-contact. The Cronbach Alpha internal consistency coefficient of GCDS was found to be .61 for the sub-scale of contact, .79 for the sub-scale of full contact, .75 for the sub-scale of dependent contact and .60 for the sub-scale of post-contact. Test re-test reliability coefficient was found to be .74 for the sub-scale of contact, .77 for the sub-scale of full contact, .69 for the sub-scale of dependent contact and .65 for the sub-scale of post contact. The verifying factor analysis tested the four-factor structure and revealed that the model tested had very good fit indices.

Short Form of Coopersmith's Self-Esteem Inventory: This study used the short form of Coopersmith's Self-Esteem Inventory developed by Coopersmith (1974) and adapted into Turkish by Pişkin (1996). The answers given to the inventory, composed of twenty-five items, are yes (1) or no (0). The higher the scores were, the higher the self-esteem of individuals was interpreted to be. Internal consistency reliability coefficients of the inventory ranged from .75 to .83, while the validity coefficients obtained through the test-retest method ranged from .70 to .80. The reliability coefficient of the inventory calculated by means of the Kuder Richardson (KR-20) formula was .74 (Pişkin, 1996). In this study, the KR 20 coefficient of the inventory was found to be .85.

Life Satisfaction Scale: The Life Satisfaction Scale was developed by Diener, Emmons, Laresen & Griffin (1985) and translated into Turkish by Köker (1991). The scale consists of five items regarding life satisfaction. Each item is answered according to a system ranked from 1 to 7 (1: not suitable at all – 7: very suitable). Aiming to measure overall life satisfaction, the scale is appropriate for all age groups from adolescents to adults. Translation of the scale into Turkish and the validity study of the scale by means of the face validity method were conducted by Köker (1991). The item analysis revealed a sufficient correlation between the scores received from each item of the scale individually and the total scores. The test-retest reliability coefficient of the scale was found to be .85.

Data Analysis

This study examined by means of structural equation modelling whether there is a causal relationship among Gestalt contact disturbances, self-esteem and life satisfaction of university students. SPSS and Lisrel software were used in the analysis of the data obtained.

Structural Equation Modelling (SEM): Structural Equation Modelling is a statistical method that allows researchers to examine the correlations among a series of variables. In this type of analysis, the basic problem of the researcher is to express whether a model that the researcher puts forward by referring to the field literature is verified by the data (Tatlıdil, 1992). In structural equation modelling there are two primary models: the measurement model and the structural model. Measuring the model used in the study at the start of the analysis of the structural equation modelling is presumed (Sümer, 2000; Şimşek, 2007).

In line with the purpose of this study, the researcher used the Structural Equality Model to test the model developed for examining whether there is a causal relationship among Gestalt contact disturbances, self-esteem and life satisfaction of university students. The study utilized two-tier structural equation modelling that allows the researcher to first test the measurement model by means of verifying factor analysis and then to test the cause-effect correlations among the above-mentioned variables through path analysis.

Results

In this study, the researcher first examined the reliability of scales and the validity of the structure. The measurement models were tested. Then, the structural model was tested in both groups in line with the two-tiered method. Reliability of the scales was analysed by means of Cronbach's Alpha internal consistency co-efficient and McDonald's Omega values.

Tablo 1.

Factors, factor loads, R2, Cronbach Alpha and McDonald's Omega Values concerning Gestalt Contact Disturbances Scale Items

Sub-Dimensions	***Item***	λ_i	R^2	***a***	***ω***
Contact Items	3	0,46	0,79	0,69	0,72
	7	0,72	0,48		
	14	0,76	0,43		
	18	0,45	0,8		
	21	0,5	0,75		
Full Contact Items	1	0,57	0,68	0,70	0,70
	2	0,47	0,78		
	5	0,48	0,77		
	8	0,44	0,81		
	11	0,49	0,76		
	17	0,33	0,89		
	19	0,51	0,74		
	20	0,46	0,79		
Dependent Contact Items	9	0,44	0,81	0,68	0,67
	10	0,39	0,84		
	12	0,45	0,8		
	13	0,43	0,81		
	15	0,65	0,58		
	16	0,54	0,71		
	23	0,36	0,87		
Post Contact Items	4	0,26	0,96	0,53	0,62
	6	0,39	0,88		
	22	0,83	0,47		
	24	0,69	0,59		

An analysis of factors, factor loads, R^2, Cronbach's Alpha and McDonald's Omega Values concerning Gestalt Contact Disturbances Scale Items suggests that

Cronbach's Alpha coefficients of the GCDS sub-dimensions were 0.53-0.70. and McDonald's Omega values ranged between 0.62 and 0.72. As the researcher examined these values, it was determined that sub-dimensions of the scale had sufficient evidence for internal consistency and structural reliability. When the researcher looked at the factor loads and R^2 values of items in Table 1, it was observed that GCDS was composed of items that can measure the structure of contact disturbances and that psychometric attributes of GCDS were at sufficient levels.

Tablo 2.

Factors, factor loads, R2, Cronbach Alpha and McDonald's Omega Values concerning Life Satisfaction Scale Items

Dimension	***Item***	λ_i	R^2	***a***	***ω***
Life satisfaction items	1	0,71	0,49	0,83	0,85
	2	0,71	0,5		
	3	0,84	0,3		
	4	0,75	0,44		
	5	0,64	0,59		

As factor loads, R^2, Cronbach Alpha and McDonald's Omega Values concerning Life Satisfaction Scale Items were analysed, it was found that Cronbach's Alpha coefficient for the Life Satisfaction Scale was 0.83 and McDonald's Omega value was 0.85. These values suggest that the scale had sufficient evidence for internal consistency and structural reliability. When the researcher examined the factor loads and R^2 values of the items in Table 2, it was found that the Life Satisfaction Scale was composed of items that can measure the structure of life satisfaction, and psychometric attributes of the life satisfaction scale were at sufficient levels.

Tablo 3.

Factors, factor loads, R2, Cronbach Alpha and McDonald's Omega Values concerning Self-Esteem Scale Items

Boyut	*Madde*	λ_i	R^2	*a*	*ω*
Self-Esteem Items	1	0,17	0,97	0,79	0,80
	2	0,23	0,95		
	3	0,44	0,8		
	4	0,3	0,91		
	5	0,23	0,95		
	6	0,42	0,82		
	7	0,31	0,91		
	8	0,1	0,99		
	9	0,52	0,73		
	10	0,45	0,79		
	11	0,2	0,96		
	12	0,52	0,73		
	13	0,52	0,73		
	14	0,16	0,98		
	15	0,49	0,76		
	16	0,47	0,78		
	17	0,46	0,79		
	18	0,29	0,92		
	19	0,33	0,89		
	20	0,53	0,72		
	21	0,37	0,87		
	22	0,44	0,8		
	23	0,41	0,83		
	24	0,54	0,7		
	25	0,26	0,93		

Factors, factor loads, R^2, Cronbach's Alpha and McDonald's Omega Values concerning Self-Esteem Scale Items suggested that the Cronbach Alpha's coefficient of CSEI was 0.79 and the McDonald's Omega value was 0.80. As these values were analysed, it was observed that the scale had sufficient evidence for internal consistency and structural reliability. When the researcher examined the factor loads and R^2 values of the items in Table 3, CSEI was composed of items that can measure the structure of life satisfaction, and psychometric attributes of the life satisfaction scale were at sufficient levels.

Findings on the Testing of the Measurement Model

Before the measurement model was tested in the study, item parcels were formed for the potential variable of self-esteem. The parcel formation decision was made mostly in order to accommodate the basic assumptions of the method and to reduce the number of parameters (Bandalos & Finney, 2001; Hagtvet & Nasser, 2004). In the measurement and structural models, the 25-item potential variable of self-esteem was included into the analysis by forming five parcels.

As a result of the analysis, the chi-square value calculated for the measurement model (χ^2 = 215.76, sd = 73) was found to be significant at the level of $p = .00$. When the proportion of the chi-square value to the degree of freedom (χ^2/sd = 2,95) was examined, the fact that it was lower than 5 points demonstrated a good fit. When the researcher analysed the goodness of fit indices of the measurement model, it was found that it took the following values: RMSEA = .07, RMR = .58, GFI = .93, AGFI = .90 and CFI = .96. This suggests that the measurement model was a good one. Furthermore, when the researcher examined the standardised and non-standardised factor loads, standard errors and t statistics results of each observed variable on each potential variable, the researcher determined that all of the factor loads of the variables observed on potential variables were statistically significant, suggesting that the measurement model was an acceptable model as a whole and that the correlations among the structures could be analysed using Structural Equation modelling.

Findings on the Testing of Structural Equation Modelling

In the second stage of the study, after the measurement models were verified, sub-scales were totalled and potential variables were defined. The structural model is shown in Figure 2.

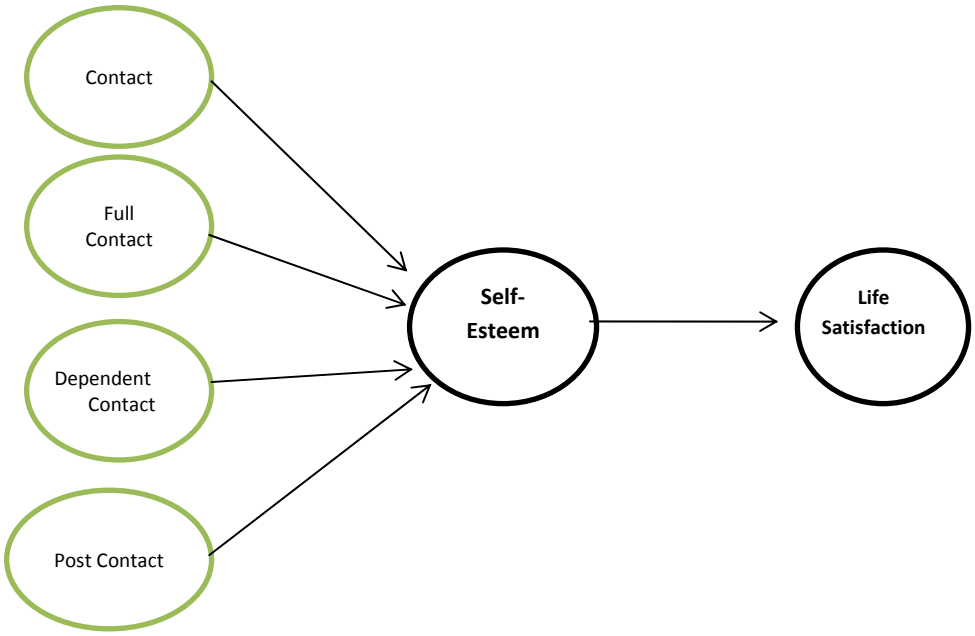
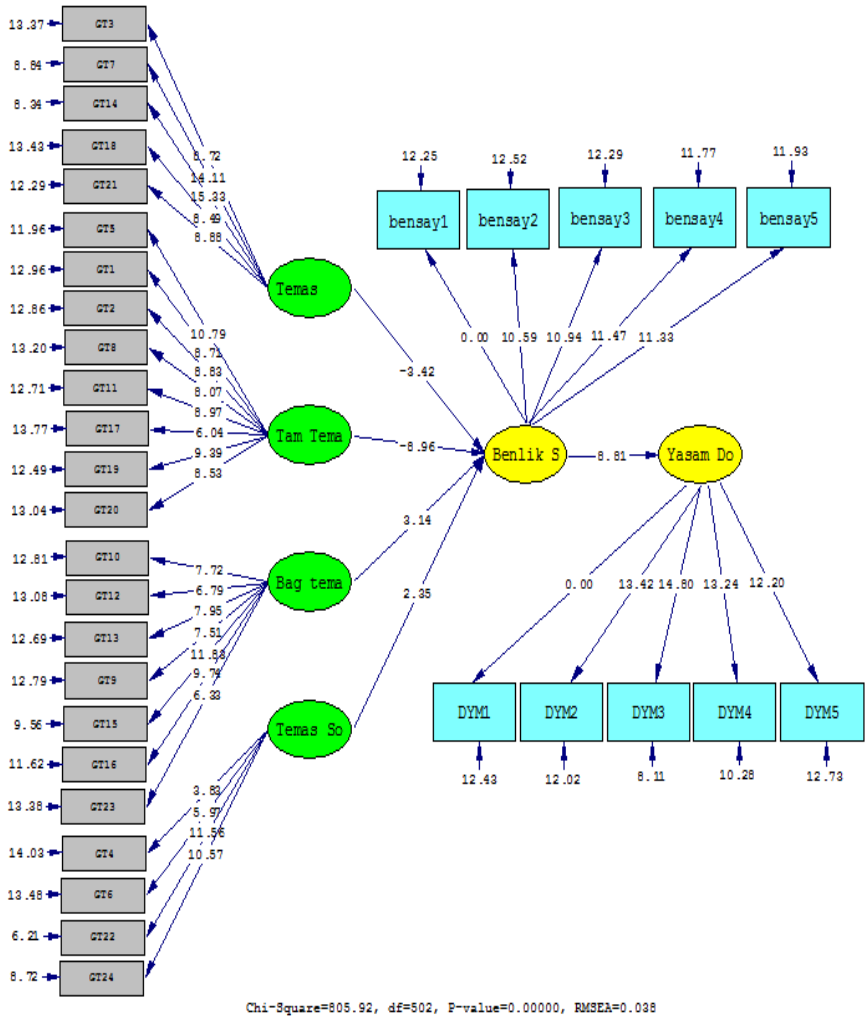


Figure 2. Standardised Values for the Structural Model

As can be seen in Figure 2, when the researcher analysed the standardised path values they were found to be 0.18 and 0.75 between contact disturbances potential variables and self-esteem, and 0.61 between the self-esteem potential variable and the life satisfaction potential variable. In the literature, standardised path value criteria are considered to be a low fit at 0.10, medium fit at 0.30 and good fit at 0.50 (Şimşek, 2007).

When the t value of the model was tested (as shown Figure 3), it was observed that statistically significant correlations were present between contact level and self-esteem (t = -3.42, $p<.05$), full contact level and self-esteem (t = -8.96, $p<.05$), dependent contact level and self-esteem (t = 3.14, $p<.05$), post-contact level and self-esteem (t = 2.35, $p<.05$), and self-esteem and life satisfaction (t = 8.81, $p<.05$). The chi-square value of the model was χ^2 = 805.92, sd = 502 and was significant (p = .00). When we analysed the proportion of the chi-square value to the degree of freedom level (χ^2/sd = 1.61) it was observed that the fact that it was lower than two pointed to a perfect fit. When we examined the goodness of fit indices concerning the structural model, we calculated the following values: RMSEA = .038, RMR = .20, SRMR = .059, GFI = .90, AGFI = .88 and CFI = .96. These values suggest that the structural model established was a good fit.



When the findings of this study are examined, it can be seen that the structural model developed based on the causal correlations between contact disturbances, self-esteem and life satisfaction are verified. The fit indices of the structural model developed have generally met the acceptance value conditions; t values of correlations among all values were significant.

Discussion and Conclusion

This study examined a structural model explaining a causal correlation among contact disturbances, self-esteem and life satisfaction of university students. In the first stage of the study, the measurement model was tested and it was determined

that the measurement model proposal could be used to test the structural model. Then, the structural model proposal was tested and verified according to the measurement models verified. The results obtained concerning the structural model suggest a causal correlation among contact disturbances, self-esteem and life satisfaction of university students.

When the results analysed, a significant negative correlation was found between contact level a sub-dimension of contact disturbances and self-esteem. An analysis of the field literature led the researcher to observe that there was no similar study on contact disturbances. The findings were obtained in this study were therefore discussed in accordance with the Gestalt Therapy Approach. The contact disturbance in the contact dimension is projection. Latner (1992) suggests that projection is a process in which an individual directs towards other people his own feelings, behaviours and thoughts that he rejects and projects them as if they do not belong to him. Self-esteem involves an individual knowing his own characteristics and knowing and accepting what he or she really is. It is therefore well accepted that individuals with lower self-esteem have a higher contact disturbance level.

The findings of this study suggest a significant negative correlation between full contact disturbance and self-esteem. In the sub-dimension of full contact disturbance there are retroflection and deflection contact disturbances. Retroflection is the process of converting inside the energy that is supposed to be converted outside (Brown, 2004). Individuals using the retroflection contact disturbance always blame themselves, try to be in control and have a negative self-image. They have difficulty expressing their needs and receiving help (Clarkson, 1994; Perls, 1973). Therefore, one can suggest that individuals with full contact disturbances have lower self-esteem due to the impact of the negative messages they receive from the environment. The researcher observed that these findings in the field literature support the findings of this very study which is: "university students with higher full contact disturbances had a lower self-esteem."

Another finding of the study puts forward a significant positive correlation between dependent contact disturbance and self-esteem. The sub-dimension of dependent contact disturbance includes confluence and proflection. Individuals using the confluence contact disturbance are afraid of breaking others and find it very difficult to say no (Kepner, 1982). In collectivist societies, individuals have difficulty making decisions or speaking on their own behalf. Similarly, commitment to family is healthy and well-supported for people in the Turkish culture (Göregenli, 1997; Hortaçsu, 1997). Tagay and Voltan-Acar (2012b) argues that one can encounter the confluence of borders contact disturbance in Turkish society far more than in western societies. It is obvious that cultural factors and upbringing may have an impact on the utilisation and extensiveness of contact disturbances. Therefore, one can suggest that, considering that the behaviours of individuals displaying obedience, harmony and loyalty to authority would be supported and approved, these individuals would have a higher self-esteem, especially in Turkish culture where these traits are expected.

In proflection, an individual treats his own environment exactly in the way that he treats himself (Clarkson, 1994). Therefore, as in the case of confluence, the researcher can put forward that proflection is a situation consolidated by the society

and that individuals displaying this behaviour are supported. Since the behaviours of such individuals are supported, we can suggest that it can contribute to their high self-esteem.

Another finding of the study suggests a significant positive correlation between post-contact disturbance and self-esteem. In the sub-dimension of post-contact there is the withdrawal contact disturbance. Withdrawal is healthy when it is for an individual to rest his own head, digest whatever the individual is going through and to draw boundaries with others, if not unwittingly. Once the contact cycle is over, an individual withdraws from contact until a new need arises. Withdrawal contact disturbance appears in the final stage of the contact cycle and is considered to be post-contact (Tagay 2010a).

The final finding of the study was a significant positive correlation between self-esteem and life satisfaction. As stated before, self-esteem is associated with an individual seeing himself to be positive and valuable. Veenhoven (1996) defines life satisfaction as an individual's evaluation of individual's life in accordance with his own criteria. It is expected that an individual's evaluations of himself has an impact on life satisfaction. There are studies conducted on self-esteem and life satisfaction. Dilmaç & Ekşi (2008) and Rey, Extremera & Pera (2011) all stated a significant positive correlation between self-esteem and life satisfaction in their studies.

Some recommendations have been formulated based on the conclusions of this study. Firstly, researchers can develop models by using Gestalt contact disturbances and other concepts and can carry out comparative studies by examining Gestalt contact disturbances of different ages and professional groups. Furthermore, psychological counsellors who apply Gestalt therapy can use the Gestalt contact disturbances scale in their studies. Additionally, they can take into consideration cultural factors and elements in their psychological counselling processes.

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Üniversite Öğrencilerinin Temas Engelleri, Benlik Saygısı ve Yaşam Doyumu Düzeyleri: Bir Yapısal Eşitlik Modeli Çalışması

Atıf:

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Özet

Problem Durumu: İnsanoğlu çevre ile kurduğu ilişki sayesinde ihtiyaçlarını karşılar, büyür ve olgunlaşır. Sosyal bir varlık olan insan, yaşamını sürdürmek için diğer insanlarla bir arada yaşamak durumundadır. Başka bir deyişle insan sosyal bir grup içerisinde diğer insanlarla, çevresiyle temas kurar. Temas kavramına daha çok odaklanan yaklaşım türü Gestalt terapidir. Temas Gestalt terapide bireyi anlamak için kullanılan önemli bir kavramdır. Alan yazın incelendiğinde temas engelleri, benlik saygısı ve yaşam doyumunun farklı çalışmalarda ayrı ayrı ele alındığı

görülmektedir. Özellikle Gestalt temas engelleri konusunda yapılan araştırmaların sınırlı sayıda olduğu görülmektedir. Bu araştırmada temas engelleri, benlik saygısı ve yaşam doyumu değişkenleri birlikte ele alınarak aralarındaki ilişki yapısal eşitlik modelinde yer alan yol analizi ile araştırılacaktır. Bu açıdan araştırmanın özgün bir çalışma olduğu düşünülmektedir.

Araştırmanın Amacı: Araştırmanın amacı üniversite öğrencilerinde temas engelleri, benlik saygısı ve yaşam doyumu arasında nedensel bir ilişki bulunup bulunmadığını açıklamaya yönelik geliştirilen modeli test etmektir.

Araştırmanın Yöntemi: Bu araştırmada, değişkenler arasındaki ilişkileri incelemeye yönelik niceliksel ve ilişkisel model kullanılmıştır. Araştırmada ilk olarak, teorik düzeyde üç örtük (gizil) değişken tanımlanmıştır. Bunlar: Gestalt temas engelleri, benlik saygısı ve yaşam doyumudur. Önerilen modelde kurulan yapıların doğrulanması amacıyla araştırma kapsamında toplanan veriler ile önce ölçüm modeli incelenmiş daha sonra bu yapılar arasındaki ilişkiler yapısal eşitlik modeli ile araştırılmıştır.

Araştırmanın verileri Gestalt Temas Engelleri Ölçeği, Coopersmith Benlik Saygısı Ölçeği Kısa Formu ve Yaşam Doyumu Ölçeği kullanılarak toplanmış ve kurulan modeli test etme işlemi Yapısal Eşitlik Modeli ile gerçekleştirilmiştir. Araştırma grubu Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesine devam eden 290'ı kız, 124'ü erkek olmak üzere toplam 414 öğrenciden oluşmaktadır.

Araştırmanın Bulguları: Çalışmada, öncelikle ölçeklerin güvenirliği ve yapı geçerliği incelenmiştir. Ölçme modelleri test edilmiş, daha sonra doğrulanan ölçme modellerine dayalı olarak ölçeklerin alt ölçek toplam puanları alınmış ve tek aşamalı yönteme göre her iki grupta da yapısal model test edilmiştir. Ölçeklerin güvenirliği Cronbach Alfa iç tutarlılık katsayısı ve McDonald'ın Omega değerleri kullanılarak incelenmiştir. Araştırmada modelin sınamasına ilişkin t değerleri incelendiğinde temas düzeyi ile benlik saygısı arasında ($t = -3.42$, $p<.05$), tam temas düzeyi ile benlik saygısı arasında ($t = -8.96$, $p<.05$), bağımlı temas düzeyi ile benlik saygısı arasında ($t = 3.14$, $p<.05$), temas sonrası düzeyi ile benlik saygısı arasında ($t = 2.35$, $p<.05$) ve benlik saygısı ile yaşam doyumu arasında ($t = 8.81$, $p<.05$) kurulan ilişkilerin istatistiksel olarak anlamlı olduğu görülmüştür.

Araştırmanın Sonuçları ve Önerileri: Bu araştırmada üniversite öğrencilerinde temas engelleri, benlik saygısı ve yaşam doyumu arasındaki nedensel ilişkiyi ortaya koyan bir yapısal model değerlendirilmiştir. Araştırmanın ilk aşamasında ölçme modelleri test edilmiş ve önerilen ölçüm modelinin yapısal modeli sınamada kullanılabileceği belirlenmiştir. Ardından doğrulanan ölçme modellerine dayalı olarak önerilen yapısal model test edilmiş ve doğrulanmıştır. Araştırmanın sonucuna göre; üniversite öğrencilerinin temas ve tam temas engeli ile benlik saygısı arasında negatif; bağımlı temas ve temas sonrası engeli ile benlik saygısı arasında pozitif ilişki bulunmuştur. Başka bir deyişle, temas ve tam temas engeli yüksek olan üniversite öğrencilerinin benlik saygıları düşük iken bağımlı temas ve temas sonrası engeli yüksek olan üniversite öğrencilerinin benlik saygıları da yüksektir. Ayrıca araştırmada benlik saygısı ile yaşam doyumu arasında pozitif düzeyde anlamlı bir ilişki bulunmuştur. Özetle yapısal modele ilişkin elde edilen sonuca göre temas engelleri, benlik saygısı ve yaşam doyumu arasında nedensel bir ilişki

bulunmaktadır. Gestalt temas engellerinin başka önemli kavramlarla kullanıldığı araştırmalar yapılabilir. Ayrıca başka yaş grupları ile de benzer araştırmalar yapılabilir. Ayrıca Gestalt Terapiyi kullanan uygulayıcılar çalışmalarında Gestalt Temas Engelleri ölçeğini kullanabilir.

Anahtar Sözcükler: Gestalt, temas engelleri, benlik saygısı, yaşam doyumu

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Investigating Pre-service Gifted Education Teachers' Self-efficacy toward Science Teaching and Scientific Attitudes

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Abstract

Problem Statement: Education of gifted has attracted attention for a few decades. Components of gifted education environments like identification, differentiation of teaching processes, social-emotional characteristics of gifted students and educating teachers of gifted students etc. have been studied in different studies. Gifted students have different learning needs apart from their pers. So teachers of gifted students should master on characteristics of gifted students and learning needs of them. Gifted students have intrinsic interest and motivation toward science and these students need their teachers to guide them effectively. So their teachers should have positive viewpoint and attitudes about science.

Purpose of the Study: The purpose of this study is to explore the pre-service gifted education teachers' self-efficacy toward science teaching and scientific attitudes based on different variables (gender, grade level, etc.) and to assert the relationship between self-efficacy and scientific attitude.

Method: The general model of the research was a quantitative study, and ninety undergraduate students in the Gifted Education program were voluntarily participated in this study. The data were collected by the use of Scientific Attitude Inventory and the Science Teaching Efficacy Belief Instrument. The researcher used an unpaired t-test, analysis of variance and a correlation method to analyze the data.

Findings and Results:: The results indicated that there were significantly positive correlations between grade level and scientific attitude and

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participants' self-efficacy skills for science teaching. In other words, students in higher grade levels show better self-efficacy and scientific attitudes for science teaching than students in lower grades. Additionally, even though the total of self-efficacy points toward science teaching were increased, the outcome expectancy points toward science teaching were not significantly increased.

Conclusions and Recommendations: It is concluded that pre-service gifted teachers' scientific attitudes and self-efficacy toward scince teaching affect each other and correlate positively. In this regard, educational settings that provide effective opportunities to positively increase students' both self-efficacy beliefs toward science teaching and scientific attitudes should be organized.

Keywords: Gifted student, pre-service teacher, scientific attitude, self-efficacy

Introduction

Gifted education has recently received more attention through published research geared toward understanding the importance of teaching gifted and talented students for nations and humanity. In particular, the high level of interest, curiosity, and motivation of gifted students toward science education (Smutny & Von Fremd, 2004) shows that their education should be different from typical students. VanTassel-Baska & Stambaugh (2006) indicate that science positively shapes gifted students' minds more than any other educational field. Therefore, gifted students need to improve their skills in science and science-related processes. Gifted education teachers should learn to effectively guide these students. Renzulli (1968) and Sisk (1989) state that teachers who are trained in identification and differentiated instruction play an important role in the preparation of learning environments that meet the special needs of such students. Teachers who understand and respond to the needs of gifted students are necessary in the field of science. Fundamentally, these teachers must have adequate training and competence in the field, understand individual differences, exhibit self-esteem, have flexibility in the use of resources, creativity and open-minded skills, and be able to support students' self-esteem skills (Strip & Hirsch, 2000; VanTassel-Baska & Stambaugh, 2006). The most fundamental characteristics of teachers that affect their competence in the field of science are a sense of self-efficacy and their own attitudes toward science.

Bandura defines self-efficacy as the beliefs and judgments of individuals in successfully overcoming situations faced by individuals independently (1977). He asserts that individuals who have a high level of self-efficacy are more determined, more disposed, confront difficulties, and feel less anxiety while performing a task. On the other hand, individuals who have low self-efficacy are more likely to refrain from activities, quickly give up on a task, and experience more anxiety and stress. Bandura states that self-efficacy has two sub-dimensions: (a) personal self-efficacy and (b) outcome expectancy. Personal self-efficacy is defined as individuals' beliefs about whether they successfully show necessary behaviors to get desired results.

Outcome expectancy predicts potential consequences of behaviors shown to get desired results. Tschannen-Moran and Woolfolk-Hoy (1998) address questions for two sub-dimensions of self-efficacy to clarify their own definitions. In this regard, the question for personal self-efficacy is, 'Do I have enough capacity to achieve a given task in the desired level?', whereas the outcome expectancy question is, 'What will be the possible consequences if I achieve the task in the desired level?'

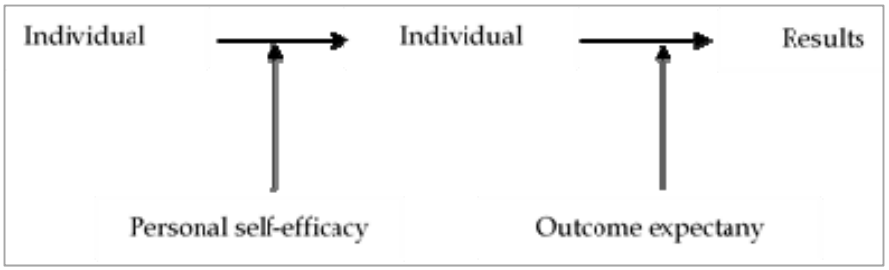

Figure 1. Self-efficacy Belief Schema (Bandura, 1977)

Overcoming the deficiencies and inadequacies in relation to teacher training and education and effective methods for training qualified teachers is extremely valuable for teacher training programs. Thus, it is important to determine teachers' self-efficacy levels. The self-efficacy beliefs of teachers can be defined as judgments of their capabilities to cause desired outcomes of students' learning and progress, even among students who are difficult or unmotivated (Tschannen-Moran and Woolfolk-Hoy, 2001; 1998). Teachers' characteristics, strategies, methods, techniques, and judgments about content knowledge for differentiation provide important feedback on the effectiveness of current teacher training programs and provide ideas to reconstruct these programs.

Studies show there are differences among teachers who have high versus low self-efficacy beliefs, in terms of managing classrooms, using new methods in teaching, giving feedback to students who have learning difficulties, being open to new ideas, and developing attitudes toward students. This directly affects students' success and attitudes (Gibson & Dembo, 1984; Tschannen-Moran & Woolfolk, 1998). Therefore, it is inevitable that teachers' self-efficacy affects attitudes and performances of both teachers and students at all levels of education (Altınok, 2004).

Demirel (1993) defines attitude as a learned tendency that shows certain behaviors toward people, objects, and situations. Attitude is not an observable behavior; instead, it is a preparatory act. The integration of science into everyday life is facilitated by the dissemination of scientific literacy, recognition of the use of science in daily life, and having a positive attitude toward the subject. According to the International Encyclopedia of Education, scientific attitudes include both positive and negative feelings about science subjects (Uluçınar-Sağır, 2012). Scientific attitudes consist of, in general, the impact of science on society, the attitudes toward a scientist and his or her research, and an appreciation for the subject. Thus, understanding the whole of teaching science is crucial; furthermore, researching and

directing people conducting research is a necessity of a positive scientific attitude. Especially, teachers in elementary education who develop and maintain positive attitudes toward science are important since attitudes and values are formed at an early age. As a result, many studies have focused on teachers' attitudes toward science courses, self-efficacy beliefs, and performances affecting students' attitudes, self-efficacy beliefs, and performances (Altınok, 2004; Morell & Lederman, 1998; Palmer, 2001). Therefore, developing positive attitudes toward science by teachers in science education is especially important for their students to develop the same beliefs.

It is crucial to investigate teachers' self-efficacy beliefs and attitudes and investigate their variability based on different variables with gifted students who have curiosity, instinct, and innate interest for science and who are considered potential future scientists. There are limited studies of teacher training programs that provide an effective and appropriate education to gifted students in Turkey; such studies are needed. Toward this end, this research aims to explore the pre-service gifted education teachers' self-efficacy toward science teaching and scientific attitudes based on different variables (gender, grade level, etc.) and to ascertain the relationship between two variables: self-efficacy and scientific attitude. In this study, the following research questions are addressed: (a) What is the extent of self-efficacy toward science teaching and what are the scientific attitudes of pre-service gifted education teachers? (b) How is self-efficacy toward science teaching and scientific attitudes of pre-service gifted education teachers affected by student gender and grade level? and (c) Is there any relation between self-efficacy toward science teaching and scientific attitudes of pre-service gifted education teachers?

Method

Research Design

This study is structured using a relational survey method. This method is used to determine whether there is a differentiation between at least two variables, but a correlation model investigates whether these variables change together. If there is a change between variables, this model determines how this change occurs (Karasar, 2005).

Participants

In this study, participants included volunteer education teachers (n=90) in first, third, and fourth grade pre-service gifted classes, who were enrolled in education in one of universities in Turkey. As seen in Table 1, 61.1% of participants were female (n=55), whereas 38.9% were male (n=35). Additionally, 38.9% of the students were in the first grade (n=35); 27.8% were in the third grade (n=25); and 33% were in fourth grade (n=30).

Research Instruments

The Scientific Attitude Inventory (SAI). The Scientific Attitude Inventory (SAI), developed by Moore and Foy (1997), was used to measure students' scientific attitude levels in this study. Demirbaş and Yağbasan (2006) translated the SAI into Turkish and checked its reliability and validity. This scale consists of 40 items. Each item was ranked along a five point Likert-scale: "strongly agree", "agree", "neutral/undecided", "disagree", and "strongly disagree". For this scale, there were 20 positive and 20 negative items and total points ranged between 40 and 200. The reliability and validity results of this inventory conducted by Demirbaş and Yağbasan (2006) showed that the reliability of this inventory was .76 (Cronbach's alpha); however, for this study we found .70 reliability.

Science Teaching Efficacy Belief Instrument (STEBI): The second instrument used in our study was the Science Teaching Efficacy Belief Instrument developed by Enochs and Riggs (1990) in order to determine the levels of students' self-efficacy beliefs. Özkan, Tekkaya and Çakıroğlu (2002) translated and adapted this scale into Turkish. STEBI had two sub-dimensions: (a) Personal Science Teaching Efficacy Belief Scale ((PSTEBI)-self-efficacy dimension) and (b) Science Teaching Outcome Expectancy Scale ((STOES)-outcome expectancy dimension). This scale consists of 23 items. Each item is ranked along a five point Likert-scale; "strongly agree", "agree", "neutral/undecided", "disagree", and "strongly disagree". Cronbach's α of the original scale for personal science teaching efficacy belief scale and science teaching outcome expectancy scale were reported as .90 and .76, respectively. For the 2002 Turkish version, α scores were .79 and .86 (Özkan, Tekkaya and Çakıroğlu, 2002), and finally, for this particular study, α= .82 and .68.

Data Analysis

In this study, gender, grade level, and other demographic variables were collected on a student information form. Scientific Attitude Inventory and Science Teaching Efficacy Belief Instrument points and information in the student information form were analyzed by using independent samples t-test, a one way analysis of variance (ANOVA) and correlations.

Results

In Table 1, Scientific Attitude Inventory and the Science Teaching Efficacy Belief Instrument results based on gender were provided. Using the five point Likert scale, for each interval (5-1=4) the calculated coefficient unit was .80 (4/5=.80). These intervals were arranged as 1.00 - 1.79, "strongly disagree"; 1.80-2.59, "disagree"; 2.60-3.39, "neutral/undecided"; 3.40-4.19, "agree"; and 4.20-5.00, "strongly agree" (Tekin, 1993).

Table 1.

The SAI and STEBI Results Based on Gender

Gender	Variables	N	Mean	S.D.
Female	**SAI**	55	139.11*	12.35
	PSTEBI	55	45.60*	6.57
	STOES	55	33.09**	4.53
	STEBI	55	78.69**	9.21
Male	**SAI**	35	138.50*	11.03
	PSTEBI	35	43.17**	7.33
	STOES	35	33.26**	4.71
	STEBI	35	76.43**	9.20

*Note. *Agree, ** Neutral/Undecided*

Students' average points from the sum total of SAI and STEBI, all grade levels were presented in Table 2.

Table 2.

The SAI and STEBI Results Based on Grade Levels

Grade Levels	Variables	N	Mean	S.D.
1	**SAI**	35	136.26*	10.46
	PSTEBI	35	43.06**	7.10
	STOES	35	32.09**	4.44
	STEBI	35	75.14**	8.75
3	**SAI**	25	136.32*	11.03
	PSTEBI	25	44.00**	7.33
	STOES	25	33.36**	4.71
	STEBI	25	77.36**	9.20
4	**SAI**	30	144.07*	11.03
	PSTEBI	30	47.07*	7.33
	STOES	30	34.23**	4.71
	STEBI	30	81.30*	9.20

*Note. *Agree, ** Neutral/Undecided*

In Table 1, according to students' SAI scores, the average scores for both male and female students were in the "agree" level of the scale. On the other hand, both male and female students were in the "neutral/undecided" level for STEBI. Investigating sub-dimensions of STEBI showed that female students were in the "agree" level, despite the fact that male students were located in the "neutral/undecided" level for Personal Science Teaching Efficacy Belief. Additionally, both female and male students fell into the "neutral/undecided" level for Science Teaching Outcome Expectancy. Therefore, it can be said that both female and male students were at a good level (agree) for scientific attitude, and a middle level (undecided) of self-efficacy belief in science teaching.

In Table 2, according to students' average points from the sum total of SAI and STEBI, all grade levels were located in the "agree" level for SAI. Additionally, the investigation of STEBI based on grade levels showed that fourth grade students were in the "agree" level while first and third grade students fit into the "neutral/undecided" level. The average points of first and third grade students were in the "neutral/undecided" level, but fourth grade students were in the "agree" level for PSTEBI. On the other hand, all students were located in "neutral/undecided" level for STOES. According to these results, although all grade level students were at a good (agree) scientific attitude level, the first and third grade students were in the middle (undecided) level, and the fourth grade students ranked in the good (agree) level for science teaching efficacy belief.

As provided in Table 3, a t-test was used to determine whether there were significant differences between female and male students in terms of pre-service gifted education teachers' SAI, PSTEBI, STOES, and STEBI results.

Table 3.

The t-Test Results of SAI, PSTEBI, STOES, and STEBI Based on Gender

	Gender	**N**	**Mean**	**S.D.**	***df***	**T**	**p**
SAI	Female	55	139.11	12.35	88	.232	.997
	Male	35	138.51	11.03			
PSTEBI	Female	55	45.60	6.57	88	1.634	.811
	Male	35	43.17	7.33			
STOES	Female	55	33.09	4.53	88	-.167	.829
	Male	35	33.26	4.7			
STEBI	Female	55	78.69	9.21	88	1.136	.791
	Male	35	76.43	9.20			

According to the results presented in Table 3, there were no significant differences between female and male students in terms of SAI, PSTEBI, STOES, and STEBI (t_{SAI}=0.232, p>.05; t_{PSTEBI}=1.634, p>.05; t_{STOES}=-0.167, p>.05; t_{STEBI}=1.136, p>.05).

A one-way ANOVA was used to determine whether there were significant differences among the grade levels of students in terms of pre-service gifted education teachers' SAI, PSTEBI, STOES, and STEBI results, as shown in Table 4.

Table 4.

The one-way ANOVA Results of SAI, PSTEBI, STOES, and STEBI Based on Grade Levels

	Source	Sum of Squares	*df*	Mean of Squares	F	p	Sig.
SAI	Between Group	1211.663	2	605.832	4.713	.011	4-1, 4-3
	Within Group	11183.992	87	128.552			
	Total	12395.656	89				
PSTEBI	Between Group	315.191	2	137.285	2.977	.056	-----
	Within Group	6200.711	87	46.112			
	Total	6515.902	89				
STOES	Between Group	75.953	2	37.976	1.844	.164	-----
	Within Group	1791.870	87	20.596			
	Total	1867.822	89				
STEBI	Between Group	619.443	2	309.722	3.871	.025	4-1
	Within Group	6960.346	87	80.004			
	Total	7579.789	89				

According to the ANOVA results, there was a significant difference for SAI among grade levels (F=4.713, p<.05). The Scheffe's Test was conducted in order to determine if the grade levels showed a significant difference. This test concluded that fourth grade students (X= 144.07) showed higher scores than third grade (X= 136.32) and first grade students (X=136.26). Thus, fourth grade students showed better scientific attitude than first and third grade students. On the other hand, there was

not a significant difference among grade levels in terms of PSTEBI and STOES (F_{PSTEBI}=2.977, p>.05; F_{STOES}=1.844, p>.05). STEBI showed a significant difference according to grade levels (F=3.871, p<.05). According to the results of Scheffe's Test that was used to analyze the relationships among grade levels, the STEBI scores of fourth grade students (X= 81.30) were higher than first grade students' scores (X=75.14).

The results of the SAI, PSTEBI, STOES, and STEBI are shown in Table 5.

Table 5.

The Correlation between SAI, PSTEBI, STOES, and STEBI

	1	2	3	4
SAI	--			
PSTEBI	.52*	--		
STOES	.27*	.25	--	
STEBI	.52*	.87*	.68*	--

*Note. * p<.01,*

In Table 5, according to the correlation results, there was a significant moderate correlation between the total of SAI and STEBI value (r=.52) and SAI and PSTEBI (r=.52) at .01 *p*-value. Additionally, there was a significant weak correlation between SAI and STOES at .01 *p*-value (r=.27).

Discussion and Conclusion

The results of this study showed that the scientific attitude of pre-service gifted education teachers was not affected by gender. However, in terms of grade level, scientific attitude became more positive in the higher grades. These results suggest that pre-service gifted education teachers improve and enrich their scientific attitudes through courses at the undergraduate level-such as Physics, Chemistry, Biology, Scientific Research Methods, Science and Technology Teaching I and II, and Science Lab. Moreover, these teacher candidates appear to be closely interested in the sciences, show more positive attitudes toward sciences and scientists, and understand the impact of science on the society. We know that teachers' scientific attitudes and their attitudes toward science teaching affect not only their teaching performance (Klassen & Tze, 2014), but also their students' performance, success, and attitudes toward science courses (She & Fisher, 2002; Sönmez, 2007; Washton, 1971). Thus, teachers who have positive attitudes toward science and science teaching design a more effective classroom environment, and consequently, students develop positive attitudes toward science, making them more likely to remain in this field of study (Mattern & Schau, 2002). In this regard, it would be appropriate to say that if teachers support gifted students' science interests and motivations, these students

could become better science students. Therefore, it is important that pre-service gifted education teachers should have positive science attitudes and develop this skill in a positive way.

Investigating gifted education teacher candidates' science teaching efficacy beliefs showed that personal science teaching efficacy beliefs did not differed based on gender, but self-efficacy did increase in the upper grades. On the other hand, science teaching outcome expectancy did not significantly differ for gender or grade levels. Additionally, science teaching outcome expectancy was located in the "neutral/undecided" or middle level of the Likert scale. While students have beliefs that show required behavior for reaching desired conclusions in teaching science, they struggle to guess the expected outcomes after implementing these behaviors (teaching science). This result suggests that students have knowledge about what to do in theory, but they could not guess the results because of the lack of opportunity or practice in teaching science. Therefore, in teaching and training programs, it is apparent that science-related and science teaching courses cover theoretical knowledge rather than providing opportunities that help students to see what results occur during practices. Enochs, Scharmann, and Riggs (1995) argue that more experienced teachers in science have higher self-efficacy in science teaching and more positive attitudes about teaching science than those with less experience. Additionally, Palmer (2001) states that the development of teachers' attitudes toward science teaching is affected by efficacy perception, the science-related courses taken during their education, and the teaching methods used in these courses. Enochs and Riggs (1990) assert that teacher trainers should be aware of self-efficacy, and provide practices that positively affect results and self-efficacy expectancies. Therefore, pre-service gifted education teachers should sufficiently practice science activities and gain skills to manage complicated situations in the teacher training programs.

Soprano and Yang (2013) noted that teacher candidates improve their self-efficacy beliefs when real-life, hands-on activities are provided. Therefore, teacher training programs should give candidate teachers opportunities that provide strategies, methods, and techniques for teaching students science. They need to know how to address complex problems in daily life, and how to design a productive teaching environment. In these programs, teacher candidates should encounter daily problem cases, and use higher level thinking skills (critical thinking, creative thinking, decision making, etc.) to experience science and solve problem cases.

According to the aforementioned results and interpretations, affective support programs can be designed to support the emotional competences of pre-service teachers at the undergraduate level (Appleton 2008; Koballa et al. 2008; Shoffner, 2009), and new educational strategies can be developed to improve self-efficacy beliefs (Hoy & Spero, 2005). Furthermore, science teaching should be structured in a way so as to link classroom experiences to daily life, fulfill individual needs, provide effective solutions for problems, and promote collaborative learning. In addition, teachers should learn necessary interventions for managing how to encourage and create a deep desire in students to learn science.

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Üstün Zekalılar Öğretmenliği Adaylarının Fen Öğretimi Öz Yeterlik İnançlarının ve Bilimsel Tutumlarının İncelenmesi

Atıf:

Camcı-Erdogan, S. (2015). Investigating pre-service gifted education teachers' self-efficacy toward science teaching and scientific attitudes. *Eurasian Journal of Educational Research*, 59, 133-148
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Özet

Problem Durumu: Üstün zekalıların eğitimi son dönemde üzerinde titizlikle çalışılan konulardan birisi olmuştur. Özellikle üstün zekalıların tanılanması, eğitim süreçlerindeki farklılaştırmalar, üstün zekalı öğrencilere eğitim verecek öğretmenlerin özellikleri ve eğitilmeleri vb. gibi konular daha çok ön plana çıkmaktadır. Üstün zekalıların yaşıtlarına göre daha ileride olan kavrayış düzeyleri, üst düzey düşünme becerilerini çok daha erken yaşta, etkili kullanabilmelerini sağlamaktadır. Üstün zekalı öğrencilerin sahip oldukları bu beceriler ile birlikte ileri derecede sahip oldukları içsel merakları da özellikle Fen bilimleri derslerinde daha çok ortaya çıkmakta ve güdülenmektedir. Fen bilimleri dersleri üstün zekalı öğrencilerin dünyaya dair meraklarını ve ilgilerini bilimsel araştırmalar ile giderebilecekleri önemli derslerden biridir. Bu bağlamda üstün öğrencilerin sahip oldukları meraklarını güdüleyerek, onlara bu merak ve ilgilerini sürdürebilecekleri ve bu konularda gerekli öğrenmeleri sağlayabilecekleri öğrenme ortamlarının sağlanması gerekmektedir. İhtiyaçları olan, etkili öğrenme ortamlarının sağlanmasında en etkili rolü öğretmenler üstlenmektedir.

Öğretmenlerin sahip olduğu derse yönelik ilgi, tutum ve öz yeterlik algılarının öğrencilerin dersteki başarı, ilgi ve tutumlarını etkilediği düşünüldüğünde öğretmenlerin o derse yönelik sahip olduğu ilgi, tutum ve öz yeterlik algılarının da belirlenmesi önemlidir. Bireyin farklı durumlarla baş etme, belli bir etkinliği başarma yeteneğine, kapasitesine ilişkin kendini algılayışı olarak tanımlanan öz yeterlik algısı,

kişisel öz-yeterlik algısı ve sonuç beklentisi olmak üzere iki alt boyuta sahiptir. Kişisel öz-yeterlik inancı kişinin istediği bir sonucu yaratabilmek için gerekli davranışları başarıyla gösterip gösteremeyeceğine ilişkin inancıdır. Sonuç beklentisi ise, kişinin yaptığı bir davranışın hangi sonuçları doğurabileceğini yaklaşık olarak tahmin edebilmesidir. Bilimsel tutum ise bireyin bilim ile ilgili sahip olduğu olumlu ve olumsuz duygular olarak tanımlanmaktadır. Yüksek öz yeterlik algısına ve pozitif tutuma sahip olan öğretmenlerin ise, öğrencilerin ihtiyaç duyduğu eğitim ortamlarını hazırlama ve etkili öğrenmenin sağlanma noktasında çok daha başarılı olduğu belirtilmektedir. Bu yüzden öğretmenlerin ya da öğretmen adaylarının sahip olduğu tutum ve öz yeterlik algılarının belirlenmesi ve bu özellikleri geliştirecek ortamların, etkinliklerin ya da eğitimlerin hazırlanması önemlidir.

Araştırmanın Amacı: Bu bağlamda çalışmanın amacı, üstün zekalılar öğretmenliği adaylarının Fen öğretimine yönelik öz yeterlik inançları ile bilimsel tutumlarının farklı değişkenlere (cinsiyet, sınıf düzeyi vb.) göre farklılaşıp farklılaşmadığını ortaya koymak ve bu iki değişken arasındaki (Fen öğretimine yönelik öz yeterlik inancı ile bilimsel tutum) ilişki düzeyini belirlemektir.

Araştırmanın Yöntemi: Çalışma ilişkisel tarama modelinde yapılandırılmıştır. Korelasyon türü ilişkisel taramada, ilişki aramalarda değişkenlerin birlikte değişip değişmedikleri, bir değişme varsa, bunun nasıl olduğu öğrenilmeye çalışılır. Çalışma grubunu, 55'i kız ve 35'i erkek üstün zekalılar öğretmenliği lisans programına devam eden 90 öğrenci oluşturmuştur. Veriler Bilimsel Tutum Ölçeği ve Fen Öğretimi Öz Yeterlik İnanç Ölçeği ile toplanmıştır. Bilimsel Tutum Ölçeği için yapılan geçerlik ve güvenirlik analizleri sonucunda, ölçeğin cronbach alfa güvenirlik katsayısı 0.76 olarak bulunurken; mevcut çalışma için cronbach alfa güvenirlik katsayısı 0.70 bulunmuştur. Fen Öğretimi Öz Yeterlik İnanç Ölçeği "Fen Öğretiminde Kişisel Öz Yeterlik İnancı (FÖKÖYİ)" ve "Fen Öğretiminde Sonuç Beklentisi (FÖSB)" olmak üzere iki alt boyuttan oluşmaktadır. Ölçeğin orijinal halindeki cronbach α katsayısı Fen Öğretiminde Kişisel Öz Yeterlik İnancı ve Fen Öğretiminde Sonuç Beklentisi alt boyutları için sırası ile 0.90 ve 0.76 olup mevcut çalışmada ise sırası ile 0.82 ve 0.68 olarak bulunmuştur. Verilerin analizinde bağımsız gruplar için t testi, ANOVA ve korelasyon analizleri kullanılmıştır.

Araştırmanın Bulguları: Araştırma bulgularından, üstün zekalılar öğretmenliği adaylarının sahip olduğu bilimsel tutum puanlarına bakıldığında, bilimsel tutum puanlarının cinsiyet açısından farklılık göstermediği ve iyi düzeyde olduğu; sınıf değişkeni açısından her sınıf düzeyinde de iyi olduğu ve sınıf düzeyi arttıkça bilimsel tutumun da olumlu yönde arttığı ortaya koyulmuştur. Üstün zekalılar öğretmenliği adaylarının Fen Öğretimi Öz Yeterlik İnançlarına bakıldığında, Fen Öğretimine Yönelik Kişisel Öz Yeterlik alt boyutunun cinsiyet açısından değişmediği; sınıf düzeyi arttıkça inancın da olumlu yönde arttığı gözlenmiştir. Fen Öğretiminde Sonuç beklentisi alt boyutuna bakıldığında ise hem cinsiyet hem de sınıf düzeyi açısından farklılık olmadığı, puanların anlamlı olarak değişmediği, "kararsızım" yani orta düzeyde kaldığı ortaya çıkmıştır. Ayrıca araştırma

bulgularından, öğrencilerin Bilimsel Tutum ve Fen Öğretimine Yönelik Öz Yeterlik İnançları değişkenleri arasında pozitif yönde anlamlı bir ilişkinin varlığı ortaya koyulmuştur.

Araştırmanın Sonuçları ve Önerileri: Araştırma bulguları sonucunda, üstün zekalılar öğretmenliği adaylarının bilimsel tutumlarını, lisans düzeyinde aldığı ve içeriği ile bilime/fene daha yakın olan derslerinin içerikleri ile zenginleştirdiği ve her sınıf düzeyine alınan farklı derslerle geliştirdiği söylenebilir. Üstün zekalı ve yetenekli öğrencilerin sahip olduğu fen öğretimine yönelik öz yeterlik algıları bulgularından ise, öğrencilerin lisans düzeyinde fen öğretimi ile ilgili istediği sonucu yaratabilmesi için gerekli davranışları başarı ile gösterebileceğine inancının olduğu; fakat bu davranışları uyguladığında hangi sonuçların ortaya çıkabileceğini tahmin etmesi noktasında sıkıntı yaşadığı söylenebilir. Öğrencilerin teorik olarak yeterli bilgi ve becerilere sahip olduğunu düşündüğü ama uygulama fırsatı bulamadığı için bu bilgi ve becerileri uyguladığında nasıl bir sonuç ile karşılaşacağı noktasında sıkıntı yaşadıkları söylenebilir. Bu bağlamda genel olarak öğrencilerin hem bilimsel tutumlarını hem de fen öğretimi öz yeterlik inançlarını olumlu yönde geliştirecek, işbirlikli çalışmaları da destekleyen, günlük hayattan seçilmiş, sorgulayıcı temelli olan ve uygulama fırsatlarının sunulduğu eğitim ortamlarının hazırlanması önerilmiştir.

Anahtar Sözcükler: Üstün zekalı öğrenci, öğretmen adayı, bilimsel tutum, öz yeterlik algısı

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An Evaluation of the Turkish Education System outside the Conflict between Old and New

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Abstract

Basis of the Study: Education is considered to be a system that provides solutions to communal problems, developing individual skills, bringing enlightenment and peace to people. However, the situation is somewhat different in Turkey, for education, which is regarded as a problem-solving activity, has itself become a problem. The Turkish education system has become one of our most serious social problems. This problem essentially stems from discussions over which civilization Turkey belongs to: the Eastern or the Western. The conflict between old and new in the Turkish education system is essentially a struggle between those who claim that "Turkish society is an Eastern society" (anti-Westerners) and those who claim that "It is a Western society" (pro-Westerners). This dispute is directly related to the ongoing process of Westernization that started in the 19th century. The Turkish education system is suffering from the conflict between old and new. The article is based on the premise that both parties, in effect, have an understanding of education that produces similar results.

Purpose of the Study: The aim of this article is to reveal the fact that the conflict between old and new afflicting the Turkish education system is a fruitless discussion by showing that both pro- and anti-Westerners have an understanding of education that inhibits students' creative skills, puts the teacher at the center, furnishes students with unnecessary information, prioritizes rote learning, defends discipline and makes students restless and unhappy. Some suggestions shall be offered for a new education system without taking sides with either of the disputing parties.

Source of Evidence: This article takes its cue from the following observations: i) The Turkish education system is not up to par due to the conflict between old and new; ii) It is afflicted by the inconsistencies as its targets are constantly changed and it is often left without targets; iii) It is constantly (re)structured by the governments alternating between the anti-Westerner conservatives and the

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pro-Westerners. The point of departure for this article is that the Turkish education system fails to produce happy, joyful, lively, free, talented, skilled, knowledgeable, honest and virtuous individuals.
Main Argument and Conclusions: This article focuses on the shortcomings and deficiencies of the Turkish education system. It negates the age-old conflict between old and new, and pursues the ideal education system where students are happy, discovering and improving their skills. It is a critique of the understanding that prioritizes the teacher and curriculum, encourages rote learning and defends oppression and discipline. It seeks the ways in which we can produce virtuous, happy and skilled individuals with free spirits and critical thinking skills, and who are at peace with themselves, their history and society. The article also emphasizes the urgency to find new solutions for our education system exempt from those voiced by the parties in the conflict between old and new.

Keywords: the Turkish education system, rote learning, oppressive education, free education, playful education, the ideal education system.

Introduction

The famous philosopher, John Dewey (2007, p. 19), who is mostly known in Turkey for his studies on education, argues, "mankind likes to think in terms of extreme opposites. It is given to formulating its beliefs in terms of either-ors." Turkish people have a strong tendency to act according to "either-or logic," which permeates almost every sector of the society. Individuals' tendency to think and act in terms of extreme opposites is even manifested in the name of the country. Some people call the country "Turkey," while others call it "New Turkey."

"New" is a buzzword that has been widely used in Turkey in recent years. Interestingly enough, the word "new" is not frequently used by Western communities, whose history is marked with historical events radically changing their social structures, such as the Renaissance, the Enlightenment, the French Revolution, the Industrial Revolution and revolutions in the fields of information and communication. Almost every day, a word appears that is defined with the adjective "new" in Turkey. In other words, "the concept of 'new' has become a common adjective in our country" (Aygün, 2014, p. 55). The word "new" has been fetishized, and several words have been coined with the adjective "new": New Ottoman, New Turkey, New Right, New Left, New Constitution, New Economy and so forth (Aygün, 2014, p. 63). "New education" is yet another coinage associated with this "new" hype.

Today, the Turkish society is divided into two hostile camps: one under the banner of "old education" and the other "new education." Our society has become a battleground between the pro-Westerners, who support "the modern education system" and modernization in general, and the conservatives, who are in favor of "the traditional education system" that prioritizes religion. Today, the situation is slightly different. The conservatives in power are perceived as the defenders of the

new, while the pro-Westerners are the defenders of the old education system. In brief, this article focuses on the main problems of the Turkish education system affected by the conflict between old and new.

Education as a Pillar of Society

Society is a powerful system, not an accidental entity. There are certain pillars of society. Its existence depends on such institutions as family, culture, religion, economics, politics and education. Deficiencies in these institutions cause deterioration in society. Education is one of the major institutions that enables societies to function, and ensues its existence.

The institution of education is necessary for individuals as well as the society itself. It cultivates and socializes human beings that are savages by nature. Education is "what makes us human, and we are merely what education makes of us" (Kant, 2007, p. 31). We are born weak, in fact, much weaker than any other creatures. As Machiavelli (2000, p. 46) notes, "only man is born bare of any kind of defense, without leather or spikes or feathers or fleece or bristles or scales providing a shield to him." It is education that strengthens this poor creature (human being), making it a part of society. "We are born weak, we need strength. … All that we lack at birth, all that we need when we come to man's estate, is the gift of education" (Rousseau, 2003, p. 12). Human being is the only creature that needs constant education. We go through the stages of infancy (when we need care), childhood (when we need instruction), and student (when we need education) (Kant, 2007, p. 27). It is a grueling experience to go through each of these stages. That is to say, "to educate rightly is not a simple and easy thing, but a complex and extremely difficult thing" (Spencer, 2013, p. 128).

Society desires to shape the individual through education. It keeps the individual under pressure from birth to death, controlling his/her actions, restricting him/her and throws him/her in a cage. Man is born free and happy. Society enslaves him and makes him miserable. Rousseau is one of the philosophers who emphasizes this negative aspect of society. According to him, man is born, lives, and dies in slavery. Man is forced to fit in a swaddle at his birth and in a coffin when he dies. Man, who is born in a free world, is chained at every level of society and further chained by institutions (Rousseau, 1966, s. 12; 1990, s. 14). Rousseau notes,

> The moment the child is separated from the womb, it tastes freedom by moving and stretching its arms and legs but soon this freedom is taken away from the child. Its head is fixed, its legs are stretched, and, at length, the child is pushed into a swaddle with his arms by its sides. It is wound round in a way to make sure that it cannot move... Its first feeling is that of pain and suffering; it attempts to move but it is hampered. Less fortunate than a galley slave, these children struggle, get angry, and then cry. One should not be surprised seeing them cry because the first thing they come across in life is the chains while cry is also the one thing they have at hand to show that they are not content. If you were swaddled like this, you would cry louder still (2003, p. 14).

"School" is the main mechanism of the education system that shackles and chains the individual. It is a means of restriction, but society does not realize that it enslaves children through schooling. Instead it promotes the idea that school teaches them a great deal and offers them good prospects for the future. Illich (1998, p. 46) succinctly puts forward this positive perception of school: "Children belong in school. Children learn in school. Children can be taught only in school." However, it is necessary to question this statement and discuss the benefits of school.

School is not an institution exempt from the class struggle prevalent in the society. It does not serve the interests of the oppressed majority, but rather the dominant minority. The dominant classes impose their opinions and ideologies on the oppressed classes through school. Marx and Engels' assert (1992, p. 70), "the thoughts of the dominant class are in every epoch the dominant thoughts, that is, the class which is the dominant material power is at the same time the dominant intellectual power." What is taught at school is determined by the power that dominates and controls the society. The socialization process of the school helps shape a certain type of character meeting the needs of the dominant power within the public sphere (Spring, 2014, p. 30). School serves as an ideological backyards of the dominant class. According to Althusser, school is "an ideological apparatus of the state." While equipping students with knowledge and skills, school ensures "subjection to the ruling ideology or the mastery of its 'practice'" (Althusser, 2003, p. 159). School legitimizes the inequalities prevailing in society and "ensures the transmission of privileges" (Bourdieu & Passeron, 2014, p. 50). Schools, as Bourdieu (1995, p. 40) notes, function like "Maxwell's demon", that is, they help generate class distinctions. "Schools offer the primary institutional setting for the production, transmission and accumulation of the various forms of cultural capital" (Swartz, 2011, p. 263).

In today's world, power permeates every aspect of life, and school is yet another agent of power. Schools have horrendous disciplinary elements (Foucault, 2003, p. 41; 2004, p. 156). The school dominates the children physically, morally and intellectually while it also pushes them into a desired mould (Ferrer, 2014, p. 87). Schooling that covers a significantly long period of time can be useful to some and harmful to others (Bloom, 1995, p. 253).

In brief, school means education, servitude or domestication (Ferrer, 2014, p. 87). There are ideological and political dimension of education. All societies and people in power have always attached great importance to education (İnal, 1996, p. 9). "School has become a propaganda instrument for parties" (Ferrer, 2014, p. 83). Educational institutions have never been impartial. They help preserve the existing hegemony. As Gramsci notes, every hegemonic relationship is necessarily pedagogical (Mayo, 2011, p. 53).

Dilemmas of the Turkish Education System

The Turkish education system has been a victim of the conflict between old and new. It has failed in its primary objective, for students have been subjected to a single curriculum regardless of their individual skills. For instance, each student is obliged

to learn world history, countries' geography, elements or the area of trapezoid. In our schools, "people undergo the same educational program as if they had the same skills" (Sönmez, 1997, p. 37). Students are perceived as automatons in the Turkish education system.

The Turkish education system puts the curriculum and the teacher at the center rather than the student. In the classroom, the teacher is an active speaker, and the student is a passive listener. The student listens to the teacher meekly, takes notes and does the assigned homework. S/he memorizes and repeats what the teacher has stated. Democracy and different points of view are not allowed in the classroom (Sönmez, 1997, pp. 72-73). As such, schools in Turkey turn students into parrots, memorizing everything that they hear. The Turkish education system produces individuals that can be defined as "rote learners who are totalitarian, passive, easily deceived, deprived of thinking skills and therefore who cannot produce knowledge" (Çınar, 2012, p. 114). Rote learning makes the student lazy, inhibiting his thinking faculties. Eventually, the student loses his/her enthusiasm and desire for learning new things (İbni Haldun, 1989, p. 146).

It is important to share knowledge with students using simple methods. School is an instrument that makes students' life easier. In fact, "education means providing the conditions that facilitates learning" (Illich, 1998, p. 27). By contrast, the Turkish education system is founded almost in a way to make learning more difficult. For instance, all students are taught mathematics for years, but most of the students do not learn anything and end up disliking mathematics. They are also force-fed Turkish and Turkish history. Thus, they never truly learn Turkish or Turkish history.

Oppression has always been a major element in the Turkish education system. Every student has to learn mathematics, physics, chemistry, biology, history, geography, arts, music, religion, and so forth. Oppression is pedagogically wrong. Students cannot be forced to learn anything. They fail to internalize what is taught at school. They just do what the teacher has stated, accept school authority abhorrently and flatter their parents' egos. However, as Russell (1981, pp. 21-22) notes, "children who are forced to eat acquire a loathing for food, and children who are forced to learn acquire a loathing for knowledge." An education system based on oppression leads to irretrievable problems, damaging students' personality and skills.

Discipline lies at the heart of the Turkish education system. School administrators and teachers are most feared by students. Most of the students attend school because they are afraid of their teachers and parents, not because they want to learn new things. Our students have school phobia. Students are punished when they do not obey school or classroom rules. Punishment is frequently used as a means to better students, get them to adopt positive behaviors, and make them successful. As Sönmez points out, oppression, humiliation, ridicule and suspension are common means of punishment in Turkish schools (Sönmez, 1997, p. 37). Punishment at school may have lasting negative effects on students' lives. Oppression at school intimidates students, discouraging them greatly.

The negative effect of oppression, violence and abuse manifests itself in years to follow. Students who have been exposed to violence tend to use violence against those weaker than themselves. That is to say, "violence breeds violence; compassion

and kindness breed kindness. Children exposed to violence turn out to be rude and insensitive" (Spencer, 2013, p. 122). Physical violence and verbal abuse against students are failures of the Turkish education system. As İbni Haldun (1989, pp. 160-161) notes, ill treatment in education is harmful. Teachers and parents should never treat children harshly in order to teach them manners, for it will lead to formation of bad habits.

In addition, over teaching and assigning too much homework can be regarded as another form of violence in the Turkish education. Burdening the student with unnecessary detail is another way of humiliating the student. The worst thing a teacher can do to a student is to cram him/her with knowledge regardless of its importance and usefulness. The student is tormented by being made to sit in the classroom quietly for hours. That is to say, "school is nothing but a memory device that aims at cramming as much knowledge as possible into young brains" (Topçu, 2006, p. 55).

In the Turkish education system, students, overwhelmed by inaccurate education practices, are alienated from themselves and their community. The student forgets the acquired knowledge in a short time and comes to dislike school and courses. Burdening the student with unnecessary information causes him/her to abhor school and life. Thus, school in the Turkish education system serves to detach students from life, rather than prepare them for it. Eventually, the student becomes unhappy, restless, violent and distressed due to school. Only a lucky few manage to find a job in this education system at the expense of their dreams and identity. Anxiety and depression have increased in keeping with the rise in the number of schools. However, "the aim of education – in fact the aim of life – is to work joyfully and to find happiness" (Erich Fromm; qtd. in Tezcan, 2005, p. 88). Pre-modern world was founded on "joy" and "comfort" as schooling was not common, whereas today's world is built on "boredom" and "stress." In this context, Nietzsche's (2014, p. 105) following assertion is inspiring:

The men of the world of antiquity knew better how to rejoice: we how to suffer less; the former employed all their abundance of ingenuity and capacity to reflect for the continual creation of new occasions for happiness and celebration: whereas we employ our minds rather towards the amelioration of suffering and the removal of sources of pain.

Boredom is one of the major problems afflicting societies today (Fromm, 2004, p. 27). Perhaps that is why Nietzsche wrote the following line 150 years ago, "come hither gilded mirth" (qtd. in Zweig, 2011, p. 116). The problems associated with school are not restricted to Turkey. Although they are expected to be cheerful, lively and sociable, children may become depressed and troublesome due to school in other countries (Kant, 2007, s. 107). Children are more miserable than chained prisoners (Rousseau, 2000, p. 25). Restricted in every respect, they live miserably. School to children is what a racetrack is to a horse. The testing system ruins students' lives. Hundreds of exams that they need to take throughout their education distance them from the joys of life, as exams means anxiety and stress. Today, students compete with each other like commodities on the market. This competitive school system does not work properly even in our country.

Both pro-Westerners and conservatives set inaccurate goals for students. As a result, students come to regard school as an opportunity to become a civil servant. They consider a career as a civil servant to be the sole prospect for their future, which annuls their skills and makes them lazy. Prince Sabahattin's (2013, p. 58) writings on this issue, dated 1908, still holds true today: "As a result of the education we have received since our childhood, we want to live without having to earn our lives, become rich without toil, and thus we aspire to become civil servants." In other words, our education system is intended to make students dull and obedient civil servants, rather than free and happy individuals.

Another dilemma facing the Turkish education system is that it produces individuals with psychological problems. The hypothesis that "the number of qualified, honest and respectable people increases in parallel with the level of education" is applicable to our country. The higher their education level, the more quarrelsome and aggressive some people may become in our country. Almost a century ago, Ziya Gökalp (2005, p. 114) stated, "in other countries, people with strong character and high morals are generally those who have received the best education possible. The opposite is true in our country. Traitors generally come out of madrasah (religious school) and schools." He also argued that people's morals deteriorated, and psychological and mental disorders increased with the spread of education (Gökalp, 1997, p. 324). According to Sönmez (2014, p. 76), Ziya Gökalp's views about the Turkish education system are still valid today.

Conclusion: What are the Characteristics of an Ideal Education System?

Although institutions of education, namely schools, are well respected in every society, they have deteriorated in time, and "school has become a social problem" (Illich, 1998, p. 76). Schools, as Nietzsche states, have always been an institution that rots one's brain (qtd. in Baker 2013, p. 62). "Modern educational methods are thoroughly artificial and the fatal weaknesses of the present day are to be ascribed to this artificiality" (Nietzsche, 2003, p. 9). It is irrational to subject every student to the same curriculum and equip them with the same knowledge. Paul (2014, p. 202) was right to argue, "one size does not fit all. There are many different sizes today."

Teacher-centeredness is yet another dilemma of the education systems. Most education systems are based on a principle that prioritizes the teacher over everything else. The teacher is the determining factor while the student is just an obedient figure. Freire (2014a, pp. 57-58) lists the characteristics of teacher-centered education systems as follows;

> The teacher teaches and the students are taught. The teacher knows everything and the students know nothing. The teacher thinks and the students are thought about. The teacher talks and the students listen meekly. The teacher disciplines and the students are disciplined. The teacher chooses and enforces his choice, and the students comply. … The teacher chooses the program content, and the students (who were not consulted) adapt to it. …The teacher is the subject of the learning process, while the pupils are mere objects.

The approach which prioritizes the teacher over the student is completely erroneous. This is the banking concept of education where students are regarded as "containers" and "receptacles" to be filled by the teacher. It is a model where "instead of communicating, the teacher issues communiques and makes deposits which the students patiently receive, memorize, and repeat" (Freire, 2014a, p. 56). This model should be discarded altogether. Gramsci believes that we should start "not from the point of view of the teacher but from that of the learner. … Education is not a matter of handing out 'encyclopedic knowledge' but of developing and disciplining the awareness which the learners already possess" (Giroux, 2011, p. 80). Similarly, Freire (2014b, p. 74), notes, "a progressive educator must not experience the task of teaching in mechanical fashion." The concept of creative school should be taken into consideration where the student acts individually and freely and the teacher initially functions as an observer and a friendly guide (Gramsci, 2012, p. 233). The teacher is not someone who teaches the student what s/he does not know; that is the purpose of the books. The student finds what he does not know at the library (Topçu, 2006, p. 60).

Meanwhile, school is like prison. It confiscates students' freedom and locks them up. It forces them into a never-ending race. Every obstacle students overcome are replaced by yet another (Baker, 2013, p. 178). School is an institution that imprisons students. It keeps students under custody while their parents are at work. It teaches them the information necessary for the machine called society to run, imposes obedience, and eliminates most while also assigning roles (Baker, 2013, p. 260). School systems should save themselves from this despotic approach. Rather, the aim of schooling should be to develop critical thinking skills. School should never restrict students' freedom. Trying to teach students, school should not fetter students' freedom because "the only condition necessary for learning" in a proper and healthy fashion is to be free (Baker, 2013, p. 169). As Freire (2005) argues, education should be seen as "critical consciousness" and "the practice of freedom", and it should be designed accordingly. The individual should make his/her life meaningful (Fromm, 2003, p. 226). To extricate the Turkish education system from the vicious circle caused by the conflict between old and new, it is necessary to liberate school and turn it into the center for critical thinking, abandoning the model in which the teacher bombards the student with unnecessary information.

Education system or school is generally perceived as a means of providing employment. This misperception should be abandoned. It is important to educate people properly and make their lives easier. Education should be designed as a process that makes us who we are. "Each of us desires to become someone in life, but oftentimes we forget that we are first and foremost humans. What is important is not that we are born humans but we remain humans" (Sönmez, 2014, p. 24). To do so, the Turkish education system should be based on a principle that prioritizes students and studentship (Gökalp, 2005, p. 130). Teachers should "proceed Socratically by attempting to be 'the midwife of his listeners' knowledge" (Kant, 2007, p. 98). Schooling in Turkey should become part of a system where students discover their skills.

Another problem of the Turkish educations system is that its structure is constantly altered as a result of the conflict between old and new. As is known, the

first action of a new government in Turkey is to change the education policies of the previous government. Almost a century after the foundation of the Turkish Republic, this understanding still dominates our education system. A view about our education system, which was also featured in a newspaper called *Tanin* a hundred years ago, is still valid today: "We have undone what is done before us! This explains all about our education system" (qtd. in Sabahaddin, 2013, p. 194). We cannot break this deadlock unless we abandon the perception of school either as the guardian of the old system or the backyard of defenders of new Turkey. The power struggle over schools damages students most, turning their lives into a nightmare.

Students in Turkey are afraid of schools and want them to be closed. For instance, "when a weak earthquake hits their city, a secondary school student gets happy, hoping that the walls of the school building may have cracked so that it will be closed temporarily, and the exam that he is going to take the new day will be cancelled" (Ergun, 1987, p. xiv). Students are extremely happy when schools are closed for a few days due to heavy snowfall. Antipathy towards school is one of our serious social problems. We can only reduce the feeling of abhorrence by spreading love. "Hatred," as Spinoza maintains, "is increased by being reciprocated, and can on the other hand be destroyed by love" (Spinoza, 2011, p. 421). That is why an understanding of education based on love should be promoted in our schools (Sönmez, 1997). When students love school and what they learn there, they embrace it. "One loves what he works for" (Fromm, 1995, p. 33).

In brief, the Turkish education system should be severed from the fruitless debates over "secular" versus "religious education" between the pro-Westerners and conservatives. Our education system should be liberalized. School should not be administrated like a governmental institution. Learning should be conducted not only at school, but also at other alternative centers like home. The time students spend at school can be reduced, and attendance can be more flexible. For example, they can go to school three days a week instead of five, and spend two hours there each time. As Neill argues, "the student should be free to attend classes… courses should not be designed on a pass-fail grading system" (Sönmez, 1998, p. 169). Parks and streets can be turned into areas where learning takes place. Teaching can be made fun through games. Courses can be associated with real life on a concrete basis.

In the final analysis, our current education system inhibits one's skills as it leads students to focus on a single field of study. For instance, a professor is generally perceived as the most qualified individual in society and is expected to have a full knowledge of his/her field of study, but s/he may turn out to be exactly the opposite, not even aware of simple everyday tasks. "The knowledge of the learned is but shallow" (Schopenhauer, 2011, p. 29). According to Hazlitt,

> (A professor) knows no liberal or mechanic art… [he] has no skill in surgery, in agriculture, in building, or in working in wood or in iron; it cannot make any instrument of labour, or use it when made; it cannot handle the plough or the spade, or the chisel or the hammer; it knows nothing of hunting or hawking, fishing or shooting, of horses or dogs, of fencing or dancing, or cudgel-playing, or bowls or cards, or tennis, or anything else. The learned professor of all arts and sciences cannot reduce any one of them to practice… (2011, p. 17).

Nothing can be more deadening than restricting one's education to a single field of study (Dewey, 1996, p. 343). However, as Marx points out, it is possible to create a society in which no individual is locked up in his own sphere and each individual can develop himself in any activity that pleases him. This makes it possible for the individual to do one thing today, another tomorrow; without the sheer necessity of having to become "one" hunter, fisherman, or critic. It therefore makes it possible for man to hunt in the morning, fish in the afternoon, rear cattle in the evening, and criticize after dinner (Marx & Engels, 1992, p. 56). Given that life is multifaceted, we should not confine students within a single occupation. One can be brought up to become a sociologist, historian, biologist, sportsperson, carpenter, mountaineer, artist, writer and poet. All we need is to think outside the patterns of the conflict between old and new, and declare war against its tenets.

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Türk Eğitim Sistemine Eski-Yeni Çekişmesinin Dışında Bakmak

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Özet

Çalışmanın Temeli: Eğitim, toplumların sorunlarına çözüm üreten, karanlıkları aydınlatan, bireylerin yeteneklerini geliştiren ve insanları ferahlatan bir sistem olarak düşünülür. Fakat Türkiye'de var olan eğitim sisteminin durumu biraz farklıdır. Çünkü problem çözme etkinliği olarak görülen eğitim sisteminin kendisi bir probleme dönüşmüştür. Türk eğitim sistemi, en ciddi sosyal problemlerimizden birisi haline gelmiştir. Bu problem, özünde Türkiye'nin hangi medeniyete mensup olduğu (Batı medeniyetine mi yoksa Doğu medeniyetine mi) tartışmalarından kaynaklanmaktadır. Türk eğitim sisteminde "eski-yeni çekişmesi", "Türk toplumu Doğulu bir toplumdur" diyenler (Batı karşıtları) ile "Türk toplumu Batılı bir toplumdur" görüşünü savunan kesimler (Batıcılar) arasındaki mücadeleden ibarettir. Söz konusu mücadele, 19. yüzyıldan günümüze devam eden Türkiye'nin Batılılaşması süreciyle doğrudan bağlantılıdır. Türk eğitim sistemi, "eski-yeni

çekişmesi"nden muzdarip bir sistemdir. Makalede, her iki tarafın benzer sonuçlar üreten eğitim anlayışlarına sahip olduğu teması esas alınmış, Türk eğitim sistemi eski-yeni çatışmasının dışında değerlendirilmiştir.

Günümüzde Türk toplumu, "eski eğitim" yanlıları ve "yeni eğitim" taraftarları olarak iki büyük düşman kampa bölünmüş durumdadır. Başka bir deyişle, toplumumuz eğitimde "dinselliği" ön plana çıkaran "geleneksel eğitim sistemi"nden (geçmişe dönük özlemden kaynaklanan eğitimde dinin vitrine çıkartılması, din merkezli bir eğitimin referans alınması, dindar bir neslin yetiştirilmesi vb.) yana olan muhafazakâr kesimler ile eğitimde "çağdaşlaşma"yı savunan, "modern eğitim sistemi"nden (dine mesafeli olan laik eğitimden, akılcı ve Batıcı eğitimden) yana olan Batıcı kesimler arasındaki kavganın bir arenası haline gelmiştir. Türk eğitim sistemi, tarihinin en büyük "eski-yeni çatışması"na sahne olmaktadır. Fakat günümüzde işler biraz terse dönmüştür. Türkiye'de son yıllarda ilginç olan, muhafazakârların "yeni" diye öne sürdüklerinin daha çok "eski"ye (örneğin, eğitimde dinin, yani İslamiyet'in referans alınması, din eğitimi veren okulların sürekli açılması ve çoğalması gibi) gönderme yapmasıdır. Bu muhafazakâr "yeni"ler! karşısında Batıcı laik kanata dair sanki "eski"yi savunuyormuş gibi bir algı yaratılmıştır.

Kısaca, bu çalışmanın temeli, nüfusumuzun en önemli kısmını oluşturan çocukların ve gençlerin (bugünümüz ve geleceğimiz olan bireylerin) eğitim hayatlarını doğrudan ilgilendiren "eski-yeni çekişmesi"ne farklı bir gözle bakmaya, Türk eğitim sistemini söz konusu kısır döngüden kurtarmaya ve onu yeniden yapılandırmaya dayandırılmıştır. İşte, bu bağlamda, bu makalede, Türk eğitim sisteminin ana meseleleri üzerine odaklanılmış, ideal bir Türk eğitim sistemi nasıl olmalıdır? sorusuna cevap aranmıştır.

Çalışmanın Amacı: Makalenin amacı, Türk eğitim sistemindeki "eski-yeni çekişmesi"nin kuru bir gürültüden ibaret olduğunu ortaya koymak, bu çerçevede gerek Batı karşıtı muhafazakârların gerekse de Batıcıların savundukları eğitim anlayışlarının öğrenciyi yeteneksizleştirdiğini, öğretmeni merkeze aldığını, öğrencileri gereksiz ve hayattan kopuk bilgilerle kuşattığını, ezberciliği önemsediğini, disiplini ve korkuyu savunduğunu, öğrenciyi stresli, kaygılı, huzursuz, mutsuz ve yeteneksiz yaptığını göstermek, söz konusu çekişmede herhangi bir tarafta yer almadan yeni bir eğitim sistemi için bazı öneriler getirmektir.

Kanıt Kaynakları: Bu makalede, Türk eğitim sisteminin "eski-yeni çekişmesi" nedeniyle sağlıklı bir şekilde işleyemediği, hedeflerinin sürekli değiştiği, çoğu kez hedefsiz kaldığı, bir "yap boz tahtası"na dönüştürüldüğü, tutarlı olmadığı, Batı karşıtı muhafazakârların ya da Batıcıların iktidarları dönemlerinde sürekli olarak darmadağın edildiği gerçeğinden hareket edilmiştir. Türk eğitim sisteminin mutlu, neşeli, hayata bağlı, özgür, yetenekli, hünerli, bilgili, dürüst ve erdemli insan yetiştirmediği gerçeği, araştırmanın kalkış noktası olarak görülmüştür.

Ana Tartışma ve Sonuçlar: Eski-yeni kavgasının biçimlendirdiği Türk eğitim sisteminin manzarası içler acısıdır. Bu ürkütücü halin fotoğrafı insanlarımızın tamamını ilgilendirmektedir. Bu devasa fotoğraf karesinde her insanımız kendisine bir yer

bulmaktadır. Bu sıkıntılı karede kimi insanımız ön planda/merkezde, kimisi kenarda/kıyıda, kimisi ise arka fonda bize bakmaktadır. O büyük resimde yer alanlar, okula giden öğrenciler, onları eğiten öğretmenler ve okuyanların ve okutanların aileleridir. Dolayısıyla o çerçeve içindeki herhangi bir sorun, sadece eğitimcilerin değil, aslında herkesin sorunudur. Bu makalede, Türk eğitim sisteminin hatalı yönleri ve kusurlu yapıları üzerine odaklanılmış, eğitim alanında kalıplaşmış ve köhneleşmiş olan "eski-yeni çekişmesi" olumsuzlanmış, öğrencileri daha mutlu edebilecek ve yeteneklerini keşfedip geliştirebilecek iyi/ideal bir eğitim sistemi nasıl olmalıdır? sorusuna cevap aranmıştır. Bu makalede, "eski-yeni çekişmesi"nden kaynaklı olarak çeşitli açmazlarla dolu Türk eğitim sisteminin sorunlu bir sistem olmaktan çıkartılması için şu öneriler geliştirilmiştir: İlk olarak, Türk eğitim sistemi, "eski-yeni çatışması'nın (muhafazakârların "dinî eğitim", Batıcıların "laik eğitim" kısır kavgasının) bir alanı olmaktan çıkartılmalıdır. Bu çerçevede, eğitim sistemi, gereksiz bilgilerle öğrencinin zihnini ve bedenini mahveden, öğretmeni ve müfredatı merkeze alan, öğrenciyi dışlayan ve onu sadece ezberciliğe yönelten anlayıştan vazgeçmelidir. İkinci olarak, Türkiye'deki eğitim sistemi özgürleşmelidir, yani okul, öğrenciyi cezalandıran ve disiplin altına alan bir aygıt olmamalı, öğrenme etkinliği sadece okulla sınırlandırılmamalı ve okula gitmede öğrenciye büyük esneklik tanınmalıdır. Eğitim kurumları demokratikleştirilmelidir. Üçüncü olarak, okul, kuralcı, nizamcı, otoriter, baskıcı ve resmi bir kurum olmaktan ziyade, sevgiye dayalı, neşeli ve öğrencinin yeteneklerini geliştiren şen bir kuruma dönüştürülmelidir. Neşeye, sevgiye dayanan şen eğitim esas alınmalıdır. Son olarak, hayatın çok karmaşık ve çok katmanlı oluşu gerçeğinden hareketle öğrenciler, tek bir mesleğe göre değil, birden fazla mesleği yapabilecek bir şekilde çok yönlü olarak yetiştirilmelidirler.

Anahtar Sözcükler: Türk eğitim sistemi, ezberci eğitim, baskıcı eğitim, özgür eğitim, şen eğitim, ideal eğitim sistemi.

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The Relationship between Teachers' Perception about School Managers' Talent Management Leadership and the Level of Organizational Commitment

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Abstract

Problem statement: Talent Management (TM) has been recently seen as a critical success factor in the development of educational organizations. The problem this study addresses is whether there is a relationship between teacher perceptions about school managers' TM leadership and their level of organizational commitment (OC). The level of school managers' TM leadership characteristics could influence the teachers' OC either positively or negatively. Within this context, in this study, great importance is attached to the determination of the way teachers perceive the school leaders' TM behaviors and to the examination of whether these behaviors have a relationship with teachers' OC.

Purpose of Study: The purpose of this study is to determine the relationships between the school managers' Talent Management Leadership and teachers' organizational commitment based on the perception of teachers who are working for Anatolian High Schools.

Method: For the calculation of the relationships between the variables, Pearson moments two-way correlation analysis (*r*) was used. Pearson relationship coefficient and multiple linear regressions have been used for data analysis. A total of 402 teachers participated in the study. During this study, the "Talent Management Leadership Scale" developed by Davies and Davies has been used to determine the school managers' talent

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management leadership level, and the "Organizational Commitment Scale" developed by Meyer and Alien has been used to determine the teachers' OC levels.

Findings and Results: Analyzing the data, a significant, high-level relationship in a positive direction between TM Leadership and OC is observed (r=0.80, p<.01). Findings show that teachers' perception about school leaders' talent management leadership is a significant variable predicting their organizational commitment. Based on the regression analysis results, the regression equation (mathematical model) for the prediction of organizational commitment is as follows: OC=0.64+0.44 Strategic acumen+ 0.31 Interoperability+ 0.05 Values+ -0.01 Personal qualities.

Conclusions and Recommendations: The TM leadership of the school managers as observed by the teachers has been found to be a significant variable which predicts teachers' organizational commitment. The efficiency of school managers in strategic acumen and interoperability seems to be a significant predictor of teachers' OC. Within the context of the results of this study, it may be suggested that various qualitative and quantitative research should be undertaken to raise consciousness about the TM leadership approach and to determine the school managers' and teachers' views on this issue in terms of different variables.

Keywords: Talent management leadership, organizational commitment, teacher.

Introduction

The Talent Management (TM) concept was brought into popularity at the beginning of the year 2000, following research on the "talent wars" conducted by an American consulting firm called Mckinsey in 1997. The results of the research showed that all successful organizations have a consistent and continuous TM practice. This research revealed the fact that business organizations find themselves competing with other business organizations to find and retain talented employees. Within this context, a "talented employee" was regarded as the most significant resource in both private business organizations and educational organizations (Axelroad, Michaels,& Hanfield, 2001). Since this study is dedicated to the examination of the relationship between school leaders' (head teachers and deputy head teachers) TM leadership and teachers' OC, it would be useful to first explain the concepts of TM and OC.

Talent Management (TM)

TM is a process covering the definition of the talents and efficiencies needed; making career plans for the whole workforce for organizational purposes; evaluation evaluating their performance; and, creating and realizing a high performance culture (Lewis & Heckman, 2006). TM is comprised of a combination of efficiencies of the leaders such as strategic thinking, communication skills, emotional maturity and attracting and motivating talented personnel, developing them and maintaining their

commitment (Garrow & Hirsh, 2008). TM is a process intended to employ, develop, place, maintain and integrate those who are highly qualified and have a potential for high performance per the long-term strategies of the organization in order to gain competitive advantages.

Within this context, the question "why do educational organizations need TM?" has been on the agenda recently. Educational organizations, undergoing continual change and facing uncertainty within the context of globalization and postmodernism, have difficulty in both adapting to these changes and attaining and maintaining superiority over others in the competition for jobs. In such an environment, educational organizations need to choose their resources of manpower and use them efficiently in order to survive.

TM has recently been seen as a critical success factor in the development of educational organizations. Talents of the employees and school leaders' TM skills provide the basis for the success of the educational organizations (Cross, 2007; Davies&Davies, 2011). Within the context of the Mckinsey study, the difficulty with employing and maintaining talented school leaders continues to be a problem. There is a strong need to undertake research on the assumption that school leaders as talent managers may create efficient schools, or that efficient schools can create talented leaders and employees in practice. Educational organizations and other private enterprises, when considered in terms of TM, are often found to be inefficient in their implementation of attracting, maintaining, stimulating, developing and substituting employees (Davis, 2007). One of the important contributors to the creation of successful educational organizations is TM.

Research has put forth the particular need for TM in educational organizations. TM is one of the new topics that has started to be mentioned in educational organizations. The lack of talented leaders and employees in schools has led to a competition between the schools operating in the field; and, schools, particularly those that adopt a TM understanding, have established "talent pools" that will carry them into the future. In addition, the fact that such schools are the ones which are chosen and preferred by teachers and managers is a significant issue, especially in today's competitive environment (Davies&Davies, 2011; Lewis,& Heckman, 2006). One of the most influential ways schools apply can meet their need for difference and innovation is to implement TM efficiently. Educational organizations (public/private schools, Ministries of Education) now also want to have and retain talented employees like profit-oriented private enterprises. In this process, it has gradually become important for schools to have knowledge of and the skills for determination, maintenance, and employment of talented managers, teachers, specialists and other talented employees (Davies & Davies, 2011).

Organizational Commitment (OC)

OC is the individual's acceptance of the organization's objectives and values; his effort to reach these objectives; and, his desire to continue his membership in the organization (Mowday, Steers, & Porter, 1979). Mowday, Steers and Porter (1979) classify OC at two levels as *behavioral commitment* (individual's process of remaining committed to the organization due to his/her behaviors in the past) and *attitudinal commitment* (power of the individual's integration and his/her participation in the

organization). Meyer and Allen developed a new model in 1984, adding *emotional and continuance commitments* to this model. Researchers later on have added *normative (ethical) commitment* to their models. Meyer and Allen (1990) point out the fact that OC is comprised of three components; emotional, normative, and continuance:

i) Emotional Commitment: It is a kind of commitment that emerges from respect for the organization's objectives and values; admiration for and respect for the managers; emotional closeness; sharing of organizational vision and mission. Emotional commitment is the kind of commitment organizations most prefer.

ii) Continuance commitment: This type of commitment involves being aware of the cost of and difficulties resulting from leaving the organization. Those who have continuance commitment continue to work in order not to suffer a loss, so as to serve their own personal interests and to benefit from the organization. This type of commitment results from an individual's willingness to stay in the organization just because of his past personal investments in the organization (Balay, 2001).

iii) Normative Commitment: Normative commitment is the one which depends on the beliefs of the members of an organization. They stay with the organization because of their sense of responsibility and obligations towards the organization. In this type of commitment, the sense of ethical obligation and the idea of being loyal to the organization are influential.

TM in educational organizations focuses more on attracting qualified teachers, retention of them, and support and motivation of their career development (Lewis & Heckman, 2006). Within this context, school managers need to increase the organizational commitment of the employees, particularly of teachers. Support of school managers and the relationships between managers and teacher affects organizational commitment of teachers (Balay, 2001). Leadership styles executed by school managers have positive or negative effects on teachers' organizational commitment. Various researchers suggest that school leadership and teacher commitment might play a significant role in the success and efficiency of the school (Balay, 2001). While there are a lot of factors that are either directly or indirectly affected by the leadership behaviors of school managers, one of the most important factors among them is considered to be teacher organizational commitment. The leadership approach of school managers is accepted as an important variable in ensuring teacher commitment to the school (Balay, 2001; Sezgin, 2010). Lewis and Heckman (2006) and Rhodes (2012) suggest that there is a significant relationship between TM and teacher organizational commitment; and. they argue that an increase in the employees' longevity in and commitment to the organization and a decrease in personnel mobility are observed through the development of TM leadership approaches in the institution. In the TM leadership approach, managers are required to ensure the organizational commitment of the employees; in other words, they are required to convey the organization's primary values to the employees and thus ensure their emotional commitment. Ensuring the environment and opportunities suitable for employees to develop their skills is regarded as an important factor in ensuring their organizational commitment (Stairs, Galpin, Page, & Linley, 2006).

Global concerns over the lack of leadership in schools have put the leadership talent and TM leadership on the agenda. Particularly, a need to develop school managers' TM skills has recently emerged. The need to determine, atract, develop and retain talented employees in schools has made the development of leaders' TM skills compulsory in the field of education in which competition and variations are on the forefront (Rhodes, 2012). The ability of schools to attract talented employees (teachers and managers), to employ them in a convenient position, to develop, maintain and substitute them is considered to be a challenging leadership problem as the educational community proceeds towards the future. Iqbal, Qureshi, Khan and Hijazi (2013), in their research, suggest a positive relationship between TM practices and the emotional commitment of employees, as well as the performance of the organization. Cheese, Thomas and Craig (2008) state that the existence of talented managers and teachers in schools has little value without the existence of their organizational commitment and dedication.

Although a great deal of research in which organizational commitment is considered as an independent variable has been conducted in Turkey and across the world, there has been almost no research that examines the teachers' commitment levels in terms of TM leadership behaviors of school managers. Within this context, in this study, great importance is attached to the determination of the way teachers perceive the school leaders' TM behaviors and to the examination of whether these behaviors have a relationship to teachers' organizational commitment. Given the literature in the field, this study may be regarded as the first on TM leadership in schools. The overall purpose of this study is to determine the relationship between the school leaders' TM leadership as perceived by the teachers working for Anatolian High Schools and their organizational commitment; and, thus, to put forward a prediction of degree of organizational commitment by talent management leadership. To that end, answers to the following question have been sought:

1. Is there a significant relationship between the teachers' perceptions about the school managers' TM leadership and their perceptions about their own organizational commitment levels?

2. Are teachers' perceptions about school managers' TM leadership (personal qualifications, strategic acumen, interoperability, dimensions of value) a significant predictor of organizational commitment level (emotional, continuance and normative)?

Method

Research Design

In this descriptive study, in which the relationship between the school managers' TM leadership as perceived by the teachers and the OC was examined, the relational screening model was used (Büyüköztürk, 2008).

Research Sample

The target population of this study includes 5,691 teachers working for a number of Anatolian High Schools located in metropolitan districts of Ankara Metropolitan Municipality. According to Büyüköztürk (2008), a sample of 390 people with "an

error margin of 0.05" represents a target population of 5.691 people. The sample in this study is comprised of 402 teachers chosen at random from the target population.

Research Instrument and Procedure

Data collection tools of this study consist of two scale:

Organizational Commitment Scale (OCS): OCS, which was developed by Meyer and Allen (1990), was adapted by Demirkıran (2004). The alpha internal consistency coefficient of the scale is 0.85 for all items. The results of the Confirmatory Factor Analysis (CFA) conducted through final data to confirm the three-factor nature of OCS showed that the goodness-of-fit index of the three-factor model is at an acceptable level. Fitness indexes with the CFA conducted are calculated as [χ2=288.6, sd=156, p<0.001], (χ2/sd)= 1.85, RMSEA=0.05, GFI=0.92, AGFI=0.89.

Talent Management Leadership Scale (TMLS): TMLS was developed by Davies and Davies (2011) and permission to use it has been granted. In this study, CFA was used to confirm the dimensions in their original forms. As a result of the CFA, fit indices were found to be [χ2=305.76 sd=156, p<0.001], (χ2/ sd)=1.95 RMSEA=0.05, GFI=0.91 and AGFI=0.88. Findings show that fit indices are within the acceptable limits in accordance with GOF criteria (Hair, Anderson, Tahtam and Black, 1998). As a consequence, the four-dimensional structure of the scale was also confirmed through CFA. Factor loads of the items were found to be between .67 and .90.

TMLS's cumulative variance explanation rate was found to be 69.85% based on the four dimensions. Cronbach's alpha internal consistency coefficient of the scale was 0.87. As a result of the validation test, Kaiser-Meyer-Olkin (KMO) coefficient has been found to be .85 in OCS, whereas it has been found to be .87 in TMLS. As aconsequence of Barlett's Test being conducted, the coefficient in OCS has been found to be 2.958.40, while it has been found to be 1.786.01 in TMLS.

Data Analysis

For the calculation of the relationships between the variables, Pearson moments two-way correlation analysis (r) was used. Moreover, multiple linear regression analyses were conducted to determine the level of independent variables' (TMLS) prediction of dependent variables (OC) During the interpretation of regression analyses, standardized Beta (β) coefficients and the results of t-test on the significance of these coefficients were taken into account (Büyüköztürk, 2008; Hair et al., 1998; Tabachnick & Fidell, 2001).

Results

The relationship between teachers' perceptions of the TM leadership and their OC related with the first question is answered. Analyzing the data, a significant, high-level relationship in the positive direction between TML and OC is observed (r=0.80, p<.01). Thus, it is possible to state that as teachers' perceptions of their school leaders' TML grows, their organizational commitment is influenced positively.

Teachers have stated that school managers have TM leadership qualities at a "medium" level. In accordance with teachers' opinions, their organizational

commitment was found to be at a "medium" level. The findings obtained from Pearson multiple linear regression analysis aimed at determining the relationship between TM leadership as perceived by the teachers and their organizational commitment are given in Table 1.

Table 1.
Results of the Correlation Analysis Aimed at Determining the Relationship between TML and OC Dimensions

Variables	$\overline{x}$	S	1	2	3	4	5	6	7
1.Personal qualities	2.83	1.19	1						
2. Strategic acumen	2.82	1.10	.56**	1					
3.Interoperability	2.73	1.18	.83**	.51**	1				
4.Values	2.76	1.13	.85**	.52**	.90**	1			
5.Emotional commitment	2.65	1.21	.83**	.51**	.93**	.91**	1		
6.Continuance commitment	3.00	1.38	.16**	.33**	.22**	.17**	.27**	1	
7.Normative commitment	2.95	1.17	.53**	.88**	.47**	.48**	.46**	.23**	1

** $p < .01$

Based on Table 1, it may be stated that the perception level of teachers who have participated in the study for continuance commitment is relatively higher than those for normative commitment and emotional commitment. The coefficients of the correlation between the variables demonstrate that there is a positive and medium-level relationship with low-level significance between normative commitment and emotional commitment ($r = .27$, $p < .01$). The highest point average in terms of TM leadership has been observed in the personal qualities dimension, while the lowest point average has been observed in the interoperability dimension. TM leadership has been observed to have positive relationships with low-level significance with personal qualities, values and interoperability, whereas it has been found to have a positive relationship with medium-level significance with personal qualities and strategic acumen. A positive relationship with medium-level significance has been found between strategic acumen and values, as well as between strategic acumen and interoperability and personal qualities. A positive relationship with high-level significance has been found between interoperability and values.

Among the dimensions of TM leadership and teacher emotional commitment, interoperability, values and personal qualities have been found to have positive relationships with high-level significance, while a positive relationship with medium-level significance has been observed between emotional commitment and strategic acumen. It has been observed that there exists a positive relationship with medium-level significance between the continuance commitment and the dimensions of strategic acumen. Continuance commitment has been found to have a positive relationship with low-level significance with personal qualities, values and interoperability dimensions. A positive relationship with high-level significance has been observed between normative commitment and strategic acumen. Findings

related to the second question of this study concerning whether school managers' TM predict teachers' organizational commitment are given in Tables 2,3,4 and 5.

Prediction of Emotional Commitment

The results of the multiple linear regression analysis on the prediction of emotional commitment are reflected in Table 2.

Table 2.
Results of the Regression Analysis on the Prediction of Emotional Commitment

Variable	B	SD B	β	t	p	Dual r	Partial r
Constant	-.14	.05		-2.53	.01		
Personal Qualities	.07	.03	.07	2.33	.02	.11	.03
Strategic Acumen	-.00	.02	-.00	-.11	.90	-.00	-.00
Interoperability	.59	.03	.58	15.3	.00	.61	.23
Values	.34	.04	.32	8.18	.00	.38	.12
R = .95	*R2* = .90		Corrected *R2* = .90				
F (4.397) = 970.70	*p* = .00						

Analysis of Table 2 demonstrates that TM leadership provides a significant relationship together with strategic acumen, interoperability and the values dimensions with emotional commitment (R = .95, $p < .01$). These predictive variables explain 90% of the total variance in teachers' perception about their emotional commitment. The dimensions of personal qualities (β = .07, $p < .05$), interoperability (β = .58, p< .01) and values (β = .32, p< .01) predict the emotional commitment positively and at a significant level. When it comes to strategic acumen (β = -.00, $p > .05$), it may be said that it is not a significant predictor of emotional commitment.

Prediction of Continuance Commitment

The results of the multiple linear regression analysis on the prediction of continuance commitment can be seen in Table 3.

Table 3.
Results of the Regression Analysis on the Prediction of Continuance Commitment

Variable	B	SD B	β	t	p	Dual r	Partial r
Constant	1.83	.19		9.28	.00		
Personal Qualities	-.18	.11	-.16	-1.66	.09	-.08	-.07
Strategic Acumen	.42	.07	.33	5.86	.00	.28	.27
Interoperability	.35	.13	.30	2.58	.01	.12	.12
Values	-.16	.14	-.13	-1.09	.27	-.05	-.05
R = .35	*R2* = .12		Corrected *R2* = .11				
F (4.397) = 14.379	*p* = .00						

When Table 3 is considered, it is seen that TM leadership, together with personal qualities, strategic acumen, and the dimensions of interoperability and values, presents a significant relationship with the continuance commitment (R = .35, $p <$

.01). These predictive variables constitute 12% of the total variance in teachers' perception about the continuance commitment. Strategic acumen (β = .33, p < .01) and interoperability (β = .30, p< .05) dimensions predict the continuance commitment positively at a significant level. The dimensions of personal qualities (β = -.16, p > .05) and values (β = -.13, p > .05) are not predictors of the continuance commitment.

Prediction of Normative Commitment

The results of the multiple linear regression analysis on the prediction of normative commitment can be seen in Table 4.

Table 4.
Results of the Regression Analysis on the Prediction of Normative Commitment

Variable	B	SD B	β	t	p	Dual r	Partial r
Constant	.24	.08		2.94	.00		
Personal Qualities	.07	.04	.07	1.52	.12	.07	.03
Strategic Acumen	.91	.03	.86	30.6	.00	.84	.70
Interoperability	-.00	.05	-.00	-.10	.91	-.00	-.00
Values	-.02	.06	-.02	-.40	.68	-.02	-.00
F (4.397) = 376.50	p=.00						

When Table 4 is considered, TM leadership, together with personal qualities, strategic acumen, and interoperability and values dimensions, demonstrates a significant relationship with normative commitment (R = .89, p < .01). These predictive variables explain 79% of the total variance in teachers' perception about normative commitment. Strategic acumen (β = .86, p < .01) predicts normative commitment positively at a significant level. Personal qualities (β = .07, p > .05), interoperability (β = -.00, p > .05) and values (β = -.02, p > .05) are not significant predictors of continuance commitment.

Prediction of Organizational Commitment

The results of the multiple linear regression analysis on the prediction of organizational commitment are given in Table 5. When Table 5 is considered, it is seen that TM leadership, together with personal qualities, strategic acumen, and interoperability and values dimensions, presents a significant relationship with organizational commitment (R=.85, p<.01). These predictive variables constitute 72% of the total variance in teachers' perception of organizational commitment. In accordance with the standardized regression coefficient (β), order of significance of the predictive variables upon organizational commitment may be listed as follows: strategic acumen, interoperability, values and personal qualities.

Table 5.
Results of the Regression Analysis on the Prediction of Organizational Commitment

Variable	B	SD B	β	t	p	Dual r	Partial r
Constant	.64	.07		8.66	.00		
Personal Qualities	-.01	.04	-.01	-.32	.74	-.01	-.00
Strategic Acumen	.44	.02	.53	16.47	.00	.63	.43
Interoperability	.31	.05	.40	6.17	.00	.29	.16
Values	.05	.05	.06	.95	.34	.04	.02
R = .85	$R2$ = .72	Corrected $R2$ = .72					
F (4.397) = 261.44	p = .00						

Considering the results of t-test aimed at determining the significance of regression coefficients, it would not be wrong to say that strategic acumen and interoperability variables are significant predictors of organizational commitment. Personal qualities and values variables do not have a significant influence. It may, finally, be said that the most significant dimensions affecting teachers' organizational commitment are the strategic acumen and interoperability dimensions of TM leadership. Based on the regression analysis results, the regression equation (mathematical model) of the prediction of organizational commitment is as follows: OC=0.64+0.44 Strategic acumen+ 0.31 Interoperability+ 0.05 Values+ -0.01 Personal qualities.

Discussion and Conclusion

Findings show that teachers' perceptions about school leaders' TM leadership are a significant variable predicting their OC. A positive, high-level and significant relationship is observed between TM leadership and OC. TM leadership, along with personal qualities, strategic acumen, interoperability and values dimensions, seems to have a high-level and significant relationship with OC. The efficiency of school managers in strategic acumen and interoperability seems to be a significant predictor of teachers' organizational commitment. These results are in parallel with the results of studies conducted by Davies and Davies (2011) and Yörük and Sağban (2012), suggesting that the leadership styles modeled by school managers (cultural, bureaucratic, distributed, educational, servant, transactional, transformational, etc.) have an influence on and are predictors of teachers' organizational commitment. The results of this study indicating the fact that teachers have a medium-level organizational commitment are consistent with the results of the studies conducted by Nayir (2012), Çoban and Demirtaş (2011), while contradicting the results of the studies conducted by Balay (2001) and Yörük and Sağban (2012) suggesting that teachers have high-level organizational commitment. The fact that studies which demonstrate high-level organizational commitment are mostly at the primary school level is meaningful.

The results of this study show that the level of teachers' emotional commitment is lower than that of continuance and normative commitments. This result may be perceived as indicative of teachers' unwillingness to make any effort to achieve the

school's goals (Allen & Meyer, 1990, Balay, 2001; Mowday and etc., 1979; Nayir, 2012; Riehl & Sipple, 1996). In addition, results show that teachers' emotional commitment is positively correlated with the personal qualities, interoperability and values dimensions of TM leadership.

Balay (2001) and Sezgin (2010), in their studies, state that a bureaucratic school environment and a strict sense of hierarchy reinforce the continuance and adaptation commitments, while they decrease teachers' emotional commitment. Similarly, in this study, the results show that, in parallel with the above-mentioned studies, personal qualities, interoperability and values dimensions of school managers' TM leadership have a significant and positive effect on teachers' emotional commitment. Moreover, in the interoperability dimension of school managers' TM leadership, school leaders' inefficiency in motivating the teachers and being sensitive to their personal problems may affect teachers' continuance and emotional commitments negatively.

The finding of Sezgin (2010) that a bureaucratic organizational culture increases the continuance commitment may be perceived as a suggestion that school managers need to develop their TM leadership skills. The findings of this study demonstrating the fact that teachers generally have continuance commitment towards their school, rather than emotional or a normative commitments, may be interpreted as a sign that teachers are committed to work because they consider it a means to gain more and to not to lose what they possess (Balay, 2001; Davies& Davies, 2011). This result may be evaluated as a sign of teachers' lack of sincere emotional commitment to their jobs and of their commitment to their schools when they serve the teachers' personal interests.

As a result, based on the teachers' opinions, it may be said that school managers do not possess these efficiencies at a desired level, and this results in teachers' low level of organizational commitment. It has been observed that school managers' TM leadership is an important variable which predicts teachers' OC. Within the context of the results of this study, it may be suggested that various qualitative and quantitative research should be undertaken to raise consciousness about TM leadership approaches and to determine the school managers' and teachers' views on this issue in terms of different variables.

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Öğretmenlerin Okul Yöneticilerinin Yetenek Yönetimi Liderliği Algısı ile Örgütsel Bağlılık Düzeyi Arasındaki İlişki

Atıf:

Aytaç, T. (2015). The relationship between teachers' perception about school managers' talent management leadership and the level of organizational commitment. *Eurasian Journal of Educational Research*, 59, 165-180

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Özet

Problem Durumu: Okullarda liderliğin eksikliği ile ilgili küresel kaygılar, okul liderlerinin Yetenek Yönetimi (YY) becerilerinin geliştirilmesi ihtiyacını ortaya çıkarmıştır. Okulda yetenekli çalışanların belirlenmesi, okula çekilmesi, geliştirilmesi ve elde tutulması rekabetin ve farklılığın ön plana çıktığı eğitim alanında özellikle liderlerin YY becerilerinin geliştirilmesini zorunlu kılmıştır. Okulların nitelikli çalışanları (öğretmenleri ve yöneticileri) çekme, uygun pozisyonda kullanma, geliştirme, elde tutma ve yedekleme yeteneği, okul toplumu geleceğe doğru ilerlerken önemli bir liderlik sorun alanı olarak görülmektedir. Örgütsel bağlılık ve

okul yöneticilerininin liderlik yaklaşımları (dönüşümcü, öğretim liderliği vb.) ile ilgili farklı değişkenler bağlamında yapılan araştırmaların sonuçları irdelendiğinde okul yöneticilerinin çeşitli liderlik davranışları sergilemeleri ile öğretmenlerin örgütsel bağlılığı arasında farklı ilişkiler bulunmuştur. Bu bağlamda araştırmanın problemini okul yöneticilerinin sergilediği YY liderlik davranışlarının öğretmenler tarafından nasıl algılandığının belirlenmesi ve bu davranışların öğretmenlerin örgütsel bağlılığı ile ilişkili olup olmadığının ortaya konulması oluşturmaktadır.

Araştırmanın Amacı: Bu araştırmanın amacı; Anadolu lisesi öğretmenlerinin algıladıkları okul yöneticilerinin YY liderliği ile örgütsel bağlılığı arasındaki ilişkiyi belirleyerek, örgütsel bağlılığın algılanan YY liderliği tarafından yordanma derecesini ortaya koymaktır. Bu amaçla aşağıdaki sorulara yanıt aranmıştır:

1. Öğretmenlerin okul yöneticilerinin YY liderliği ile örgütsel bağlılık düzeyleri algıları arasında anlamlı bir ilişki var mıdır?

2. Öğretmenlerin okul yöneticilerinin YY liderliği (kişisel nitelikler, stratejik yetenek, başkalarıyla birlikte çalışma, değerler boyutları) algıları örgütsel bağlılığın boyutlarının (duygusal, devam ve normatif) anlamlı bir yordayıcısı mıdır?

Araştırmanın Yöntemi: Öğretmenlerin algıladıkları okul yöneticilerinin YY liderliği ile örgütsel bağlılık arasındaki ilişkinin incelendiği bu çalışma, ilişkisel tarama modelinde betimsel bir araştırmadır. Araştırmada okul yöneticilerinin YY liderlik düzeylerini belirleyebilmek için Davies ve Davies tarafından geliştirilen "Yetenek Yönetimi Liderlik Ölçeği (YYLÖ)" ve öğretmenlerin örgütsel bağlılık (ÖB) düzeylerini belirleyebilmek için ise Meyer ve Allen tarafından geliştirilen "ÖB Ölçeği" kullanılmıştır. Verilerin analizi için Pearson korelasyon katsayısı ve çoklu doğrusal regresyon analizi kullanılmıştır. Araştırmanın örneklemini Ankara ili Büyükşehir Belediyesine bağlı metropol ilçelerde yeralan Anadolu liselerinden seçkisiz olarak belirlenen 16 Anadolu lisesinde görev yapan 402 öğretmen oluşturmaktadır.

Araştırmanın Bulguları: Veriler analiz edildiğinde, YY liderliği ile ÖB arasında pozitif yönde, yüksek düzeyde ve anlamlı bir ilişkinin olduğu görülmektedir (r=0.80, p<.01). Öğretmenlerin duygusal bağlılığı ile YY liderliği boyutlarından başkalarıyla birlikte çalışma (r = .93, p < .01), değerler (r = .91, p < .01) ve kişisel nitelikler (r =.83, p < .01) arasında pozitif yüksek düzeyde ilişkiler bulunurken, duygusal bağlılık ile stratejik yetenek (r = .51, p < .01) arasında ise pozitif yönde ve orta düzeyde anlamlı bir ilişki bulunmuştur. Devam bağlılığı ile stratejik yetenek boyutu arasında pozitif yönde ve orta düzeyde anlamlı bir ilişkinin olduğu görülmektedir (r = .33, p < .01). Devam bağlılığı ile kişisel nitelikler (r =.16, p < .01), değerler (r =.17, p < .01) ve başkalarıyla birlikte çalışma (r =.22, p < .01) boyutları arasında ise pozitif yönde ve düşük düzeyde anlamlı bir ilişki bulunmuştur. Normatif bağlılık ile stratejik yetenek boyutu arasında pozitif yönde yüksek düzeyde anlamlı bir ilişki bulunmuştur (r = .88, p < .01). Normatif bağlılık ile kişisel nitelikler (r =.53, p < .01), değerler (r =.48, p < .01) ve başkalarıyla birlikte çalışma (r =.47, p < .01) boyutları arasında ise pozitif yönde ve orta düzeyde anlamlı bir ilişki bulunmuştur. YY liderliğinin kişisel nitelikler, stratejik yetenek, başkalarıyla birlikte çalışma ve değerler boyutlarının birlikte devam bağlılığı ile anlamlı bir ilişki verdiği görülmektedir (R = .35, p < .01). Bu yordayıcı değişkenler, öğretmenlerin devam bağlılık algılarındaki toplam

varyansın yaklaşık %12'sini açıklamaktadır. Stratejik yetenek (β = .33, p < .01) ve başkalarıyla birlikte çalışma (β = .30, p< .05) boyutları devam bağlılığını pozitif yönde ve anlamlı düzeyde yordamaktadır. Kişisel nitelikler (β = -.16, p > .05) ve değerler (β = -.13, p > .05) boyutları ise devam bağlılığının anlamlı yordayıcısı değildir. YY liderliğinin kişisel nitelikler, stratejik yetenek, başkalarıyla birlikte çalışma ve değerler boyutlarının birlikte duygusal bağlılık ile anlamlı bir ilişki verdiği görülmektedir (β = .95, p < .01). Bu yordayıcı değişkenler, öğretmenlerin duygusal bağlılığı algılarındaki toplam varyansın yaklaşık %90'ını açıklamaktadır. Kişisel nitelikler (β = .07, p < .05), başkalarıyla birlikte çalışma (β = .58, p< .01) ve değerler (β = .32, p< .01) boyutları duygusal bağlılığı pozitif yönde ve anlamlı düzeyde yordamaktadır. Stratejik yetenek (β = -.00, p > .05) boyutu ise, duygusal bağlılığın anlamlı yordayıcısı değildir. YY liderliğinin kişisel nitelikler, stratejik yetenek, başkalarıyla birlikte çalışma ve değerler boyutlarının birlikte normatif bağlılığı ile anlamlı bir ilişki verdiği görülmektedir (R = .89, p < .01). Bu yordayıcı değişkenler, öğretmenlerin normatif bağlılık algılarındaki toplam varyansın yaklaşık %79'unu açıklamaktadır. Stratejik yetenek (β = .86, p < .01) normatif bağlılığı pozitif yönde ve anlamlı düzeyde yordamaktadır. Kişisel nitelikler (β = .07, p > .05), başkalarıyla birlikte çalışma (β = -.00, p > .05) ve değerler (β = -.02, p > .05) boyutları devam bağlılığının anlamlı yordayıcısı değildir. YY liderliğinin kişisel nitelikler, stratejik yetenek, başkalarıyla birlikte çalışma ve değerler boyutlarının birlikte, öğretmenlerin örgütsel bağlılığı ile yüksek düzeyde ve anlamlı bir ilişki verdiği görülmektedir (R=.85, p<.01). Bu yordayıcı değişkenler, öğretmenlerin örgütsel bağlılık algılarındaki toplam varyansın %72'sini açıklamaktadır. Standardize edilmiş regresyon katsayısına (β) göre yordayıcı değişkenlerin örgütsel bağlılık üzerindeki göreli önem sırası; stratejik yetenek, başkalarıyla birlikte çalışma, değerlerler ve kişisel niteliklerdir. Regresyon katsayılarının anlamlılığına ilişkin t-testi sonuçları incelendiğinde ise, stratejik yetenek ve başkalarıyla birlikte çalışma değişkenlerinin örgütsel bağlılık üzerinde önemli bir yordayıcı olduğu görülmektedir. Regresyon analizi sonuçlarına göre öğretmenlerin örgütsel bağlılığının yordanmasına ilişkin regresyon eşitliği (matematiksel model) şöyledir: ÖB= 0.64+0.44 Stratejik yetenek+ 0.31 Başkalarıyla birlikte çalışma+ 0.05 Değerler+-0.01 Kişisel nitelikler.

Araştırmanın Sonuçları ve Önerileri: YY liderliği ile ÖB'nin tüm boyutları arasında yüksek düzeyde pozitif ve anlamlı bir ilişki olduğu gözlenmiştir. Öğretmenlerin algıladıkları okul yöneticilerinin YY liderliğinin onların örgütsel bağlılığını yordayan önemli bir değişken olduğu belirlenmiştir. Algılanan okul yöneticilerinin YY liderliğinin stratejik yetenek ve başkalarıyla birlikte çalışma boyutlarının örgütsel bağlılığı etkileyen en önemli yordayıcılar olduğu sonucuna ulaşılmıştır. Okul yöneticilerinin YY liderliği konusunda bilinçlendirilmeleri ve eğitilmeleri, özellikle öğretmenlerin örgütsel bağlılığını yükseltme açısından önemli görülmektedir. Bu araştırmanın sonuçları bağlamında YY liderlik yaklaşımı konusunda bir farkındalık yaratılması ve bu konuda yöneticilerin ve öğretmenlerin görüşlerinin farklı değişkenler bağlamında belirlenmesine yönelik nicel ve nitel araştırmalar yapılması önerilebilir. Özel öğretim kurumlarında YY liderlik yaklaşımı ile örgütsel bağlılık gibi farklı değişkenler kullanılarak araştırmalar yapılabilir.

Anahtar Sözcükler: Yetenek Yönetimi Liderliği, Örgütsel Bağlılık, Öğretmen.

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Determination the Effects of Vocational High School Students' Logical and Critical Thinking Skills on Mathematics Success

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Abstract

Problem Statement: One of the main goals of education is to nurture individuals who know and improve themselves; who is well educated and have scientific perspective; who have developed communal coherency level; who are active, democratic and respectful to human rights.At the present time, according to an up to date mentality in mathematics education which is agreed on, the idea of learning mathematics by doing and experiencing rather than learning pure mathematical knowledge has come into prominence. In this process, there are many significant skills such as how to generate mathematical formulas, how to reach generalizations, how to reason will be developed

Purpose of the Study: In this study the direct and indirect relationships between Mathematics success of vocational high school students and their attitudes towards the course, critical thinking tendencies and logical thinking skills were analyzed.

Method: The research was conducted with 479 first grade students who study at various departments of Aydın Vocational High School at Adnan Menderes University. SPSS 19.0 and AMOS 16.0 packaged softwares were used for the analysis of the gathered data in the study.

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Findings: According to the test which analyses the direct relations among the variables, it was concluded that there was a positive and significant relation between students' critical thinking tendencies and Mathematics course success grades; positive, medium level significant relation between their attitudes towards Mathematics course and Mathematics course success; positive, medium level significant relation between students' critical thinking tendencies and their attitudes towards Mathematics course; positive, low level significant relation between their critical thinking tendencies and logical thinking skills. The results also showed that according to the test which analyses indirect effects among the variables, it was found that although the direct effect (.014) of critical thinking on success was not statistically significant, the indirect effect (.305) formed from the attitudes toward the course was significant. This result indicates that attitudes towards the course had an exact mediation role between critical thinking and Mathematics success. Moreover, the direct effect (.793) of logical thinking upon success was statistically significant. Besides, indirect effect(.031) formed from attitudes was also statistically significant. However, the intensity of this indirect effect decreased according to the first situation. This indicated that attitudes had a partial mediation role between logical thinking and success.

Conclusion and Recommendations: The results showed that the students' attitudes towards to the course have to be positive in order to be successful in Mathematics course. Success grades in Mathematics can be increased by using methods which direct students to think critical and develop these thinking strategies. Improvement in Critical thinking tendencies and logical thinking skills which will enable the students to look at everything from different aspects and will give them opportunity to discover where the formulas and rules came from and how they emerged, can improve the academic success rates of Mathematics which is regarded as a difficult and scary course.

Keywords: Mathematics success, attitude, critical thinking, logical thinking

Introduction

One of the main goals of education is to nurture individuals to improve themselves. Through education, students should become well educated and gain a scientific perspective. They should be part of communal coherency, and be active, democratic and respectful of human rights. According to Pykett (2004), raising more democratic and better citizens in society is a result of providing critical thinking skills in schools. In an educational environment, teachers should ask the students to generate solutions for problems they have encountered, instead of discussing pre-planned topics in textbooks; students should discuss their own ideas and opinions about the content that was covered, continually forming their own categorizations

about the related content (Paul, 1990, p. 56-97). Critical thinking is a form of reasoning in which an individual improves his/her thinking potential through analyses of the problems, issues, content; evaluation and reconstructing processes (Paul &Elder, 2006). Stenberg (1999) defines critical thinking as cognitive processes, strategies and presentations, all of which are used in problem solving. On the other hand, Paul (1993, p. 54) describes critical thinking as a process of requiring cognitive standards such as definitions, classifications, analysis, practice and evaluation. According to yet another definition, critical thinking pertains to cognitive activities related to utilizing the intelligence (Cottrell, 2005, p. 1-10). In consideration of these definitions, critical thinking includes cognitive processes such as examining, analyzing the reasons why problems emerge, and interpretation. People sometimes perceive the concept of "criticism" as negative opinions, so while they analyze, they consider only the negative aspects of an issue (Cottrell, 2005, p. 1-10). Although critical thinking is mainly recognized as "negative thinking and error detection", it is actually a concept that includes cognitive and intellectual skills that are needed to define, analyze, evaluate and decide actions (Bassham, Irwin, Nardone &Wallace, 2002). The theory of critical thinking is grounded in asking connective and dioristic questions. In critical thinking, the first three levels include identification of connective questions and core knowledge and understanding. The remaining levels include dioristic questioning, which requires the process of creative knowledge (Martin, 2002).

The most revealing definitions for mathematics, which is regarded as the basis of all sciences, but especially of the physical sciences, is, according to Umay (2002), "an ology which investigates the structures, characteristics and the relations of shapes, numbers and multitudes via logic and branches such as arithmetic (science of numbers), algebra, and space science (TDK, 1983). According to Baykul (1993), mathematics is a logical system that improves individual's rational thinking. If discernment by students cannot be developed, then mathematics simply means following a sequence of operations and modeling the examples without giving thought to what they mean (Ross, 1998). Discernment is regarded not only as a mathematical skill, but also as a core competence (Altıparmak & Öziş, 2005). Logical thinking is a skill which is seen during both the preoperational and concrete operational periods of Piaget's cognitive development (Senemoğlu, 2004, p.46-56). This skill is explained as an individual's problem solving by means of different cognitive operations or reaching principles and codes by abstraction (Korkmaz, 2002). Logical thinking requires thinking constantly to reach a conclusion. The process of sequential thinking lies at the heart of logical thinking. This process requires acquiring all of the ideas, facts and results and putting them in order in a chain (Logical Thinking, 2010). It is one of the sub-stages of problem solving (Howe & Jones, 1993). Logical thinking is "a skill of showing behaviors like using numbers effectively, generating scientific solutions to problems, identifying relations among

concepts, classifying, generalizing, expressing in a mathematical formula, calculation, hypothesis, testing and drawing an analogy" (Bümen, 2010, p.7). Moreover, scientists, mathematicians, accountants, engineers, computer programmers, statisticians, and others are examples of individuals with strong logical intelligence (Demirel, 2009). Research indicates a positive correlation between logical thinking skills and academic success (Johnson & Lawson, 1998). Logical thinking skills are one of the highest predictors of success, as stated by Tobin and Capie (1981). Moreover,it has a significant effect upon self-efficacy and academic success (Lawson, Banks & Logvin, 2006).

Mathematical thinking is not a thinking manner pertaining only to mathematicians. On the contrary, it is a way of reasoning, which must be used by every careerist. Mathematical thinking is a process which enables us to better understand knowledge of the world in which we live and to enhance our options (Taşdemir, 2008). Mathematics not only teaches number operations, but also assists mankind in the struggle for life. It includes important skills, such as thinking, correlating among incidents, reasoning, predicting, and problem solving (Umay, 2003). An individual attempts to find solutions for problems encountered both in school and in one's professional life (Alkan & Bukova Güzel, 2005). Although mathematics is involved in every aspect of life, very few people are aware of this. Mathematics has an extraordinary functionality that enables us to put all of the pieces of our life in order and achieve a greater understanding of life (Henn, 2007). According to an up-to-date mentality in mathematics education, which has been agreed upon, the idea of learning mathematics by doing and experiencing rather than learning pure mathematical knowledge has come into prominence. In this process, many significant skills are developed, such as how to generate mathematical formulas, how to reach generalizations, and how to reason (Olkun & Toluk, 2007). One of the most important goals of mathematics education is to provide a development and improvement in acquiring reasonable answers for the questions "Why?" and "How?"

Mathematics has been an ongoing problem for students. However, contrary to what is believed, any person of average intelligence has the potential for achieving mathematical skills (Kahramaner, 2002). Individuals have a negative attitude relating to the subject, because they do not understand the mathematical content for various reasons (Yıldızlar, 2001). Attitudes can be both approaching (in the positive sense) to ideas and objects of abstaining from them (in the negative sense) (Trawers, 1982). Anderson (1988) defines "attitude"as a medium-level density excitement that ensures a person to have a tendency to or to get ready for the appropriate or inappropriate reaction when he/she meets a special object (Anderson, 1988). When attitudes form a basis for ideas and behaviors,and moreover their guidance for ideas and behaviors are taken into consideration, the need to generate a positive attitude for success is in

evident (Bandura, 1997). Attitude toward mathematics is a current topic which has been studied by many students at different levels from various angles (Pehlivan, 2010; Gürsul, 2008; Başer & Yavuz, 2003). Research has also indicated that students' attitudes toward mathematics have an effect upon their success in the area (Minato & Yanese, 1984; Ethington & Wolfle, 1986; Cheung, 1988; Erktin, 1993). For this reason, generating a positive attitude toward mathematics becomes important in the educational process; in fact, it is one of the most important aims of mathematics education (Reyes, 1984). This issue has also been clearly addressed during in-service training courses of mathematics teachers (MEB, 2008). Additionally, it has been observed that mathematics anxiety of those students who have a positive attitude toward mathematics is low (Baloğlu, 2001). The existing literature shows a significant correlation between attitude toward the course and success (Reyes, 1984; Peker & Mirasyedioğlu, 2003) between success and critical thinking tendencies (Akbıyık, 2002; Kökdemir, 2003) and between logical thinking skills and academic success (Güler, 2010). Moreover, empirical research that analyzed the direct correlation between logical thinking skills and critical thinking tendencies could not be found. When the domestic and overseas studies were analyzed, it was concluded that the indirect effects of one variable in logical thinking had not been examined. However, a comparison of direct and indirect effects of the observed independent variables had not been undertaken. Therefore, this research aims at determining the direct effects of critical thinking tendencies and logical thinking skills on mathematics success and the indirect effects formed on the intervening variable of attitude.

The research question is: "What are the direct and indirect relations among the observed variables of critical thinking, logical thinking and attitudes toward the lesson and the dependent variable called mathematics academic success?"

Method

This study uses descriptive research, and it was conducted by means of grounding on descriptive survey models. This study uses a relational survey model in which correlation between students' critical thinking tendencies, logical thinking skills, attitudes toward mathematics and academic success were analyzed. Relational survey models are research models that aim to determine range existence between two or more variables and/or its level (Karasar, 2009).

Sample

A total of 2418 students who studied at Aydın Vocational High School, Adnan Menderes University, during the 2011-2012 academic year constituted the target population of the study. Five hundred twenty five first grade students who were registered for Basic Mathematics at Adnan Menderes University, Aydın Vocational High School in the spring term of the 2011-2012 academic year formed the research sample.

Research Instruments

In this research, in order to determine vocational high school students' critical thinking tendencies, logical thinking skills, attitudes toward mathematics, and academic success, surveying instruments were used for which validity and reliability had been proven and developed by several researchers. The California Critical Thinking Disposition Inventory (CCTDI), which was translated into Turkish and adapted by Kökdemir (2003), was used to test critical thinking tendencies. One hundred fifty students were included in the pilot scheme for the reliability study. To check internal consistency, statistics using the Cronbach alpha coefficient were. 86The logical thinking skills inventory (LTSI), which is composed of two phased questions and was translated into Turkish and adapted by Geban, Askar & Ozkan, (1992), was used to test logical thinking skills. In the study, the reliability coefficient was calculated as .81. The Attitude Scale relating to mathematics, which was formed by Duatepe and Çilesiz (1999), was used to identify students' attitudes toward mathematics. The reliability coefficient of the inventory composed of 38 articles was .96. Besides, within the scope of this study, the success grades of the students were obtained from the OBIS program in order to determine students' academic success levels of mathematics. The test consisted of 20 questions was broached to two mathematics teachers who specialize in their fields, and an academician who performed many outstanding studies in the field of mathematics. Necessary proofreading was done and at the end of the recommendations it was agreed on that the tests had content validity.

Data Analysis

In this study, data analysis was carried out by means of SPSS 19.0 (Statistics for the Social Science) and AMOS (Analysis of Moment Structures) 16.0 package program. A correlation analysis method known as "Path Analysis"in AMOS was applied to determine existing direct and indirect relations within the scope of research among the observed variables, which were critical thinking tendencies, logical thinking skills, attitudes toward mathematics and academic success in mathematics. A correcting formula was not used for the answers the students gave; calculations were performed on the correct answers. All of the statistical procedures were carried out from the calculated total scores. Multiple linear regression analysis was performed in order to determine to what extent the independent variables of the research explained the variations observed in the dependent variables. In the interpretation of the results, levels of significance for all surveys were evaluated as .05, which is well accepted among educational research.

Results

Significant judgments were reached by determining required data in order to answer research questions or to test hypothesis and the suitability of the type of analysis (Büyüköztürk, 2010, p. 7). The first criteria in determining the suitable analysis type was the type of data (Eymen, 2007, p .87). According to test results,

which were used to determine whether or not the range of observed variables in the study provided normality and homogeneity assumptions, Kolmogorov-Smirnov one sample test was used to test the pertinence of collected data to normal distribution. The Levene test was applied to analyze homogeneity of variables. When normality test results of the mathematics success grades of vocational high school students were examined, it was identified that students' success grades did not range normally, because the relevance for z value(z=1.545) was lower than p<.05. It was identified that the scores did show normal range when the normality value for z value (z=.569) of total scores of critical thinking tendencies (CTT) were determined to be higher than p>.05. According to the Levene test result done to analyze the homogeneity of CTT total scores, the statistical difference among the variance distributions was not significant because the set F value (F=2.027) was higher than p>.05. For this reason, it was identified that CTT total scores acquired normality and homogeneity. It was further determined that according to the normality test of students' logical thinking skills (LTS) scores, total scores did not range normally, and the significance value for the set z value (z=3.508) was lower than p<.05. Additionally, according to the results of the test, which were conducted to determine conformity of students' total attitude scores toward mathematics, it was identified that total attitude scores ranged normally, as the significance value for set z value (z=.800) was higher than p>.05. According to the results of the Levene test, which was done to analyze the homogeneity of attitude scores toward the lesson, it was accepted that the attitude scores provided the homogeneity assumption for the reason that the significance value for set F value (F=.009) was higher than p>.05. Normal usage of the AMOS package was found, which is one of the structural equation models that requires variables to be composed of continuous data with normal distribution (Tezcan, 2008). Therefore, the deemed appropriate transformation belonging to variables that did not show normal range, Q-Q and histogram before application and after transformation was given, and then transformations made for normalizing the distributions were explained respectively.

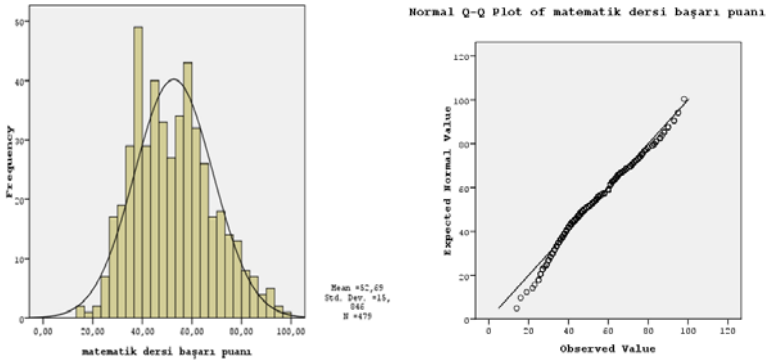


Figure 1. Histogram and Q-Q Graphic belonging to mathematic success grades

In Figure 1, it is seen that mathematics success grades are right-skewed moderately. The figure, according to the Q-Q test results, shows that values deviated from the expected values. This result supports the idea that mathematics success results determined by other methods did not show normal distribution. Deviations within the range of 20-40 scores validate that distribution was moderately right-skewed. Kalaycı (2008) points out that square root transformation application will be accurate for moderate positive skewed distributions. Histogram graphic and Q-Q graphics obtained after the implementation of square root transformation to mathematics results are stated below.

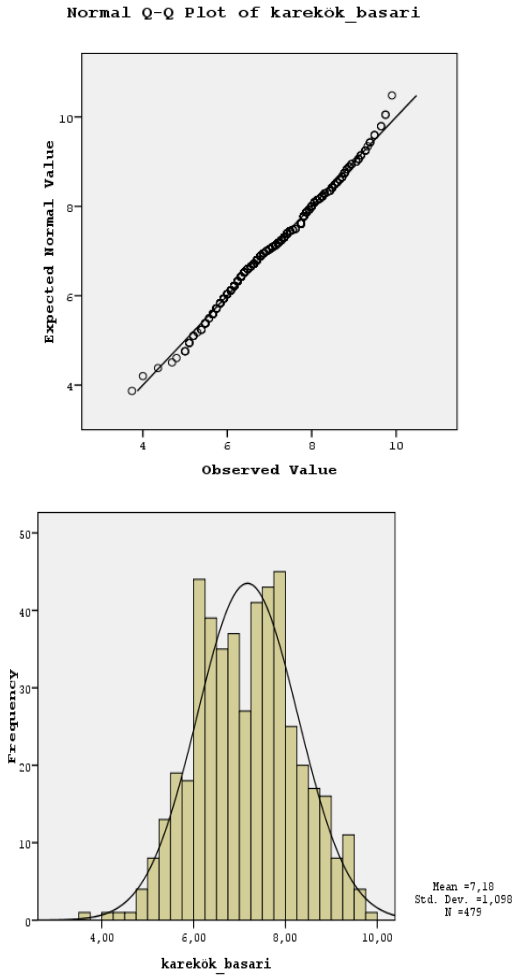
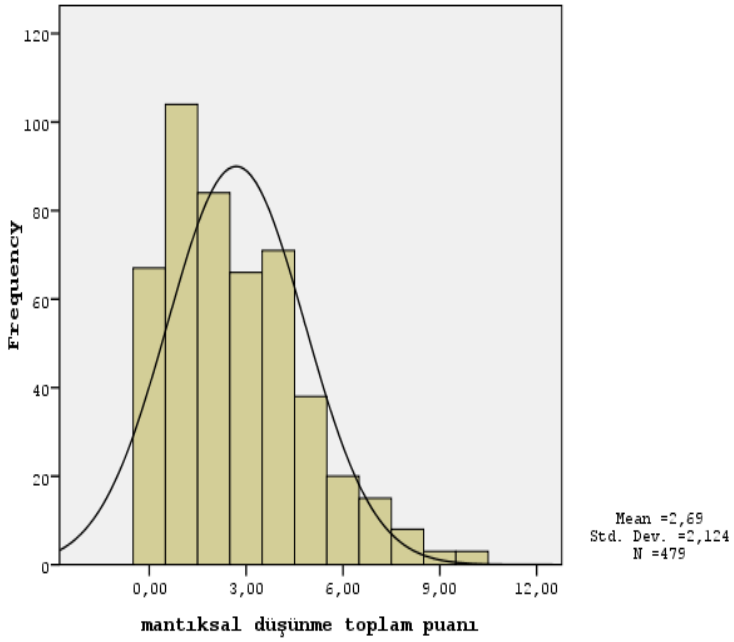


Figure 2. Histogram and Q-Q Graphic of mathematics success grades that were implemented after transformation

When Figure 2 is analyzed, it is apparent that after square root transformation of mathematics success grades was applied, according to the histogram graphic and normal distribution curve, the distribution of success grades did not deviate excessively from normal values. Additionally, it was seen that according to another normality test, the Q-Q plot method, to what extent observed values deviated from the predicted values with respect to Q-Q graphic results, which were obtained after the square root transformation's application to mathematics success grades. It is also shown that after the implementation of the square root transformation, mathematics success grades did not deviate excessively in reference to the normal distribution curve. It was identified that the total scores of logical thinking skills (LTS), one of the observed variables in the research, did not provide the normality and homogeneity assumptions in the population according to the Kolmogorov-Smirnov (K-S) test. The histogram graphic of LTS total scores should be analyzed first because transformation methods differ if the score on which normality is analyzed is moderately or excessively right-skewed. In Figure 3, the histogram graphic normal distribution curve of LTS total scores and distribution graphic of LTS total scores obtained with Q-Q plot method were given together.



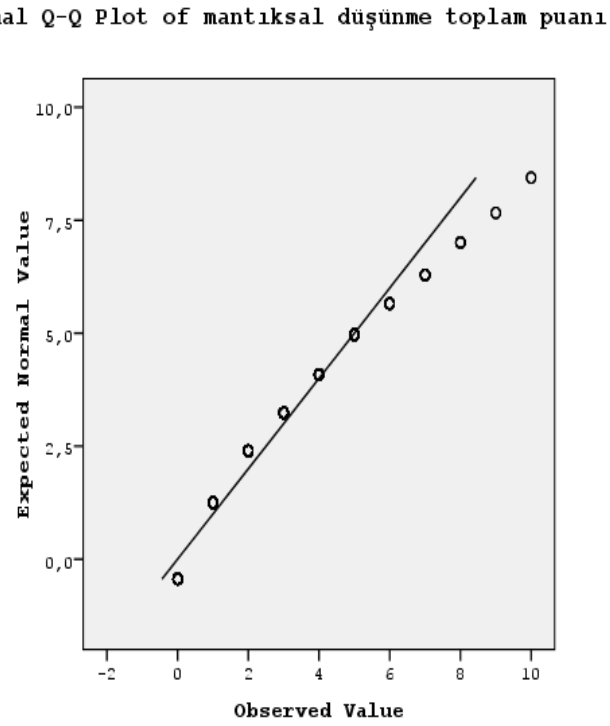


Figure 3. Histogram and Q-Q Graphic of Logical thinking Skills Scores

Figure 3 shows that total scores of logical thinking skills are excessively right-skewed. According to the results of the Q-Q test, it is also clear to what extent the observed variables deviated from the expected value. This result promotes the idea that LTS total scores determined by other methods did not show a normal distribution. Deviation was seen within the range of 6-10 points. Kalaycı (2008) points out that logarithmic transformation implementation will be true for excessively positive skewed distributions. The obtained data after implementing the logarithmic transformation LTS total scores is presented in Figure 4.

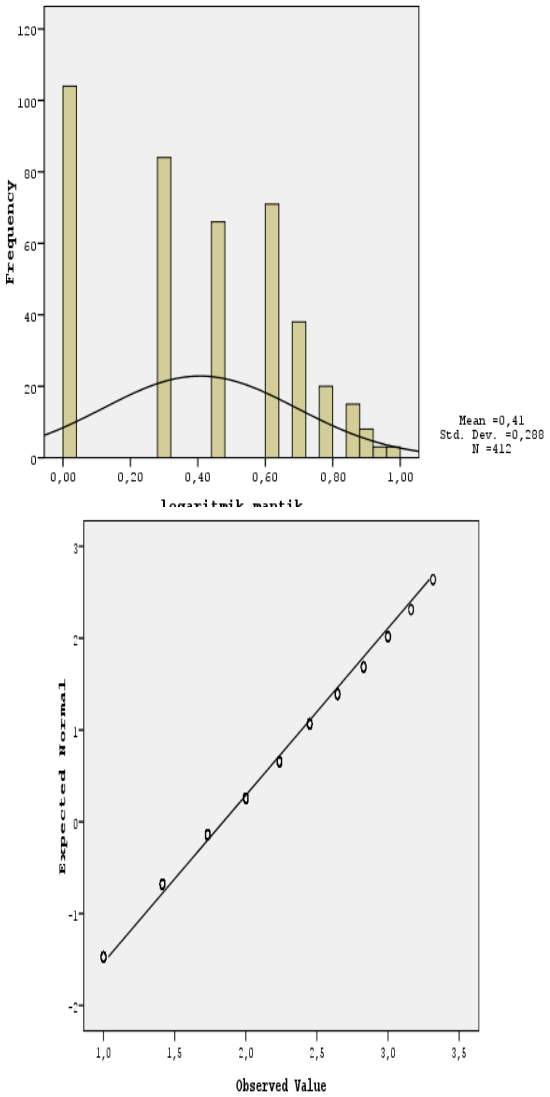


Figure 4. Histogram and Q-Q Graphic of LTS scores to which transformation has been implemented

When Figure 4 is analyzed, it can be clearly seen that distribution of the scores did not deviated excessively according to the histogram graphic and normal distribution curve after logarithmic transformation of LTS total scores was applied. Additionally, according to another normality test, the Q-Q plot method, after logarithmic transformation was applied, it was seen that LTS total scores did not deviate excessively from the normal distribution curve. This result supports the idea

that LTS total scores to which logarithmic transformation determined with other methods was applied showed normal distribution. Implementation of parametric analyses methods was thought to be true, because these methods provided appropriate transformations for mathematics success grades, logical thinking skills total scores, and normality assumptions. After this step of the research, transformed values of mathematic success grades and LTS total scores were analyzed.

Findings about Direct Relations among Observed Variables

According to the test implemented to determine the direction and the intensity level of correlation among the observed variables (critical thinking tendencies, logical thinking skills, attitude toward mathematics and mathematics course success), the values belonging to correlation coefficient, significance level, and sample population have been presented in Table 1.

Table 1.
Correlation Analysis among the Observed Variables in the Research.

		Mathematics Success	Critical Thinking	Attitude toward Mathematics	Logical Thinking
Mathematics Success	Correlation Coefficient	1			
	Sig. (2-tailed)				
	N	479			
Critical Thinking	Correlation Coefficient	.177**	1		
	Sig. (2-tailed)	.000			
	N	445	445		
Attitude toward Mathematics	Correlation Coefficient	.360**	.345**	1	
	Sig. (2-tailed)	.000	.000		
	N	460	432	460	
Logical Thinking	Correlation Coefficient	.813**	.163**	.302**	1
	Sig. (2-tailed)	.000	.001	.000	
	N	479	445	469	479

** Shows significance at the level of .01

In Table 1, Spearman's rank correlation coefficient was calculated in order to explain the correlation between the observed continuous variables within the context of this research. According to this calculation, there was a positive and significant correlation between the students' critical thinking tendencies and the mathematics success grades (r=.177, p=.000). According to this result, as long as students' critical thinking tendencies increased, their mathematics success improved. There was a positive, medium level, significant correlation between students' attitudes toward

mathematics and their mathematics success (r=.360, p=.000). It was also seen that there was also a positive, medium level significant correlation between students' critical thinking skills and their attitudes toward mathematics (r=.345, p=.000). According to this result, as long as students' critical thinking skills improved, their attitudes toward mathematics developed as well. It was found that there was a positive, high level significant correlation between students' critical thinking skills and their mathematics success (r=.813, p=.000). According to this result, as long as their logical thinking skills improved, their mathematics results also improved. It is obvious that there was a positive, medium level significant correlation between students' critical thinking tendencies and their attitudes toward mathematics (r=.302, p=.000). Accordingly, in the event that students' critical thinking tendencies increase, there will also be an increase in their attitudes toward mathematics. At the end of the study, it was determined that a positive, low level significant correlation between critical thinking tendencies and logical thinking skills (r=.163, p=.000) exists. Accordingly, it may be said that when critical thinking tendencies increase, logical thinking skills tend to increase as well.

Findings Belonging to Direct and Indirect Correlations among Observable Variables

According to the model analyzing the direction, intensity and level of direct and indirect correlations among observable variables in this research (critical thinking tendencies, logical thinking skills, attitude toward mathematics, and mathematics success), direct and indirect effects of critical thinking tendencies and logical thinking skills upon mathematics academic success were investigated. Analyses on direct and indirect correlations among the variables are given in Table 2.

Table 2

Analysis of direct and indirect correlations among the variables: critical thinking, logical thinking, attitude toward mathematics and mathematics success with Path Analysis.

Full Model	Direct Effect	Indirect Effect
Critical thinking→ Attitude toward Mathematics	.303***	
Critical thinking → Academic Success	.014	.305
Logical thinking → Attitude toward Mathematics	.267***	
Logical thinking →Academic Success	.793***	.031
Attitude toward Mathematics →Academic Success	.117***	
R2		
Attitude	.19	
Academic Success	.71	

*p < .05 , **p< .01 , ***p< .001

In Table 2, Path Analysis was implemented in the AMOS program to determine the direct and indirect correlations among the observable variables: critical thinking

tendencies, logical thinking skills, attitudes toward mathematics, and mathematics academic success. In Table 2 presents direct and indirect effects of critical thinking tendencies and logical thinking skills standardized to mathematics success in terms of attitudes toward the lessons. When the gathered data was analyzed, it was clearly seen that although critical thinking tendencies did not have a statistically significant direct effect on success, they had a statistically significant direct effect on success via attitudes toward lessons. On the other hand, it was also observed that although logical thinking's direct effect upon success was statistically significant, the direct effect decreased via attitudes. When direct effects via attitudes were examined, it was observed that critical thinking tendencies (.303) had a stronger impact in accordance with logical thinking skills (.267). When indirect effects on success via attitude were examined, it was seen that critical thinking tendencies (.305) had a stronger impact in accordance with logical thinking skills (.031). Moreover, Table 2, presents to what extent attitude and success were explained by the model. Accordingly, critical thinking tendencies and logical thinking skills explained 19% of attitudes. Additionally, the totals of critical thinking tendencies, logical thinking skills, and attitude explained 71% of the total variance on success. Data about the obtained findings is shown in Figure 5.

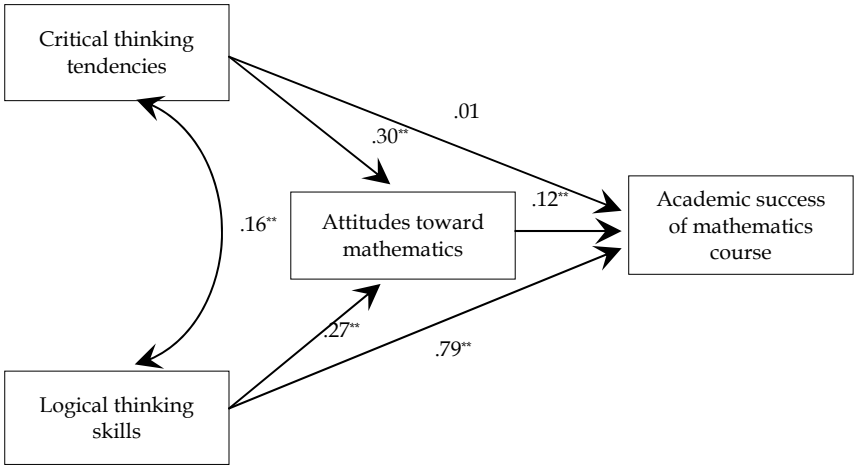


Figure 5. Analysis of Direct and Indirect Correlations among the Observed Variables

Mediation Effect of Attitude, one of the Observed Variables on Success

Analyses related to the level of the effect of critical thinking tendencies and logical thinking skills on mathematics success via attitude, and to what extent this effect predicted success directly and in terms of attitude indirectly are given in Table

Table 3.

Determining the effects on critical thinking tendencies and logical thinking skills on success in terms of attitudes toward mathematics using the mediation test method.

	Indirect effect of critical thinking and logical thinking on success in terms of attitude.			Corrected deviation ranges	
	Point estimate	Bias	SE	Lower	Upper
Critical Thinking →Success(attitude)	.088	.001	.017	.056	.122[a]
Logical thinking →Success(attitude)	.286	.000	.073	.166	.461[a]

[a] Identifier indicates that confidence interval does not include zero.

In the correlation of critical thinking tendencies and logical thinking skills respectively with mathematics academic success, the mediating variable analysis method suggested by Baron and Kenny (1986) was implemented in order to determine the role of attitude. According to this, the independent variable(critical thinking and logical thinking) and the mediator variable (attitude) each had a direct effect on the dependent variable (success). There must be a correlation between the independent variable and the mediator variable. According to Baron and Kenny (1986), the following conditions must be met to determine a variable's mediator role:

a) Change in the independent variable must cause a change in the mediator variable.

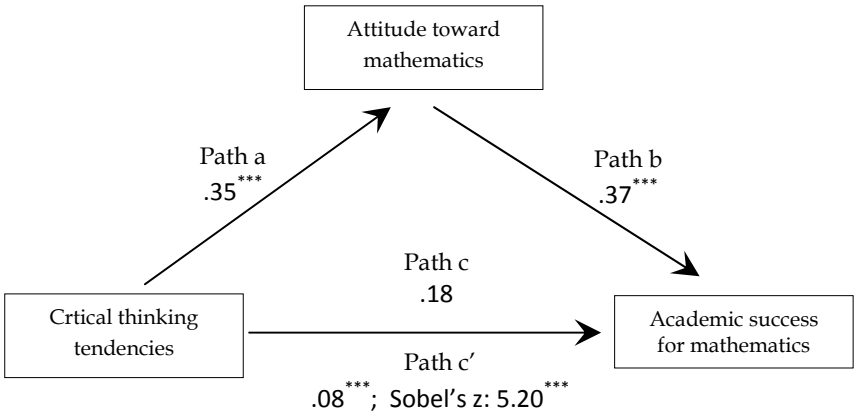
b) Change in the mediator variable must cause a change in the dependent variable.

c) The effect of the independent variable on the dependent variable must decrease or disappear when the mediator and independent variables are both included in the analysis. The total disappearance of this effect indicates a strong and sole mediator variable; on the other hand, zero indicates the existence of other mediator variables.

In addition to Baron and Kenny's mediator variable analysis method (1986), it is accepted that independent variables have a significant effect on dependent variables via mediator variables when minimum and maximum values for the deviation gaps are corrected according to the mediation tests. This is a newer test developed by to determine the power of independent variables to predict dependent variables when mediator variables do not contain zero (Hayes, 2009; Preacher & Hayes, 2008).

There are three variables and three correlations connecting these variables to each other in Figures 6 and 7. In the figure, Paths a,b, and c show the direct correlation

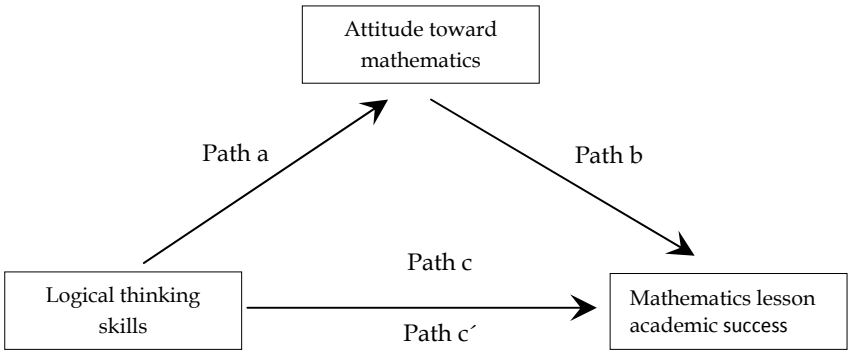
among these variables. For instance, in Figure 6, "a" shows whether there is a direct correlation between critical thinking tendencies and attitude scores toward mathematics. Additionally, in the model, indirect correlation among mediator variable and variables was also given (c).



Values give standardized regression coefficient . *p<.05, **p<.01, ***p<.001.

Figure 6. Direct and indirect effects of critical thinking tendencies on success

When Figure 6 was analyzed, the direct effect (B=.18) of critical thinking tendency on mathematics academic success was not statistically significant. There was a direct significant effect of critical thinking on attitude toward mathematics with .35 intensity. Similarly, there was a significant effect of attitude on success with .37 intensity. Sobel z value (5.20), which was determined for the significance of indirect effect of critical thinking on success via the mediator variable attitude, was found to be statistically significant at the level of p=.001. Therefore, it was observed that although critical thinking did not have a significant direct effect on success, it predicted success via attitude. According to this result, attitude had a mediator variable role between critical thinking and success. The direct effect of logical thinking skills on mathematics success and the indirect effect of logical thinking skills on attitude are shown in Figure 7.



Values give standardized regression coefficients. *p<.05, **p<.01, ***p<.001.

Figure 7. Direct and Indirect Effects of Logical Thinking Skills on Success

When Figure 7 was analyzed, the direct effect (B=.83) of logical thinking skills on mathematics academic success was statistically significant. However, there was not a statistically significant direct effect of logical thinking on attitude toward mathematics, with .32 intensity. Similarly, it was observed that attitude had a significant effect on success with .37 intensity. Sobel z value (3.28), which was determined for the significance of indirect effect of logical thinking on success via the mediator variable attitude was found to be statistically significant at the level of p=.001. As a result of this, although logical thinking did not have a direct significant effect on success, ıt was observed that indirect effect was lower via attitude than the first situation. After the attitude mediator variable was included in the model, the direct effect between them was significant, but the fact that correlation was still significant indicates that attitude had a partial mediator effect. According to this result, attitude had a partial mediator variable role between logical thinking and success.

Discussion, Conclusion and Recommendations

Direct and indirect correlations among the observed variables in the study were determined using the Path Analysis method. In the study, although critical thinking tendencies did not have a direct statistically significant effect on success, they had a statistically significant effect on success via attitudes toward lessons. This result is consistent with the studies of Kökdemir (2003), Akbıyık (2002) and Küçükgüçlü and Kanbay (2011). However, in a study carried out by Kanbay, Işık, Aslan and Özdemir (2012) on academic personnel, there was no significant difference between critical thinking tendencies of undergraduate, masters and PhD graduates. On the other hand, in a study carried out using physics lessons by Yüksel and Ertaş (2013), a significant relationship between attitude toward physics lessons and critical thinking tendencies was observed. Considering the related literature, the findings of our

study are consistent with the literature. Therefore, it can be stated that improving critical thinking tendencies will develop a positive attitude toward the lesson and thus will indirectly increase academic success of the related lesson. On the other hand, although the direct effect of logical thinking on success was statistically significant, it was observed that indirect effect formed via attitude decreased according to the first situation. This confirmed the hypothesis that critical thinking tendencies and logical thinking skills had a significant effect on mathematics success via attitude mediator variable. This result is consistent with the findings of Güler (2010). Kılıç (2009) reported that logical thinking is the best predictor of academic success for biology lessons, which is consistent with our results. Studies that show that logical thinking improves academic success directly and indirectly reveal the significance of this skill. For this reason, conducting activities to emphasize this skill both during the lessons and at the program development stage are considered to be of great importance for increasing success. Students must have positive attitudes toward the lessons in order to be successful in mathematics. A review of the literature revealed that there was a significant relationship between attitude and academic success even in different lessons. Kırkız (2010) reported statistically significant relationships between attitude and success for English lessons; Serin (2004) and Saracaloğlu, Serin and Bozkurt (2002) reported significant relationships in science; Kurbanoğlu and Takunyacı (2012) reported significant relationships in mathematics lesson; Emir (2003) reported significant relationships in health sciences lessons; and finally, Akkaya (2009) reported significant relationships in vocational lessons. Therefore, students need to develop a positive attitude toward the lesson in order to be successful. However, students often develop a negative attitude toward mathematics due to the formulas and rules that they think that they should memorize. Improvement in students' critical thinking tendencies, which will enable them to discover where and how these formula and rules they think that they have to memorize emerged from, will allow them to gain a different point of view and may increase their academic success in mathematics. Therefore, academic success for mathematics can be increased by using methods to encourage critical thinking and to improve these thinking strategies.

As a result of the analyses related to how critical thinking tendencies and logical thinking skills predicted mathematics success directly and indirectly via attitude, it was concluded that critical thinking, one of the independent variables, did not have a direct, significant effect upon success. As a result of analyses done to determine the mediator variable role of attitude toward the lesson, it was observed that critical thinking had a statistically significant effect on attitude. Moreover, attitude had a statistically significant effect on success, as well. According to this result, although critical thinking did not have a direct, significant effect on success, it was observed that this effect was significant via attitude mediator variable. A review of the literature in Council of Higher Education database, ULAKBIM and index found no

empirical research findings related to direct and indirect effects among these variables were encountered with in literature. At the end of the study, the reason for the significant effect of critical thinking on success via attitude can be about fact that mathematics's basis depends on questioning, researching and discovering. The researchers who point out that the operation steps of critical thinking process and problem solving process are similar have supported this idea (Marcut, 2005; Kazancı, 1989). Semerci (2000) emphasizes the importance of questioning continuously for the improvement of critical thinking. As a result of the studies and gathered experiences, it has been considered that students tended to accept all of the new concepts instead of questioning when they did not understand the subject. This situation indicated that students couldn't perform mathematics's essential skills such as questioning, discovering, understanding the correlations, and reasoning so they were unsuccessful. However, in some of the studies in literature, there were some examples in which although students had positive attitudes toward mathematics, they had low mathematics success grades (Peker & Mirasyedioğlu, 2003). The reason of this failure can be methods and strategies primary and middle school teachers used. As previously stated by Korkmaz (2009) implementation of skill and content based critical thinking education in mathematics caused a positive increase in attitudes toward lesson. This increase can cause a significant will increase mathematics achievement and this increase in attitude will have a significant impact on mathematics success. So, critical thinking can be considered one of the important concepts that teachers should touch.

The direct effect of logical thinking skills on mathematics success was statistically significant. Additionally, it was observed that the indirect effect of logical thinking skills on mathematics success grades via attitude toward the lesson was also significant. However, when attitude became a mediator variable, the indirect effect of logical thinking on success decreased. This result indicates that attitude has a partial mediator effect on success. Therefore, enhancing logical thinking skills of students is believed to significantly increase mathematics success. Gathered results showed that logical thinking skills and critical thinking tendencies intensely predicted mathematics success.

Suggestions for Researchers

At the completion of the study, it was seen that creating a positive attitude toward mathematics gained importance. Private teaching methods, class management, material usage and studies related to students' personal development can have a positive contribution on attitudes toward mathematics. Teachers should be enlightened as to how critical thinking and logical thinking skills can be implemented using various practices, such as seminars, conferences, in-service training, critical thinking skills, tendencies and logical thinking skills. These can be used as an effective way to increase achievement and make this situation permanent. Critical thinking and logical thinking are not characteristics that form during

university years and developed over this period. In order to enable students to acquire these characteristics at an early age, curriculum development specialists and teachers must acquire and gain these skills. Activities related to enabling students to acquire critical thinking skills in the curriculum started to be implemented in 2006 in our country. The effects of this curriculum on students' critical thinking tendencies and skills should be studied. After determining the teachers' awareness, success in students' attitudes and in their achievement may be indirectly obtained. Mathematics course books should be revised to consider critical thinking and logical thinking skills. It is only then that the desired skills can be acquired.

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Matematik Başarısı ile Tutum, Mantıksal Düşünme Yetenekleri ve Eleştirel Düşünme Eğilimleri Arasındaki Doğrudan ve Dolaylı İlişkiler

Atıf:

Aksu, G. & Koruklu, N. (2015). Determination the effects of vocational high school students' logical and critical thinking skills on mathematic success. *Eurasian Journal of Educational Research*, 59, 181-206
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Özet

Problem Durumu: Eğitimin temel amaçları arasında, kendini tanıyan ve geliştiren, iyi bilgilenmiş ve bilimsel bakış açısına sahip, toplumsal uyum düzeyi gelişmiş, aktif, demokratik, insan haklarına saygılı bireyler yetiştirmek yer alır. Toplumda daha demokratik daha iyi vatandaşlar yetiştirebilmenin yolu, okullarda öğrencilere eleştirel düşünebilme ve mantıksal düşünme becerilerini kazandırmaktan geçmektedir. 20. yüzyıl süresince yapılan araştırmalar, okullarda sunuş ve ezber

yöntemlerinin baskın olduğunu, öğrencilerin edilgen olarak bilgiyi alıp, sadece basit düzeyde hatırlama ve kavrama gerektiren öğretmen sorularını yanıtladıklarını ortaya koymuştur. Bunu anlayışın sonucu olarak da öğrenciler, üreten ve eğitim ortamında etkin bir unsur olarak değil, edilgen ve alıcı konumunda görülmüşlerdir. Günümüzde ise bilgi, "aranılan ve keşfedilen" bir şey olarak kabul edilmektedir. Bu durumda ise öğrenci etkin, bilgiyi arayan ve keşfeden bir özelliğe sahip olacaktır. Tüm bilimlerin, özellikle de fen bilimlerinin temelini oluşturduğu kabul edilen matematik dersinde başarılı olabilmek için öğrencilerin sürekli soru sorma ve öğrendikleri kavramları sorgulamaları büyük önem taşımaktadır. Matematik öğretiminin en önemli hedeflerinden birisi öğrencilerin devamlı üzerinde düşündükleri "neden?" ve "niçin?" sorularına karşılık mantıklı cevaplar elde etmenin diğer bir ifadeyle muhakeme yapabilmenin gelişimini sağlamaktır. Bu nedenle matematik dersinde başarılı olabilmek için eleştirel ve mantıksal düşünme ile derse ilişkin tutumlar önemli birer değişken olarak görülmektedir.

Araştırmanın Amacı: Bu çalışmada öğrencilerin iş ve meslek hayatında kendileri için gerekli olan matematik ile eleştirel düşünme eğilimleri ve mantıksal düşünme becerileri arasındaki doğrudan ilişkilere ek olarak derse ilişkin tutum üzerinden oluşan dolaylı ilişkilerin nasıl değiştiği; matematik başarısında eleştirel ve mantıksal düşünmenin nasıl bir etkisi olduğunu belirlemek amaçlanmıştır.

Araştırmanın Yöntemi: Bu araştırma, betimsel nitelikte bir araştırma olup, tarama modelleri esas alınarak gerçekleştirilmiştir. Bu çalışma, Meslek Yüksekokulu öğrencilerinin eleştirel düşünme eğilimleri, mantıksal düşünme becerileri, matematik dersine ilişkin tutumları ile akademik başarıları arasındaki ilişkinin araştırıldığı ilişkisel tarama modelinde bir çalışmadır.Araştırmanın çalışma evrenini, Adnan Menderes Üniversitesi Aydın Meslek Yüksekokulu 2011–2012 Öğretim Yılı içerisinde öğrenim görenTemel Matematik dersine kayıtlı 479 (190 Kız–289 Erkek) öğrenci ile gerçekleştirilmiştir. Araştırmada öğrencilerin eleştirel düşünme eğilimlerini belirlemek için "California Eleştirel Düşünme Eğilimleri Ölçeği", mantıksal düşünme yeteneklerini ölçmek amacıyla "Mantıksal Düşünme Yetenekleri Ölçeği", matematiğe ilişkin tutumlarının düzeyini belirlemek amacıyla "Matematiğe İlişkin Tutum Ölçeği" ve matematik dersi başarı puanlarını belirlemek için vize ve final sınavları ağırlıklı ortalamaları kullanılmıştır. Araştırmada elde edilen verilerin çözümlenmesinde SPSS 19.0 ve AMOS 16.0 paket programları kullanılmıştır.

Araştırmanın Bulguları: Araştırma kapsamında gözlenen sürekli değişkenler arasındaki doğrudan ilişkiyi açıklamak amacıyla Spearman Brown Sıra Farkları korelasyon katsayısı hesaplanmıştır. Buna göre, öğrencilerin eleştirel düşünme eğilimleri ile matematik dersi başarı puanları arasında pozitif yönde ve anlamlı bir ilişki bulunmaktadır (r=.177, p=.000). Bu sonuca göre öğrencilerin eleştirel düşünme eğilimleri arttıkça matematik dersi başarılarının da arttığı söylenebilir. Öğrencilerin matematik dersine ilişkin tutumları ile matematik başarıları arasında pozitif yönde, orta düzeyde anlamlı bir ilişki olduğu görülmektedir (r=.360, p=.000). Yine öğrencilerin eleştirel düşünme eğilimleri ile matematik dersine ilişkin tutumları arasında pozitif yönde, orta düzeyde anlamlı bir ilişki olduğu görülmektedir (r=.345, p=.000). Bu sonuca göre öğrencilerin eleştirel düşünme eğilimleri arttıkça matematik dersine ilişkin tutumlarında da bir artış olacaktır. Öğrencilerin mantıksal düşünme becerileri ile matematik başarıları arasında pozitif yönde, yüksek düzeyde anlamlı

bir ilişki olduğu görülmektedir (r=.813, p=.000). Buna göre, mantıksal düşünme becerileri arttıkça öğrencilerin matematik dersi başarıları da arttığı söylenebilir. Öğrencilerin eleştirel düşünme eğilimleri ile matematiğe ilişkin tutumları arasında pozitif yönde, orta düzeyde anlamlı bir ilişki olduğu görülmektedir (r=.302, p=.000). Buna göre, öğrencilerin eleştirel düşünme eğilimlerinde artış olması durumunda matematik dersine ilişkin tutumlarda da artış olacaktır. Araştırma sonucunda ayrıca eleştirel düşünme eğilimleri ile mantıksal düşünme becerileri arasında pozitif yönde, düşük düzeyde anlamlı bir ilişki olduğu görülmektedir (r=.163, p=.000). Buna göre, eleştirel düşünme eğilimlerinin artması durumunda mantıksal düşünme becerilerinde de artma eğiliminde olduğu söylenebilir. Araştırma sonucunda eleştirel düşünmenin başarı üzerinde doğrudan etkisi (.014) istatistiksel olarak anlamlı olmamasına karşın, derse ilişkin tutum üzerinden oluşan dolaylı etki (.305) istatistiksel olarak anlamlı bulunmuştur. Bu durum derse ilişkin tutumun eleştirel düşünme ile matematik başarısı arasında tam aracılık etkisine sahip olduğu göstermektedir. Araştırma sonucunda ayrıca mantıksal düşünmenin başarı üzerinde doğrudan etkisi (.793) istatistiksel olarak anlamlı olmasının yanında tutum üzerinden oluşan dolaylı etki (.031) de istatistiksel olarak anlamlıdır.

Araştırmanın Sonuçları ve Önerileri: Mantıksal düşünmenin başarı üzerinde doğrudan etkisi istatistiksel olarak anlamlı olmasına karşın, tutum üzerinden oluşan dolaylı etkinin ilk duruma göre azaldığı görülmektedir. Bunun yanında eleştirel düşünme eğilimlerinin başarı üzerinde istatistiksel olarak doğrudan anlamlı bir etkisi olmamasına karşın; derse ilişkin tutum üzerinden başarıya istatistiksel olarak anlamlı bir etkide bulunduğu belirlenmiştir. Bu durum eleştirel düşünme eğilimleri ile mantıksal düşünme becerilerinin tutum ara değişkeni üzerinden matematik başarısında anlamlı bir etkiye sahip oldukları varsayımını doğrulamaktadır. Bu sonuca göre, öğrencilerin matematik dersinde başarılı olabilmeleri için derse ilişkin tutumların olumlu olması gerekir. Matematik dersinde eleştirel düşünmeye yöneltici ve bu düşünme stratejilerini geliştirici yöntemleri işe koşarak matematik dersinde başarı artırılabilir. Matematikte öğrencilerin ezberlemeleri gerektiğini düşündükleri formül ve kuralların nereden ve nasıl ortaya çıktığını keşfetmelerini sağlayacak ve onların her konuda farklı bakış açıları kazanabilmelerini sağlayacak olan eleştirel düşünme eğilimleri ve mantıksal düşünme becerilerinde oluşacak artış, zor ve korkulan bir ders olan matematik dersindeki akademik başarılarında da artış sağlayabilir.

Anahtar Kelimeler: Matematik Başarısı, Tutum, Eleştirel Düşünme, Mantıksal Düşünme.

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Multi-program High School Students' Attitudes and Self-efficacy Perceptions toward Mathematics

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Abstract

Problem Statement: So far, there have been many problems in maths education in the world; negative attitudes and low self-efficacy perceptions towards mathematics are the two important reasons for these problems. Though there are several studies regarding the topic, choosing random students from secondary school for the sample group of the study creates problems as the students have to go through different programs. Therefore, this study aims to cover this gap in the field.

Purpose of Study: The purpose of this study is to determine the students' attitudes and self-efficacy perceptions towards mathematics in terms of education programs, gender, grade level and mathematics performance, it also aims to see the relationship between attitudes and self-efficacy perceptions towards mathematics themselves.

Method: The study was designed as a descriptive study in survey method. İn this paper, "Maths Attitude Scale" and "Self-Efficacy towards Mathematics Scale" were applied to the sample group, which consists of 212 students from different departments in a multi- program high school. İndependent t-test, one way ANOVA and correlation were used as the statistical techniques.

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Findings and Results: At the end of the study, it is found that students' scores for attitudes and self-efficacy perceptions tend to be uncertain. The students enrolled in regular school programs show higher self-efficacy perceptions and attitudes than those attending vocational programs. Though the difference between female and male students' attitudes is not meaningful, it is seen that male students' self-efficacy perceptions are higher than females'. Also, the grades they are studying are not effective on their attitudes or perceptions. When one of the tested variables *mathematics achievement –students' marks-* is taken into consideration it is found out that students with higher marks (85-100) have also higher self-efficacy perception points than the ones whose marks are lower (45-54 and 55-69). Besides, at the end of the study, a strong and positive correlation was found between students' attitudes and self-efficacy perceptions towards mathematics.

Conclusions and Recommendations: With the aim of increasing vocational students' attitudes towards mathematics, these students' inabilities and weaknesses in mathematics should be determined and teaching activities should be planned to overcome these weaknesses.

Key words: Attitude towards mathematics, self-efficacy perceptions, education program, multi program high school

İntroduction

İn the process of learning mathematics, affective behaviors are very important. A student gains the desired mathematical behavior based on previous mathematics knowledge and mathematical abilities. For example, a student who is taught to solve number problems should be able to form and solve an equation and perform basic calculations. Furthermore, the student is expected to have basic mathematical abilities, such as making mathematical connections, reasoning, solving problems or using mathematical language. However, it is possible that the student may not achieve the appropriate behavior even when all of these pre-conditions have been met. At this point, the affective features of the student come into play. İf the student does not like mathematics, s/he will not want to follow the lesson. İf there are deficiencies in students' mathematical background and inadequacies in prerequisite mathematics skills, s/he may understand the teacher but will not go further into the mathematical detail. The student may not be able to use mathematical algorithms appropriately, do the calculations and achieve the results. As a result of fears and anxieties about the lesson, he may not have the courage to take the appropriate steps for fear of making a mistake. As a result, negative attitudes toward mathematics may prevent the student's understanding and success in the lesson. Many students see mathematics as a difficult, complex, and abstract topic (Ernest, 2004) and many variables, such as motivation to learn mathematics, mathematics anxiety and

attitudes toward mathematics affect achievement in mathematics more than in other disciplines (Sartawi, Alsawaie, Dodeen, Alghazo & Tibi, 2012).

Previous studies show that vocational school students are less successful than those who attend other types of schools. Ergun (2012) stated that students in trade vocational schools had self-esteem problems in terms of mathematics achievement and having successful professional lives. Furthermore, Ergun (2012) and Kayir, Karaca & Senyuz (2004) concluded that these students did not have sufficient basic mathematics knowledge to understand further topics, which discourages them and reduces their confidence. Likewise, Alacaci and Erbas (2010), Berberoglu and Kalender (2005), Hatisaru and Erbas (2012), and Kose (1996) compared the success levels of students attending various types of schools and determined that technical vocational school students are less successful in mathematics when compared to other types of schools. Learning mathematics is harder for these students, and they do not enjoy their lessons; furthermore, they are not motivated for the classes. According to the İnternational Assessment Program (PİSA 2012) launched by OECD, 62% of the variant in the mathematics marks can be explained by the differences among schools in Turkey. Average success points can be classified as follows: primary (368), vocational high school (391), multi-program high school (406), high school (414), technical high school (448), Anatolian vocational schools (450), Anatolian technical school (474), Anatolian high school (533), social sciences high school (546), Anatolian teacher training high school (577), police college (647), and science school (668). It is clearly seen that vocational and technical schools are less successful when compared to Anatolian and science high schools.

Mathematics is essential not only for major mathematician students, but also for liberal arts and vocational high school students. İt is an indispensable and integral part of the career life. Additionally, careers of people in this profession would not last long if they did not have significant mathematical knowledge. Almost every job requires at least an elementary understanding of mathematics (National Research Council Staff & Mathematical Sciences Educational Board, 1998). Therefore, it is crucial to look deeper into the reasons for the vocational school students' low mathematics success and put forward some ideas for a solution. In summary, this study will focus on mathematics success of vocational school students and its relation to affective behaviors toward mathematics. İn this field of study, the existing research is not sufficient to explain the reasons (FitzSimons, 2002).

In the studies examining student attitudes with regard to school type, sample groups consisted of students from different types of schools. Students in the sample groups were from different cultures, had different educational opportunities, different school environments and different environmental conditions. To cover the gap in the literature, the current study was designed to cover general and vocational programs of a multi-program high school. The students in this study had the same cultures and same conditions. While studying with students sharing the same culture, most of the external factors affecting their attitudes could be eliminated, so the assessment could be done much more objectively. Therefore, this study not only

helps to cover a gap in the literature, it also shows a difference by eliminating subjective factors, which makes it unique and necessary.

Attitude toward Mathematics

One of the important components, the attitude, can be defined as a strong belief toward people, things and/or situations. Researchers contend that permanent changes in behavior may be more easily developed if the students have a positive attitude toward the subject (Baki et al., 2007). In Turkey many students have anxieties and negative attitudes toward mathematics, as they believe that the subject is difficult and they would never be able to do it (Baykul, 2000). Many studies on the relationship between attitude and achievement show a positive relationship between students' attitudes toward mathematics and achievement in mathematics (Cleary and Chen, 2009; Hoffman, 2010; Usher, 2008; Williams and Williams, 2010).

Self-efficacy Perception toward Mathematics

One factor that affects the achievement of students in educational environments is the self-efficacy perceptions toward the lessons. According to Bandura (1977), self-efficacy is defined as beliefs or expectations of a person about his capacity to accomplish certain tasks successfully. The studies show that self-efficacy perception is an important determinant of students' achievement (Adeyemo and Adeleye, 2008; Faulkner and Reeves, 2009; Klassen, 2004; Schwarzer and Fuchs, 2009; Pajares and Miller, 1994). Pajares and Miller (1994) found that efficacy beliefs have a positive effect on mathematics achievement. The students' feelings and thoughts about mathematics remain the same while advancing to the next grade or level of study. Therefore, if these attitudes and feelings are negative, they affect the students' achievements negatively throughout their schooling. As education is an important tool in changing attitudes, studies about measuring attitudes have gained great importance (Duatepe and Cilesiz, 1999).

There are two points focused on in this study: i) multi-program high school students' attitudes and self-efficacy perceptions toward mathematics and ii) the relation between these two concepts. Also, attitudes and self-efficacy perceptions are studied in terms of gender, grade, program, and mathematics achievement. Therefore, this study aims to answer the following questions:

- What is the level of multi-program high school students' attitudes and self-efficacy perceptions toward mathematics?
- Do multi-program high school students' attitudes and self-efficacy perceptions toward mathematics show significant differences regarding the students' program, gender, and grade and mathematics achievement?
- What is the relationship between the attitudes and self-efficacy perceptions of multi-program high school students toward mathematics?

Method

Research Design

This research was designed as a descriptive study in survey method. This intends to describe a state that has been available in time. The event, the individual or an object, which is the subject of the research, is defined in this model within its own conditions and as it stands and the important issue is to be able to observe the existing subject (Karasar, 2005: 77-78).

Sample

The sample group of the study consists of 212 high school students, attending a multi-program high school in the 2011-2012 academic year in İzmir, a city in the Aegean region in Turkey. A total of 212 participants, 126 boys and 48 girls, from general programs and 75 boys and 63 girls from vocational education programs participated in the study.

Research Instruments

Math Attitude Scale: The Math Attitude Scale developed by Duatepe and Cilesiz (1999) was prepared using a Likert scale for its 38 items. The highest point value on this scale is 190 and the lowest is 38. The positive items in the scale scored in the form of 1–2–3–4–5 and the negative items scored reversely. While the high point obtained from the instrument is accepted as the attitudes toward mathematics being high, the low point is accepted as attitudes toward mathematics being low.

Self-efficacy toward Mathematics Scale: This instrument developed by Umay (2001) prepared using a Likert scale, contains 14 items. The highest point that can be obtained from this scale is 70 and the lowest is 14. Positive items in the scale were scored in the form of 1–2–3–4–5 and the negative ones were scored reversely. The high point obtained from the instrument is accepted as the self-efficacy perception toward mathematics being high.

Validity and Reliability

As a measure of reliability, Cronbach's alpha coefficient was calculated as 0.79 for the Self-efficacy toward Mathematics Scale and 0.93 for Math Attitude Scale.

Data Analyses

The data were analyzed using the SPSS program. Independent two samples t-test, one-way ANOVA and correlations were applied to analyze the data. To evaluate the students' attitude and self-efficacy scores, the average arithmetical reference interval was calculated as (5-1)/5=0.80 in the study (Kan, 2009: 407). To evaluate positive items, the interval of 1-1.80 was coded as strongly disagree; the interval of 1.81-2.60 was coded as disagree; the interval of 2.61-3.40 was coded as not sure; the interval of 3.41-4.20 was coded as partly agree; and the interval of 4.21-5.00 was coded as totally agree. Negative items were scored reversely.

İn the Turkish educational system, marks from 0 to 5 are used to evaluate students' achievement. As measured by this scale, five (85-100) is excellent; four (70-

84) is good; three (55-69) is satisfactory; two (45-54) is passing; one (25-44) is failing, and zero (0-24) is failing and not included in the grade point calculation. İn the process of evaluating the students' mathematics achievements, this scale was used. Also, the effect sizes of the variables to the attitudes and self-efficacy perceptions toward mathematics were calculated by using Cohen's d, where 0.2 = small, 0.5 = medium, and 0.8 = large effects. Cohen (1992) suggested that effect sizes enable us to compare an experiment's results to known benchmarks. Cohen described small effects as those that are hardly visible, medium effects as observable and noticeable to the eye of the beholder, and large effects as plainly evident or obvious.

Results

One of the aims of this study was to determine multi-program high school students' attitudes and self-efficacy perceptions toward mathematics. İn this respect, mean and standard deviation values were calculated as the result of the descriptive statistics. Table 1 presents the average scores of the students.

Table 1.

Average Scores Related to Attitudes and Self-Efficacy Perceptions Toward Mathematics

	The lowest	*The highest*	*N*	*X*	*SS*
Attitude	1.21	4.92	212	3.14	.79
Self-efficacy	1.43	4.43	212	3.01	.60

Results in Table 1 show that the average scores of multi-program high school students' attitudes (x=3.14, sd=.79) and self-efficacy perceptions (x=3.01, sd=.60). It can be said that students' scores relating to attitudes and self-efficacy beliefs tend to be uncertain.

In order to examine the multi-program high school students' attitudes and self-efficacy perceptions toward mathematics in terms of the education program, an independent t-test was run and the findings in Table 2 were obtained. The results of the analysis in Table 2 indicate that a significant difference was found between multi-program high school students' education programs and their attitudes toward mathematics ($t_{(210)} = 2.55$, $p < .05$, $\eta^2 = 0.03$). İn other words, attitudes toward mathematics changed significantly according to the education program.

Table 2.

The Results of T-Test in Relation to Variation of the Attitudes and Self-Efficacy Points Regarding Education Program

	Education program	*N*	*X*	*S*	*sd*	*t*	*p*
Attitude	General E.P	74	3.33	.76	210	2.55	.012
	Vocational E.P	138	3.04	.80			
Self-efficacy	General E.P	74	3.17	.55	210	2.89	.004
	Vocational E.P	138	2.92	.62			

According to the findings, the average score (x=3.33) of the students' mathematics attitudes attending general education programs is higher than (x=3.04) those attending vocational education programs. Similarly, the data in Table 2 indicates a significant difference between multi-program high school students' education programs and their self-efficacy perceptions toward mathematics ($t_{(210)} = 2.89$, $p< .05$, $\eta^2 =0.03$). İn other words, self-efficacy perceptions toward mathematics change significantly according to the education programs. According to the findings, the average score (x=3.17) of the students' self-efficacy perceptions toward mathematics who are attending general programs is higher than (x=2.92) those attending vocational programs. The effect size values in the above show a small effect size according to Cohen (1988). That is, the effects of the education program variable on the students' attitudes and self-efficacy perceptions are hardly visible.

To study multi-program high school students' attitudes and self-efficacy perceptions toward mathematics in terms of gender, an independent t-test was run and the results are shown in Table 3.

Table 3.

The Results of T-Test in Relation to Variation of the Attitudes and Self-Efficacy Points Regarding Gender

Gender		*N*	*X*	*S*	*sd*	*t*	*P*
Attitude	Girl	111	3.36	.88	210	-1.503	.134
	Boy	101	3.22	.67			
Self-efficacy	Girl	111	2.89	.65	210	-2.99	0.003
	Boy	101	3.14	.52			

When average scores Table 3 were examined in terms of gender, it can be seen that average values of female and male students were rather close to each other. This situation shows that there is not a significant difference between average scores of female and male students' attitudes toward mathematics ($t_{(210)} =-1.503$, $p> .05$). For self-efficacy perceptions, there is a significant difference between the average scores of female and male students ($t_{(210)} =-2.99$, $p> .05$, $\eta^2 =0.04$). According to the data, average scores (x=3.14) of male students' self-efficacy perceptions toward mathematics were higher than (x=2.89) those of female students. The effect size value is small according to Cohen (1988). İn other words the effect of gender differences to the students' self-efficacy perceptions is hardly visible.

The one-way ANOVA test was used to determine whether there was a significant difference between students' attitudes and self-efficacy perceptions toward mathematics according to grades, and the test results are given in Table 4.

Table 4.

Results of One-Way Anova Test in Terms of the Attitude and Self-Efficacy Variation Perception Scores According to Students' Grades

		Sum of squares	*Sd*	*Average of squares*	*F*	*p*
Attitude	Between groups	.177	2	.088	.138	.871
	Within groups	134.178	209	.642		
	Total	134.355	211			
Self-efficacy	Between groups	.611	2	.306	.824	.440
	Within groups	77.594	209	.371		
	Total	78.205	211			

The results of the analysis in Table 4 indicate that there is not a significant difference between multi-program high school students' attitudes ($F_{(2,209)}$= .138, p> .05) and self-efficacy perceptions ($F_{(2,209)}$= .824, p> .05) in regard to grade levels. İn other words, multi-program high school students' attitudes and self-efficacy perceptions toward mathematics do not change significantly according to the grades. One-way ANOVA test results regarding the attitudes and self-efficacy perceptions according to the achievement levels in mathematics are given in Tablo 5.

Table 5.

Results of One-Way Anova test Regarding the Attitude and Self-Efficacy Variation Perception Scores According to the Students' Mathematics Achievement

		Sum of squares	***sd***	***Average of squares***	***F***	***p***	***Significant difference***
Attitude	İnter groups	11.703	4	2 .926	4.938	.001	45-54 and 85-100
	Within groups	122.652	207	.593			55-69 and 85-100
	Total	134.355	211				
Self-efficacy	İnter groups	9.124	4	2.281	6.83	.000	45-54 and 85-100
	Within groups	69.081	207	.334			55-69 and 85-100
	Total	78.205	211				

According to the findings in Table 5, there is a significant difference between the students' mathematics achievements and their attitudes toward mathematics ($F_{(4,207)}$=

4.938, $p < .05$, $\eta^2 = 0.08$). İn other words, attitude scores of students whose mathematics achievement points are in the interval of 85-100 are at rather high level as compared to those of the students whose points are in the interval of 45-54 and 55-69. Similarly, there is a significant difference

between the students' mathematics achievements and their self-efficacy perceptions toward mathematics ($F_{(4,207)} = 6.83$, $p < .05$, $\eta^2 = 0.11$).

According to Table 5, self-efficacy perception scores of the students whose mathematics achievement points are in the interval of 85-100 are at rather high level as compared to those of the students whose points are in the interval of 45-54 and 55-69. The effect size values indicate a small effect size according to Cohen (1988). İn other words the effects of mathematics achievement on students' attitudes and self-efficacy perceptions are hardly visible. İn this study, a strong and positive correlation (Fig.1) between students' attitudes and self-efficacy perceptions toward mathematics ($r=0.704$, $p<.01$) was found. This means that students with higher self-efficacy perceptions have more positive attitudes toward mathematics than other students.

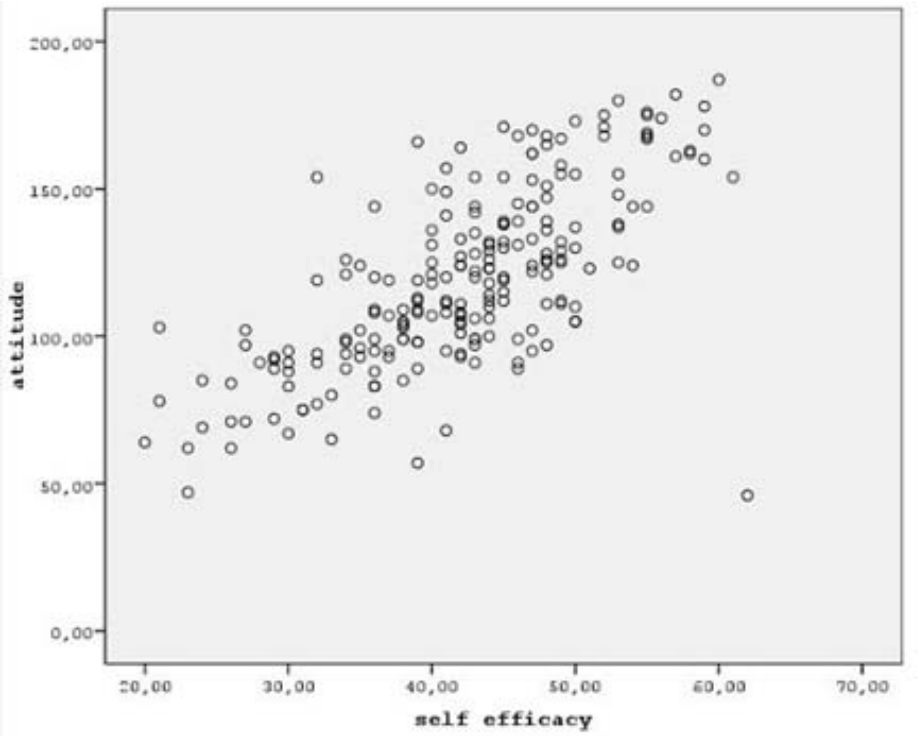

Figure 1. The Relationship between Students' Attitudes and Self-Efficacy Perceptions

Discussion

İn this study, it was found that students' attitudes and self-efficacy perceptions tend to be uncertain. This result was supported by the study of Tasdemir (2012). Tasdemir concluded that the mean mathematics anxiety scale points of vocational students are at the standard level. Most of the studies in the literature (Arkonac, 2009; Avci, Ozenir, Coskuntuncel, Ozcihan & Su 2014; Avci, Coskuntuncel & İnandi 2011; Kurbanoglu ve Takunyaci, 2012; Tasdemir, 2013) show that although vocational students' attitudes toward mathematics is not as positive as science or Anatolian high school students, the attitudes are generally as positive as or higher compared with other high school students. İn Arkonac's study (2009) 68% of the vocational students see mathematics as an essential lesson but claim that they do not understand the topic. Peker and Mirasyedioglu (2003) indicate that most of the seventh grade students (nearly 70%) have positive attitudes toward mathematics but they have anxiety about their mathematics achievement. A number of studies have indicated that many children begin schooling with positive attitudes towards mathematics. These attitudes, however, tend to become less positive as children grow up, and frequently become negative at the high school level (LaRocque, 2008, Ma and Kishor, 1997). Dowker (2005) and Krinzinger et al. (2009) suggest that younger children show lower levels of mathematics anxiety than do older children and adults (Devine, Fawcett, Szucs & Dowker, 2012). This can be by the reason that self-efficacy perceptions are more negative for students who compare their abilities with others and give attention to specific tasks (Nicolaidou and Philippou, 2003).

The results of this study show that there is a significant difference between the attitudes and self-efficacy perceptions of students attending general and vocational education programs. The studies in the literature have shown similar findings in that vocational high school students' attitudes toward mathematics are not as positive as the general high school students (Avci et al., 2014; Avci et al., 2011; Hatisaru and Erbas, 2012; Kurbanoglu and Takunyaci, 2012). This may be due to the fact that students in vocational high schools generally do not have a strong mathematics background, so they do not understand the lesson easily. Science and Anatolian high schools accept students according to the results of some academic tests, so these students enter these schools based on some criteria. They have strong mathematics backgrounds and are more confident in mathematics than general students. For vocational high school students to have more positive attitudes and self-efficacy perceptions toward mathematics, mathematics teachers in these schools should use different methods, activities or projects and different teaching techniques in their classes. İn addition, students' inabilities and weaknesses in mathematics should be determined, and teaching activities should address these weaknesses.

The results of this study are similar to the research performed by Akdag (2014), Avci et al. (2014), Jameson (2013), Kurbanoglu and Takunyaci (2012), Cakiroglu and İsiksal (2009), and Ekizoglu and Tezer (2007), which show that there is not a significant difference between the attitudes of male and female students. According to the results of this study, self-efficacy perceptions of male students are higher than the females. Many studies conducted by Carr (2014), Jameson (2013), Devine et al.

(2012), Sahranavard, Hassan, Eliyah & Abdullah (2012), Tasdemir (2012) have similar results. Male and female students have different processes of socialization, opportunities for experience, and different responses from the society about their jobs in life; this may be the reason for having different self-efficacy perceptions toward mathematics (Kuzgun 2003). Male students may perform better than female students in math because of their higher participation rates in the classroom (Van de Gaer, Pustjens, Van Damme, & De Munter, 2008). This relates to the societal influence on male students performing better than female students in math; if male students feel more confident in the subject, they could feel more comfortable participating in the classroom (Carr, 2014).

İt is apparent from the analysis of the data that multi-program high school students' attitudes and self-efficacy perceptions do not show differences regarding their grade levels. While the studies of Akdag (2014), Avci et al. (2014), Watts (2011), Cakiroglu and İsiksal (2009) have similar results, Carr (2014), Kurbanoglu and Takunyaci (2012), Yenilmez and Ozbey (2006) and Tekindal (1995) found different results in their studies. Kurbanoglu and Takunyaci (2012) stated that as the grade levels increases for secondary students, the attitudes and self-efficacy perceptions also increase. Yenilmez and Ozbey (2006) indicated that the level of mathematics anxiety decreases as the grade level increases for students in primary education. According to Tekindal (1995), the attitude toward mathematics decreases from fifth grade in primary schools to the secondary grades. Namely, the attitudes toward mathematics become more negative as the students' grade levels increases according to Tekindal (1995). Longitudinal studies starting at an early age and having broader scales could prove beneficial in understanding the differences in the results of these studies.

Another result of this study is that there is a meaningful difference between attitudes and self-efficacy perceptions toward mathematics regarding achievement. As the students' mathematics achievement increases, the scores of mathematics attitudes and self-efficacy perceptions increase as well. Akdag (2014), Carr (2014), Jameson (2013), Devine et al. (2012), Ayotola and Adedeji (2009), Adeyemo and Torubeli (2008), and Watt (2000) have results that are in parallel with this study. Wang (2012) indicates that classroom experiences are so related in students' attitudes toward mathematics that even one positive experience in a mathematics classroom may cause the student to gravitate toward choosing a career in the field. "What should be done to improve students' positive attitudes toward mathematics?" The possible answer should be sought, and different studies should be conducted. Also the factors influencing attitudes and self-efficacy perceptions should be examined in the teaching environment.

A meaningful relationship between the students' attitudes and self-efficacy perceptions was found in this study. Escalera, García-Santillán & Venegas (2014), Jameson (2013), Karadeniz (2014), Briley (2012), Watts (2011), and Evans (2010) found similar results in their studies. That is, the concepts of attitude and self-efficacy perception are not independent from each other. Students whose attitudes are more positive toward mathematics have higher self-efficacy perceptions toward the

subject. Jameson (2013) concluded in her study that math self-concept was the strongest predictor of math anxiety in second grade children. Students' mathematics self-efficacy could be improved by reducing their mathematics anxiety (Peters, 2013), which could be helpful to them in improving their attitude and interest (Louis and Mistele, 2012). Therefore, in order to get the students to become more positive toward mathematics, a learning environment where they can foster the feeling of efficacy should be provided. Under such conditions, an obstacle to being more successful in mathematics would be eliminated.

Conclusion and Recommendation

This study has focused on self-efficacy and anxiety, which are affective features having a great influence on teaching efficiency and significant processes of mathematics teaching. İn this framework, both inter-relations of the concepts in question and their relations regarding the different variables have been studied. The main objective of the study is to create a base for a better teaching environment by using the gathered data in order to foster the quality of teaching.

The study shows that positive perceptions toward mathematics bring higher self-efficacy perception, whereas negative perceptions bring lower self-efficacy perception. Also, male and female students at different grades show no significant difference in terms of the affective features. Success in mathematics is an important determinant for self-efficacy and perception toward the mathematics level; likewise, vocational school students are observed to have lower level of affective features compared to other students. Therefore, this study has handled the change of affective features, a significant dimension in mathematics teaching, in students studying at different types of schools, and it has supported the hypothesis. This study has given answers to the question of why vocational school students do not succeed in mathematics.

Today, it is widely accepted that every young person can learn mathematics and every student can be successful once the right studying and learning atmosphere is created. Thus, it is necessary to leave the idea of focusing on only successful students to increase efficiency of mathematics teaching processes. İn order to increase the number of people who can understand and use mathematics, it is critical to deal with the students who believe that they cannot succeed in mathematics and do not like the subject. The reasons for their failure need to be studied. İn this context, besides the schools and groups having students with higher level of success in mathematics, the ones who do not have any interest in mathematics and studying different academic programs should be studied, which will help to conduct new and various academic studies.

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Çok Programlı Lise Öğrencilerinin Matematiğe Karşı Tutum ve Öz-Yeterlik Algıları

Atıf:

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Özet

Problem Durumu

Matematik dersinin öğrenilmesinde, öğrencinin bilişsel seviyesinin yanı sıra duyuşsal özellikleri de oldukça önemli bir faktördür. 2005 yılında değişen ve öğrencilerin bilişsel gelişiminin yanı sıra duyuşsal gelişimini de vurgulayan Ortaöğretim Matematik Dersi Öğretim Programında, duyuşsal boyut içerisinde tutum, öz güven, matematikte kendine yetme becerisi ve matematik kaygısı sayılmaktadır. Öğrencilerin matematik dersi ile ilgili geliştirdiği duygu ve düşünceler başarıya doğrudan yansımakta ve bir üst sınıfa devam ederken çoğu öğrencide aynı kalmaktadır. Eğitim, tutumları değiştirmede önemli bir araç olduğundan, öğretmenlerin gerek kendi derslerine, gerekse sosyal yaşamdaki diğer olgulara yönelik öğrenci tutumlarının ne olduğunu, nasıl ölçülebileceğini bilmeleri eğitimin niteliğini arttırmada önemli bir etken olabilir. Bu konu ile ilgili olarak yapılan bir hayli çalışma olmasına rağmen, bu çalışmalarda örneklem gruplarını genel olarak farklı tür okullarda öğrenim gören öğrenciler oluşturmaktadır. Dolayısıyla örneklem grubunda yer alan öğrenciler farklı kültüre, farklı eğitim olanaklarına, farklı okul çevrelerine ve farklı eğitim koşullarına sahip öğrencilerdir. Ayrıca meslek liselerinde yer alan öğrenciler üzerine yapılan çalışmaların sayısı çok fazla değildir. Buradan hareketle, mevcut çalışmada bir çok programlı lisenin farklı eğitim programlarına (genel ve mesleki) devam eden öğrencilerle çalışılmıştır. Böylelikle söz konusu dış etmenlerin etkileri kontrol altına alınmaya çalışılmıştır.

Araştırmanın Amacı

Bu çalışmada çok programlı lise öğrencilerinin matematik dersine karşı sahip oldukları tutum ve öz-yeterlik algılarını birbiri ile ilişkili olarak incelemek, bu iki

kavram arasındaki ilişkiyi ortaya koymak amaçlanmıştır. Ayrıca çalışmada bu öğrencilerin matematik dersine karşı sahip oldukları tutum ve öz-yeterlik algıları, devam etmekte oldukları eğitim programı, yaşları, cinsiyetleri ve akademik başarıları açısından ele alınmış ve incelenmiş, bu amaçla aşağıdaki alt problemlere cevap aranmaya çalışılmıştır. Çok programlı lise öğrencilerinin matematiğe karşı;

- tutum ve öz-yeterlik algıları hangi düzeydedir?
- tutum ve öz-yeterlik düzeyleri cinsiyete, sınıf seviyesine, eğitim programına ve matematik başarısına göre anlamlı bir farklılık göstermekte midir?
- tutum ve öz-yeterlik algıları arasında nasıl bir ilişki vardır?

Araştırmanın Yöntemi

Bu araştırma tarama modelinde betimsel bir çalışmadır. Tarama modeli, geçmişte ya da halen var olan bir durumu var olduğu sekliyle betimlemeyi amaçlayan araştırma yaklaşımıdır. Araştırmanın çalışma grubunu, 2011-2012 eğitim öğretim yılında İzmir ilinde bulunan bir Çok Programlı Lisede öğrenim gören toplam 212 lise öğrencisi oluşturmaktadır, veri toplama aracı olarak daha önce geliştirilmiş olan "Matematik Tutum Ölçeği" ile "Matematik Öz-Yeterlik Algısı Ölçeği" kullanılmıştır.

Araştırmanın Bulguları

Çalışmadan elde edilen bulgulara göre, öğrencilerin tutumları 3.14 puan ortalaması ve .79 standart sapma ile öz-yeterlik algı düzeyleri ise 3.01 puan .60 standart sapma ile "kararsızlık" eğilimindedir. Öğrencilerin matematiğe karşı sahip oldukları tutum ($t_{(210)} = 2.55$, $p < .05$, $\eta^2 = 0.03$) ve öz-yeterlik algı düzeylerinin ($t_{(210)} = 2.89$, $p < .05$, $\eta^2 = 0.03$) eğitim programına göre anlamlı bir farklılık gösterdiği görülmektedir. Bu bulgulara göre genel lise eğitim programına devam eden öğrencilerin matematik dersine yönelik sahip oldukları tutumları ve öz-yeterlik algıları, mesleki eğitim programına devam eden öğrencilerin tutum ve öz-yeterlik algılarından daha olumludur. Diğer taraftan, kız öğrenciler ile erkek öğrencilerin matematik dersine karşı sahip oldukları tutumları arasında anlamlı bir fark olmadığı görülmüştür ($t_{(210)} = -1.503$, $p > .05$). Öz-yeterlik algılarına bakıldığında kız öğrenciler ile erkek öğrencilerin matematik dersine karşı sahip oldukları öz-yeterlik algıları arasında anlamlı bir fark olduğu anlaşılmıştır ($t_{(210)} = -2.99$, $p > .05$, $\eta^2 = 0.04$). Bu bulgulara göre erkek öğrencilerin matematik dersine yönelik sahip oldukları öz-yeterlik algıları, kız öğrencilerin matematik dersine yönelik sahip oldukları öz-yeterlik algılarından daha yüksektir. Öğrencilerin matematik dersine karşı sahip oldukları tutum ($F_{(2,209)} = .138$, $p > .05$) ve öz-yeterlik algılarının ($F_{(2,209)} = .824$, $p > .05$) öğrencilerin sınıf seviyesine göre anlamlı bir fark göstermediği, öte yandan matematik dersine karşı sahip oldukları tutumları ($F_{(4,207)} = 4.938$, $p < .05$, $\eta^2 = 0.08$) ve öz-yeterlik algıları ($F_{(4,207)} = 6.83$, $p < .05$, $\eta^2 = 0.11$) ile matematik başarıları arasında anlamlı bir fark olduğu görülmüştür. Buna göre matematik notu 5 olan öğrencilerin matematik dersine karşı sahip oldukları tutumları ve öz-yeterlik algıları, notları 2 ve 3 olan öğrencilerin tutum ve öz-yeterlik algılarına nazaran daha olumludur. Tutum ve öz-yeterlik algıları arasındaki korelasyona bakıldığında öğrencilerin matematik dersine karşı sahip oldukları öz-yeterlik algıları ile tutumları arasında pozitif yönde yüksek düzeyde bir korelasyon olduğu belirlenmiştir ($r = 0.704$, $p < .01$). Dolayısıyla

öğrencilerin tutumları ile öz-yeterlik algıları arasındaki ilişkinin aynı yönde olduğu söylenebilir.

Araştırmanın Sonuçları ve Önerileri

Yapılan bilimsel çalışmalara ve mevcut çalışmanın sonuçlarına bakıldığında, mesleki eğitim programlarına devam eden öğrencilerin diğer eğitim programlarına devam eden öğrencilere nazaran matematik dersine karşı daha olumsuz tutumlara sahip oldukları anlaşılmaktadır. Bu noktadan hareketle mesleki eğitim programlarına devam eden öğrencilerin matematik dersine karşı daha olumlu tutum geliştirmelerini sağlamak amacıyla görevli öğretmenler tarafından matematiksel uygulamalar, etkinlikler veya öğretim metotları uygulanabilir. Bu eğitim programlarında öğrenim gören öğrencilerin matematik dersi ile ilgili alt yapı eksiklikleri belirlenerek bu eksikliklerin giderilmesine yönelik öğretim faaliyetleri planlanabilir. Tutum ve öz-yeterliğe etki eden etkenler öğretim ortamlarında daha spesifik olarak incelenebilir, öğrencilerin matematik dersinde başarılı olmalarındaki engelleri ortadan kaldırmak adına "öğrencilerin matematiğe karşı olumlu tutum ve yüksek öz-yeterlik sahibi olmaları için neler yapılabilir?" sorusuna cevaplar aranıp ve bu doğrultuda çalışmalar yapılabilir.

Anahtar Sözcükler: Matematiğe karşı tutum, öz-yeterlik algısı, eğitim programı, çok programlı lise

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The Investigation of Pre-service Teachers' Perceptions about Critical Reading Self-Efficacy

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Abstract

Problem Statement: Teachers have important roles in teaching critical reading skills that already exist in the curriculum. Teachers themselves should have critical reading skills and be able to identify them so as to be able to teach these skills to their students. Therefore, it becomes necessary to determine the extent to which pre-service teachers have acquired knowledge and skills regarding critical reading and the training of teachers. Determining pre-service teachers' critical reading skill is significant since it may provide ideas for the teacher training institutions as to how to train more qualified teachers. While some studies about the critical thinking and reading skills of teachers exist in the literature, no study investigating the critical reading self-efficacy perceptions of pre-service teachers was found. Therefore, this study is important in revealing the critical reading self-efficacy perceptions of pre-service teachers.

Purpose of the Study: The main objective of this study is to determine teachers' perceptions about their self-efficacy on critical reading. In this respect, the present study seeks answers to such questions as "What is the level of pre-service teachers' sense of self-efficacy on critical reading?" and "Do teachers' senses of self-efficacy on critical reading differ according to their graduation programs, grade levels, genders and academic achievements?"

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Method: This study designed according to the cross-sectional survey model was conducted with 594 pre-service teachers from different departments and grade levels of the faculty of education at a state university in southeast region of Turkey during the 2012-2013 academic year. The quantitative data was analysed using independent samples and a t-test and one-way analysis of variance (ANOVA).

Findings and Results: In this study, it was found out that the pre-service teachers have a sense of self-efficacy on critical reading above the intermediate level and their self-efficacy beliefs differ according to their genders and graduate programs. However, the same is not true across different grade levels.

Conclusions and Recommendations: The critical reading self-efficacy perceptions of pre-service teachers differed across gender, departments and academic achievements, while they did not differ across grade levels. Based on these findings, it can be concluded that necessary regulations in the curriculum of all departments of the faculty of education should be done as teaching the critical thinking and reading skills to teachers are prerequisite for teaching them to students.

Key words: Critical reading, pre-service teachers, self-efficacy perception, teacher training

Introduction

Information acquisition has become an important objective for individuals and societies in the twenty-first century. In order to use knowledge effectively and productively, one should not only understand and interpret it correctly but also question its accuracy, effectiveness and necessity. In this respect, the function and quality of reading activity becomes a critical issue in the acquisition of these skills. Individuals should be able to interpret the author's ideas, compare them with others on the same topic, and criticize the assertions after completing the reading task comprehendingly and joyfully. The individual is expected to form and strengthen his/her own idea by investigating various ideas on the same topic. However, as it was understood in the evaluation report of the 1981 National Assessment of Education Congress, only 15% of students aged thirteen could write a sentence summarizing the paragraph they read, while 85% answered the multiple-choice comprehension questions correctly (Decker, 1993, p.1). Students cannot re-form the ideas expressed by other people. Ipsiroglu (1989) found that the university students accepted the idea claimed in the text they read as is. Success at school and in social life requires more than knowing the meanings of the words in a text. Many students who can comprehend a literary text have difficulty understanding the intention and the idea the author means to convey. These students only interpret what the words mean but they cannot understand what they mean. In other words, students understand what is said but they cannot judge it (Demirel & Sahinel, 1999, p. 25).

Understanding the words and comprehending the meaning are two basic components of reading. The students are not only expected to read the lines but also to read between the lines. Readers do not only record the message but also construct the text meaningfully (Sahinel, 2001). These behaviours expected of a reader are related to the acquisition of critical reading skills by the reader, because critical reading refers to comprehending the gist of the text, assessing the conclusions made in the text, understanding the supportive ideas, and evaluating the reasonable points (Flemming, 2011). Thus, critical readers can read the texts by thinking about them objectively and profoundly.

Cadiero Kaplan and Smith (2002) stated it is important to train students so they can use the knowledge and skills successfully in tests at schools; however, it should be more important for students to be critically interested in the texts and reflect this into their lives (as cited in Mcdaniel, 2004, p. 474). At this point, it is quite important to improve students' mechanical reading skills to critical reading skills. Teachers must become critical readers in order for students to become critical readers. To achieve this, teachers must understand the texts, comprehend and evaluate the value judgement and hidden messages in the text (Apol, 1998, p. 36-37; as cited in Mcdaniel, 2004, p. 475). Teachers can be models in terms of critical reading skill and improve their skills. While doing this, they also need to encourage their students question their words and covered texts.

In Turkey, some descriptive studies have investigated the effects of critical reading on understanding what is read, critical thinking and attitude towards reading (Cam, 2006; Isik 2010; Sadioglu & Bilgin, 2008; Unal, 2006), and some experimental studies have investigated the effects of critical thinking on language skills (Bardakci 2010; Ozcinar, 1996; Ozensoy 2011; Sahinel, 2001). One study that investigated the effects of critical reading and writing on academic achievement and critical reading and writing skills was found (Karabay, 2012). Besides, Akyol (2011) evaluated the efficacy level of 2005 secondary education Turkish curriculum on providing students with critical reading skills. Critical reading was emphasized and activities for improving these skills at all grade levels took place in the 2008 elementary education curriculum, which was put into practice throughout Turkey by the Ministry of National Education. On the other hand, three studies were found in the literature review about determining the critical reading self-efficacy perceptions of pre-service teachers (Karasakaloglu, Saracaloglu & Yilmaz Ozelci, 2012; Kucukoglu, 2008; Topcuoglu Unal & Sever, 2013). However, no studies that investigated the critical reading self-efficacy perceptions according to different variables were found. Reading, comprehending and effectively evaluating what is read and expressed in a written or oral way are prerequisite for learning. In educational environments, reading comprehension and critical evaluation has been the primary way of learning. This way, learning becomes easy for the student who has high reading comprehension and ability to critically evaluate passages. Individuals who are aware of critical reading strategies can read at an advanced level and think about the function of the text. Being able to perform critical reading entails the ability to internalize the text, to question the source of the text and to approach

the text with sampler perspectives. This research is beneficial since it provides information about pre-service teachers' critical reading self-efficacy perceptions.

Critical reading is emphasized and activities aim at improving this skill at all grade levels offered in the new elementary education curriculum put into practice throughout the country by the Ministry of National Education. On the other hand, no research directly dealing with critical reading self-efficacy perception was found in the review of related literature. This study is expected to provide enlightenment in determining the critical reading skill in a reliable, valid way and to contribute to the more qualified critical reading education implementations.

One of the major factors enabling critical reading is readers' sense of self-efficacy (Karasakaloglu, Saracaloglu & Yilmaz Ozelci, 2012). Self-efficacy is one of the key variables in terms of the social cognitive theory. According to Bandura, self-efficacy is an effective qualification to the formation of behaviours and is described as "the judgement of an individual about the capacity of organizing and doing the activities which are necessary to show a particular performance successfully" (Bandura, 1986). The concept is expressed as self-efficacy perception, belief or judgement in the publications related with the concept of self-efficacy. The "self-efficacy" expression is adopted in this study.

Bandura (1997), who states that self-efficacy perception plays an important role in social cognitive theory, describes self-efficacy perception--which he thinks effective on the behaviour--as a quality influence on the formation of the behaviour, individuals' organizing the necessary behaviour in establishing some particular objectives, and his/her own belief about fulfilling capacity of a performance. Similarly, Zimmerman (1995) describes self-efficacy as an individual's belief about his/her skills about organising and performing a job, while Zusho and Pintrich (2003) defines self-efficacy as an individual's own perception about his/her capacity in performing a job and his/her belief about efficacy in fulfilling a job. According to Gurcan (2005), self-efficacy is not a function of individuals' skills; it is their perception of what they can do by using their skills (cited in Ozcelik, 2006, p.6). In other words, self-efficacy that is an individual's own belief about how successful he/she can be in overcoming problems that he/she may face in the future is not a function of an individual's skills; it is a product about the perceptions about the abilities by using his/her skills, coping with different situations, perception, belief and personal perception about skills, and capacity to manage an activity (Senemoglu, 2007).

Bandura (1993) stated that perceived self-efficacy affects the cognitive, motivational, and affective processes. According to Bandura (1986), who explained the contribution of the perceived self-efficacy on the academic development of the individual, students' beliefs about arranging their own learning and their efficacies in learning in academic settings determines their desires, motivation levels and academic achievements while teachers' beliefs about providing and improving the learning influences the learning environments they create and the development of students in academic achievement.

The studies during the last two decades have reported three different types of efficacy related to student achievement: the self-efficacies of the students, the teachers' feeling of efficacy and total efficacies of schools (Goddard, Hoy & Woolfolk Hoy, 2000; Ross, 1994; Tschannen Moran et al., 1998). On the other hand, the studies carried out in Turkey are fairly recent. The measurement of teachers' and pre-service teachers' self-efficacy beliefs in a particular field (science, mathematics, etc.) provides opportunities to understand and predict their behaviours more properly (Bikmaz, 2004). In this context, the perceptions of teachers about the efficacies they have constitute the main focus of this study.

Considering these accounts regarding self-efficacy in terms of "critical reading," it is understood that critical reading ability requires an individual to have a considerable level of self-efficacy concerning the task of reading. When faced with a complex or long text, individuals with high levels of self-efficacy for reading will tend to sustain the task of reading and perform the requirements of critical reading, instead of quitting the reading activity. In this respect, it is believed that individuals first should be provided with critical reading ability, and then develop favourable senses of self-efficacy regarding that ability of critical reading (Karasakaloglu, Saracaloglu & Yilmaz Ozelci, 2012, p. 408).

The teachers with critical thinking skills are those who are more willing to create a suitable environment for critical thinking, listen and pay attention to the answers rather than the one on his/her mind when a question has more than one answer. They are also open for changes and aim at students' learning to ask questions in addition to giving answers. The efficacy of teachers in this field will affect the learning environment and teaching methods. Teachers have important roles in teaching critical reading skills that already exist in the curriculum. Teachers should have and understand these skills to be able to teach them. Therefore, it becomes necessary to determine to what extent pre-service teachers have these knowledge and skills during teacher training. Determining pre-service teachers' level of critical reading skill is significant, since it may provide ideas for teacher training the institutions on how to train more qualified teachers. While some studies about the critical thinking and reading skills of teachers exist in the literature, no study that investigates the critical reading self-efficacy perceptions of pre-service teachers was found. Therefore, this research is important in revealing the critical reading self-efficacy perceptions of pre-service teachers. The main purpose of this study is to determine the pre-service teachers' critical reading self-efficacy.

In line with this purpose, answers to following questions have been sought:

1. What is the level of pre-service teachers' senses of self-efficacy on critical reading?
2. Do the pre-service teachers' perceived critical reading self-efficacy scores differ significantly according to their genders?
3. Do the pre-service teachers' perceived critical reading self-efficacy scores differ significantly according to their grade levels?

4. Do the pre-service teachers' perceived critical reading self-efficacy scores differ significantly according to their departments?
5. Do the pre-service teachers' perceived critical reading self-efficacy scores differ significantly according to their academic achievements?

Method

Research Design

In this study, the general survey method, a descriptive research method, was used. "These models are survey arrangements which are carried out on a sample taken from a population or on the whole population in order to reach a judgement about the population which consists of a great number of components" (Karasar, 2006, p. 79). In the present study, one type of survey method, the cross-sectional survey method, was used . Cross-sectional studies include collecting data from different samples from within the general population, especially when the population is very large and accessing the whole population is not feasible (Buyukozturk, Cakmak, Akgun, Karadeniz, Demirel, 2009, p.233). Critical reading self-efficacy perceptions of pre-service teachers will be determined by this research. In line with this purpose, the critical reading self-efficacy perceptions of pre-service teachers were investigated according to different variables (gender, department, grade level and academic achievement).

Research Sample

The study population of the research comprised the first-, second-, third- and fourth-year students studying at elementary education and Turkish language teaching departments of the educational faculty of a state university located in the southeast region of Turkey. Instead of sampling, the entire population was planned to be accessed. As a result, a total of 594 pre-service teachers from the first through fourth grades of classroom teaching, preschool teaching, Science teaching, at social studies teaching programs at the Departments of Elementary Education Turkish language teaching department were accessed during the spring semester of 2012-2013 academic year. Among these pre-service teachers, 394 were female and 200 were male. Out of these pre-service teachers, 155 were first-year students, 167 were second-year students, 156 were third-year students, and 116 were fourth-year students. Of these pre-service teachers, 124 were students in the primary education department, 90 were in social studies education department, 130 were in the science and technology education department, 127 were in the preschool education department, and 123 were in the Turkish education department.

Research Instrument and Procedure

The "Critical Reading Self-efficacy Perception Scale" was used as the data-collection tool. The scale, originally developed by Karabay (2013), consists of two parts. In the first part, there are questions about gender, department/program of study, grade levels, average academic achievement scores, and parent educational

background. In the second part, there are 42 Likert-type items with five answers ranging from "never (1)" to "always (5)", aiming at determining the critical reading self-efficacy perceptions of the pre-service teachers. The scale consists of three factors: visual, research-investigation and evaluation. The factor loads of the factors ranged between .75 and .48; .68 and .44; .68 and .39, respectively. The Cronbach Alpha internal consistency coefficients are .69, .78, .91, respectively, while it is .91 for the whole scale.

The data was collected by the researchers from the pre-service teachers studying in the primary education, preschool education, science and technology education, social studies education and Turkish education departments of the Faculty of Education at a state university in southeast region of Turkey in March and April during the spring semester of the 2012–2013 academic year. The data were collected in a classroom environment and some explanation was made during the implementation. It took about 10 minutes to complete the scale.

Data Analysis

The SPSS 20 package program was used to analyze the data. The analysis included descriptive statistics, independent samples t-test and one-way variance analysis (ANOVA). The significance level of the analysis was taken as $p<.05$.

Results

In this part, the findings about critical reading self-efficacy perception levels of pre-service teachers studying in the elementary education and Turkish education departments are presented in line with the research questions.

The critical reading self-efficacy perception levels of pre-service teachers

The mean scores and standard deviation pertaining to the critical reading self-efficacy perceptions of pre-service teachers are analysed it can be said that the perception levels of pre-service teachers about critical reading self-efficacy are above the intermediate level ($\overline{X}$ = 158.6, Sd= 19).

The critical reading self-efficacy perception levels of pre-service teachers according to gender

The mean scores of the critical reading self-efficacy perception levels of pre-service teachers show that the mean scores of female students ($\overline{X}$ = 160.78) are higher than those of male students ($\overline{X}$ =155.43). This difference was tested by t-test to determine significance, and it was revealed that there was a statistically significant difference in favour of female students between the perceptions about critical reading self-efficacy according to gender [$t(592)=3.201$; $p<.05$].

The critical reading self-efficacy perception levels of pre-service teachers according to departments

One-way variance analysis results of the critical reading self-efficacy perception levels of pre-service teachers according to departments are presented in Table 1.

Table 1.

Descriptive Statistics and One-way Variance Analysis about the Critical Reading Self-efficacy Perception Levels of Pre-service Teachers According to Departments

Departments	N	$\overline{X}$	S	F	p	Scheffe-f
Elementary Education (EE)	124	157.69	20.21	5.566	.000	TE□EE TE□SSE TE□PE
Social Studies Education (SSE)	90	154.92	20.49			
Science Education (SE)	130	158.72	19.03			
Pre-school Education (PE)	127	156.73	19.48			
Turkish Education (TE)	123	165.83	16.34			

According to Table 1, it is seen that the mean scores of critical reading self-efficacy perception levels of pre-service teachers studying in the departments of social studies education and preschool education are lower than of pre-service teachers studying at the other departments. One-way variance analysis was used to find out if this difference was significant. The results of the analysis show that there are statistically significant differences between the critical reading self-efficacy perception levels of pre-service teachers according to departments [F (4;589)=5.566; p<.01]. The results of a post hoc Scheffe-f test show that there is a statistically significant difference between the departments of Turkish education, elementary education, social studies education and preschool education in favour of the department of Turkish education.

The critical reading self-efficacy perception levels of pre-service teachers according to grade levels

One-way variance analysis results of the critical reading self-efficacy perception levels of pre-service teachers according to grade levels are shown in Table 2.

Table 2.

Descriptive Statistics and One-way Variance Analysis About the Critical Reading Self-efficacy Perception Levels of Pre-service Teachers According to Grade Levels

Grade levels	N	$\overline{X}$	S	F	p
1st grade	155	159.61	20.22	.595	.619
2nd grade	167	158.44	16.85		
3rd grade	156	160.18	19.01		
4th grade	116	157.28	22.07		

Table 2 shows that the mean scores of pre-service teachers' critical reading self-efficacy perceptions are closer to each other. One-way variance analysis was used to find out whether the difference between the scores was significant. The results of the analysis revealed that there is no statistically significant difference between the self-efficacy perceptions of pre-service teachers about critical reading according to the grade levels at which they are studying [F (3;590)=.595; p>.05].

The critical reading self-efficacy perception levels of pre-service teachers according to academic achievements

The results of the analysis about the self-efficacy perception levels of pre-service teachers about critical reading according to academic achievements are given in Table 3.

Table 3.

Descriptive Statistics and One-way Variance Analysis About the Critical Reading Self-efficacy Perception Levels of Pre-service Teachers According to Academic Achievements

Academic achievements	N	$\overline{X}$	S	F	p	Scheffe-f
1.99 and below (1)	72	154.54	20.42	4.381	.013	3>1
2.00-2.99 (2)	362	158.41	18.63			
3.00 and above (3)	160	162.26	20.17			

Table 3 introduces that the mean scores of pre-service teachers about critical reading self-efficacy perceptions increase as the grade point averages go up. One-way variance analysis was used to determine whether the difference between the averages was significant. The results of the analysis revealed there was a significant difference between the critical reading self-efficacy perceptions of pre-service teachers according to grade point average [F (2;591)=4.381; p<.05]. According to the post hoc Scheffe-f test results, there was a statistically significant difference between the groups that had a 3.00 and above grade point average and the groups that had a 1.99 and below grade point average, in favour of the group with a 3.00 and above grade point average.

Discussion and Conclusions

Teachers are expected to have critical reading skills since they are also expected to teach this skill to students. In this context, this study aimed to determine the critical reading self-efficacy perceptions of pre-service teachers and to investigate these perceptions according to some variables. One of the findings that was obtained

in line with this purpose is that the critical reading self-efficacy perception levels of pre-service teachers are above the intermediate level.

A factor effective on critical reading is the attitude of the individual towards reading and the subject. According to the social learning theory of Bandura, this attitude is described as a case obtained by learning and which causes biasness during the decision-making process that directs an individual's behaviours. If an attitude towards an object or an event is positive, the probability for these decisions to be positive is high. If the attitude is negative, there is possibility for the decisions to be negative (Ulgen, 1997). In this context, it is remarkable that the critical reading self-efficacy perception levels of pre-service teachers are above the intermediate level.

Kucukoglu (2008) defined in his study that a great majority of pre-service teachers studying English language teaching hold positive attitudes towards reading and perceivd themselves as adequate in regard to critical reading. In a similar vein, Topcuoglu Unal and Sever (2013) found out that prospective Turkish language teachers had high levels of self-efficacy related to critical reading. According to the result of the studies carried out by Kurum (2002), Cetin (2008), Besoluk and Onder (2010), which aimed to determine the critical thinking tendencies of pre-service teachers, the pre-service teachers have intermediate-level critical-thinking tendencies. Gelen (1999) and Yesilpinar (2011) found out that the teachers and pre-service teachers perceive themselves adequate in teaching critical thinking skills to their students. It can be said that the results obtained in this study are consistent with those of other studies in the field.

The high self-efficacy levels of pre-service teachers can be explained with Bandura's social cognitive theory. Bandura claims that self-efficacy perception should be considered as an individual's capacity or being organized and fulfilling this to show a particular achievement. In a report prepared by the Denmark Institute of Technology in November 2006, it was argued that the individuals who were the subject to the implementation assessed themselves higher than they were actually in the self-efficacy measurement tools (Haahr & Hansen, 2006). In this context, it must be remembered that the individuals can be subjective when they assess themselves.

In this study, the critical reading self-efficacy perceptions of pre-service teachers were investigated according to some variables such as gender, academic achievement, the department at which they study, and their grade levels. The other findings obtained in this study in parallel with this are that the critical reading self-efficacy perception levels of pre-service teachers differ according to gender, the department at which they study and academic achievement, but do not differ according to grade levels at which they study. The critical reading self-efficacy perceptions of pre-service teachers were in favour of female teachers according to gender and were in favour of teachers who had a 3.00 or above grade point average according to academic achievement. Unal (2006) and Cam (2006) found there was a moderate significant relationship between critical reading and reading comprehension and female students read more critically. According to the results of PIRLS 2002 Progress in International Reading Literacy, the reading achievement of

female students is higher than that of male students. Similarly, Ozisik (1997) and Karakus Taysi (2007) also found out that the reading achievement of female students were higher than that of male students. When it is considered that the measurement of pre-service teachers' beliefs about self-efficacy in a particular field provides opportunities to understand their behaviours more correctly, it can be thought that individuals who have high self-efficacy perception on a particular field are more successful in solving the problems they face.

It was found that the critical reading self-efficacy perceptions of pre-service teachers are in favour of the teachers who study at the Turkish Education Department according to the departments where the pre-service teachers study. When the undergraduate curriculum of the Turkish Education Department was analyzed, it was seen that critical reading took place under the title of reading types in the "Comprehension Technique II: Reading Education" course in the sixth semester. In the scope of this course, the knowledge and awareness of the pre-service teachers towards the critical reading increase.

Hayran (2000), Kokdemir (2003), Cigri and Yildirim (2005), Sadioglu and Bilgin (2008) determined that the perceptions of pre-service teachers about critical thinking and reading differed statistically according to gender, and that difference was in favour of female pre-service teachers. Doganay et al. (2007) observed that the critical reading skills of university students differed statistically according to gender and department where they studied. The result of the study carried by Zayif (2008) showed there was a statistically significant difference in the critical thinking tendencies of pre-service teachers according to gender and that difference was in favour of female pre-service teachers and there were statistically significant differences according to the departments and grade levels at which they studied. No significant difference between the academic achievements and critical thinking tendencies of pre-service teachers was found, except the sub-dimension of "Curiosity". Otherwise Tumkaya, Aybek and Aldag (2009), observed in their study that the critical thinking skills of university students no differed statistically according to gender at which they studied. The studies of Akbiyik (2002) and Kokdemir (2003) revealed that the self-efficacy perceptions of pre-service teachers about critical thinking and reading differed statistically according to academic achievements. When the studies that investigated the relationship between self-efficacy perceptions and academic achievements are analyzed, they reveal a significant relationship between them (Andrew, 1998; Lent, Brown & Larkin, 1984; Barry, Zimmerman & Kitsantas, 2005). It can be said that the results of this study are consistent with the ones of the other studies in the field.

Consequently, this study found the critical reading self-efficacy perceptions of pre-service teachers to be above the intermediate level. Furthermore, the critical reading self-efficacy perceptions of pre-service teachers differed according to gender, the departments were they studied and academic achievements, while they did not differ according to the grade levels at which they studied.

Recommendation

Based on the findings of this study, it can be said that necessary regulations in the curriculum of all departments of the Faculty of Education should be done as teaching the critical thinking and reading skills to teachers are prerequisite for teaching them to students.

When the self-efficacy beliefs of pre-service teachers provide opportunities to understand their behaviours more correctly are considered, it can be said that the self-efficacies of teachers on special fields are greatly important. It becomes necessary to improve the self-efficacy perception in teacher training when the self-efficacies for the implementations in teacher training are considered. In this context, it can be recommended to determine the levels of self-efficacy beliefs and problem-solving skills of pre-service teachers at education faculties and research how to improve these skills.

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Öğretmen Adaylarının Eleştirel Okuma Öz-Yeterlik Algılarının İncelenmesi

Atıf:

Karabay, A., Kuşdemir Kayıran, B., & Işık, D. (2015). The Investigation of Pre-service Teachers' Perceptions about Critical Reading Self-Efficacy. Eurasian Journal of Educational Research, 59, 227-246
http://dx.doi.org/10.14689/ejer.2015.59.12

Özet

Problem Durumu: Bilginin hızla ve yığılarak ilerlediği 21.yy'da bilgi edinimi bireyler ve toplumlar için önemli bir kazanım haline gelmiştir. Bilginin kullanılabilmesi için onun doğru anlaşılması, yorumlanması ve bununla da kalmayıp bu bilginin doğruluğunun, yararlılığının ve gerekliliğinin de sorgulanması gerekmektedir. Bu becerilerin kazanılmasında okuma etkinliğinin işlevi ve niteliği önem kazanmaktadır. Bireyin, okuma işlemi anlayarak ve zevk duyarak tamamlandıktan sonra yazarın fikirlerini yorumlaması ve bu konudaki başka bilgiler ile karşılaştırarak ileri sürülen fikirleri eleştirmesi gerekir. Öğrencilerin eleştirel okur olmaları için ise öncelikle öğretmenlerin eleştirel okur olmaları gerekmektedir. Eleştirel düşünme becerisine sahip öğretmenler, eleştirel düşünmeye ortam

hazırlamaya daha istekli, sorduğu sorunun tek bir cevabı olmadığında kendi kafasındaki cevabın dışındakileri de önemseyip dinleyen, öğrencinin sadece cevap verebilmesini değil, soru sormasını da öğrenmesini hedefleyen değişime açık öğretmenlerdir. Bu alandaki öğretmen yeterliliği öğrenme ortamını ve öğretim yöntemlerini etkileyecektir. Eğitim programında da yer alan eleştirel okuma becerilerinin öğretimi konusunda öğretmenlere büyük görevler düşmektedir. Öğretmenlerin ise bu becerileri öğretebilmeleri için öncelikle kendilerinin sahip olmaları ve anlamaları gerekmektedir. Bu nedenle öğretmen yetiştirilmesinde, öğretmen adaylarının hangi düzeyde bu bilgi ve becerilere sahip olduklarının belirlenmesi gerekmektedir. Öğretmen adaylarının hangi düzeyde eleştirel okuma becerisine sahip olduklarını belirlemek, öğretmen yetiştiren eğitim kurumlarının nasıl daha nitelikli öğretmen yetiştirecekleri konusunda fikir vermesi açısından önemlidir. Öğretmenlerin eleştirel düşünme ve okuma becerileri ile ilgili araştırmalara rastlanmakla birlikte, öğretmen adaylarının eleştirel okuma öz-yeterlik algılarının incelendiği herhangi bir araştırmaya rastlanmamıştır. Bu nedenle bu araştırma öğretmen adaylarının eleştirel okuma öz-yeterlik algılarını çıkarması açısından önemli olduğu düşünülmektedir.

Araştırmanın Amacı: Bu araştırmanın temel amacı, öğretmen adaylarının eleştirel okuma öz-yeterlik algılarını belirlemektir. Bu amaç doğrultusunda problem cümlesi; "Öğretmen adaylarının cinsiyetleri, okudukları program, sınıf düzeyleri ve akademik başarılarına göre eleştirel okuma öz-yeterlik algıları farklılaşmakta mıdır?" şeklinde belirlenmiştir. Bu amaç doğrultusunda aşağıdaki sorulara cevap aranmıştır.

- Öğretmen adaylarının eleştirel okuma öz-yeterlik algıları nasıldır?
- Öğretmen adaylarının eleştirel okuma öz-yeterlik algı ölçeğinden aldıkları puanlar cinsiyete göre göre anlamlı bir şekilde farklılık göstermekte midir?
- Öğretmen adaylarının eleştirel okuma öz-yeterlik algıları ölçeğinden aldıkları puanlar sınıf düzeyine göre göre anlamlı bir şekilde farklılık göstermekte midir?
- Öğretmen adaylarının eleştirel okuma öz-yeterlik algıları ölçeğinden aldıkları puanlar öğrenim gördükleri programa göre anlamlı bir şekilde farklılık göstermekte midir?
- Öğretmen adaylarının eleştirel okuma öz-yeterlik algıları ölçeğinden aldıkları puanlar akademik başarılarına göre anlamlı bir şekilde farklılık göstermekte midir?

Araştırmanın Yöntemi: Betimsel araştırma yöntemlerinden genel tarama modeli kullanılmış olan bu çalışmada, öğretmen adaylarının eleştirel okuma öz-yeterlik algıları belirlenmiştir. Bu amaç doğrultusunda öğretmen adaylarının eleştirel okuma öz-yeterlik algıları çeşitli değişkenler (cinsiyet, öğrenim gördüğü program, sınıf düzeyi ve akademik başarı) açısından incelenmiştir.

Araştırmaya, 2012-2013 Öğretim Yılı Bahar Yarıyılı'nda, Türkiye'nin güneyinde yer

alan bir üniversite'nin Eğitim Fakültesi İlköğretim Bölümü'nün Sınıf Öğretmenliği, Okulöncesi Öğretmenliği, Fen ve Teknoloji Öğretmenliği, Sosyal Bilgiler Öğretmenliği Ana Bilim Dalları ve Türkçe Eğitimi Bölümü'nde öğrenim gören 594 öğretmen adayı katılmıştır. Bu öğretmen adaylarının, 394'ü kız, 200'ü erkektir. Öğretmen adaylarından 155'i birinci sınıf, 167'si ikinci sınıf, 156'sı üçüncü sınıf ve 116'sı dördüncü sınıf olup; 124'ü sınıf öğretmenliği, 90'ı sosyal bilgiler öğretmenliği, 130'u fen ve teknoloji öğretmenliği, 127'si okul öncesi öğretmenliği ve 123'ü Türkçe eğitimi bölümünde öğrenim görmektedir. Araştırmada veri toplama aracı olarak "Eleştirel Okuma Öz-yeterlik Algı Ölçeği" kullanılmıştır. Araştırmada nicel veriler üzerinde bağımsız gruplar t-testi ve tek yönlü varyans analizi (ANOVA) yapılmıştır.

Araştırmanın Bulguları: Araştırmadan elde edilen bulgulara göre öğretmen adaylarının eleştirel okuma öz-yeterlik algıları orta düzeyin üstündedir. Bu çalışmada, öğretmen adaylarının eleştirel okuma öz-yeterlik algısı cinsiyet, akademik başarısı, öğrenim gördüğü program ve sınıf düzeyi gibi çeşitli değişkenler açısından incelenmiştir. Buna paralel olarak araştırmadan elde edilen diğer bulgular da öğretmen adaylarının eleştirel okuma öz-yeterlik algılarının cinsiyete, öğrenim gördüğü programa ve akademik başarıya göre faklılık gösterdiği ancak okuduğu sınıf düzeine göre farklılık göstermediğidir. Öğretmen adaylarının eleştirel okuma öz-yeterlik algısının cinsiyet açısından kızlar, akademik başarıya göre ise 3.00 ve üstü lehine olduğu bulunmuştur.

Öğretmen adaylarının eleştirel okuma öz-yeterlik algısının öğrenim gördüğü programa göre Türkçe Eğitimi Bölümü lehine olduğu bulunmuştur. Türkçe Eğitimi Bölümü'nün lisans programı incelendiğinde altıncı yarıyılda "Anlama Tekniği II: Okuma Eğitimi" dersinin içeriğinde okuma türleri başlığı altında eleştirel okumanın yer aldığı görülmüştür. Bu ders kapsamında öğretmen adaylarının eleştirel okumaya yönelik bilgilerinin ve farkındalıklarının attığı söylenebilir.

Araştırmanın Sonuçları ve Önerileri: Bu araştırmada öğretmen adaylarının eleştirel okuma öz-yeterlik algısının orta düzeyin üstünde olduğu bulunmuştur. Ayrıca, öğretmen adaylarının cinsiyet, öğrenim gördüğü program, akademik başarı açısından eleştirel okuma öz-yeterlik algılarının farklılaştığı, ancak sınıf düzeyine göre farklılaşmadığı saptanmıştır. Bu sonuçlardan yola çıkarak 2005 programıyla birlikte öne çıkan eleştirel düşünme becerisinin öğrencilere kazandırılabilmesi için öncelikle öğretmenlere bu becerilerin kazandırılması ön koşul olduğu düşünüldüğünde Eğitim fakültelerinin her bölümde eleştirel düşünme- okuma becerisini kazandırmaya yönelik ders içeriklerinin düzenlenmesi gerektiği söylenebilir.

Öğretmen adaylarının öz-yeterlik inançları onların davranışlarını daha doğru olarak anlaşılmasına imkan tanıdığı göz önüne alındığında öğretmenlerin özel alanlardaki öz-yeterliğinin büyük öneme sahip olduğu söylenebilir. Öğretmen eğitimindeki uygulamalar için özyeterliklerin belirlenmesini noktasından hareketle öğretmen eğitiminde öz-yeterlik algısının geliştirilmesine önem verilmesi gerektiği

görülmektedir. Bu bağlamda, eğitim fakültelerinde eğitim gören öğretmen adaylarının öz-yeterlik inanç düzeylerinin ve problem çözme becerilerinin belirlenmesi ve bu becerilerinin geliştirilmesine yönelik çalışmaların yapılması önerilebilir.

Anahtar Sözcükler: Eleştirel okuma, öğretmen adayları, öz-yeterlik algısı, öğretmen yetiştirme

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19	☒	*All illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.* Aday makalenin şekilleri ve tabloları metin içerisinde bulunmaları gereken uygun yerlere yerleştirilmiştir. Makale sonunda sunulmamıştır.
20	☒	Citations in the text of the document include the author's surname, the year of publication, and, when there is a specific quote from a source used, a page number where the quote is located in the text. Example: Nothing seemed so certain as the results of the early studies (Tatt, 2001, p. 445). It was precisely this level of apparent certainty, however, which led to a number of subsequent challenges to the techniques used to process the data (Jones & Wayne, 2002, p. 879). There were a number of fairly obvious flaws in the data: consistencies and regularities that seemed most irregular, upon close scrutiny (Aarns, 2003; West, 2003, p. 457). With studies by two authors, always include both author names: (Anderson & Bjorn, 2003) As Anderson and Bjorn (2003) illustrated in their recent study As recently as 2003, a prominent study (Anderson & Bjorn) illustrated When a study has 3, 4, or 5 authors, include the names of all the authors the first time the work is cited: (Anderson, Myers, Wilkes, & Matthews, 2003) For all subsequent citations of this work, use "et al.": (Anderson et al., 2003) When a work has 6 or more authors, use et al.: (Bell et al., 2003) For unsigned works, include the title, enclosed in parentheses. Put quotation

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		and well being. *Prevention & Treatment, 3,* Article 0001a. Retrieved November 20, 2000, from http://journals.apa.org/prevention/volume3/pre0030001a.html More information is available from: http://citationonline.net/CitationHelp/csg04-manuscripts-apa.htm#references Kaynakçanın yazımı üstte verilen örneklere uygundur.
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