

Chapter 38

An Evaluation of the Classroom Teachers' Attitudes Towards the Constructivist Approach According to Complexity Theory: A Case of Mersin

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Abstract The major aim in this research was to analyze the relationship between the attitudes of primary school teachers towards the constructivist approach and the complexity features (gender, age, the grade they teach, professional seniority, the type of school where they carry out their duties and the school where they graduated from). The research was a descriptive study based on the single screening model. In order to determine the attitudes of primary school teachers towards the constructivist approach, a “Constructivist Approach Attitude Scale” developed by Evrekli et al. (2009) was adopted; and in order to determine the complexity features of primary school teachers, a “Complexity Information Form for Primary School Teachers” was used. The evaluation instruments were administered to 504 primary school teachers carrying out their duties in 32 primary schools in Akdeniz, Yenışehir, Toroslar and Mezitli central districts of Mersin province. According to the research results, the variables that affected the attitude towards the constructivist approach and created complexity were related to the gender of primary school teachers, their age, the grade they teach, their professional seniority, the type of school where they carry out their duties and the school they graduated from. The research revealed that majority of primary school teachers had a positive attitude towards the constructivist approach in terms of their views and there was no significant difference between their attitudes towards the constructivist approach and their gender, age and the grade they teach.

Keywords Primary school teacher · Constructivism · Approach · Attitude · Complexity theory

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38.1 Introduction

The transition from the industrial society to the knowledge society has been accelerated by the rapidly improving technology within a changing world. The education system, together with this new point of view, has renovated itself, and has overseen various reforms to meet the new human model. In accordance with this, Turkey adopted a curriculum based on the constructivist approach in programs at elementary education level in the 2005–2006 academic year. This new curriculum prepared within the scope of the new viewpoints was intended to put an end to rote learning and emphasis was put on preparation of the curriculum in accordance with an approach supporting and developing the active participation, making correct decisions and problem solving of an individual considering the existing experiences of individuals and the value of knowledge beyond the constructivist approaches. Through this curriculum, it was aimed to actualize a new understanding providing the opportunity for students to interact with their surrounding and considering the individual differences and students' own experiences as well as balancing the student and activity centered knowledge and skills. Due to its feature of facilitating and developing these aforementioned traits, the “constructivist approach” formed the basis of the curriculum.

Constructivism is an epistemology and a theory of learning premised on making meaning (Richardson 1997; Sewell 2002). According to this theory which explains the nature of knowledge and how people learn, people create new meanings through the interactions formed in terms of the ideas, events and activities they have encountered or experienced before. The knowledge is acquired through participation rather than repetition or memorizing. The learning structure in this approach is organized depending on activities such as active participation, analyzing, problem solving and cooperation with others (Abdal-Haqq 1998). Hackmann (2004) defined constructivism as a process in which the learners create their own reality, or interpret the meaning depending upon their own experiences and perceptions, and accordingly it is a process in which individuals use their knowledge to interpret previous experiences, mental structure, and the meaning of objects and events. For that reason, the constructivist approach purges the ideas on knowledge from only being some processes developing out of students, and puts the learner at the center of learning. The knowledge is a product structured by anyone as a result of interactions though their surrounding (Bhatnagar 1997). The constructivist approach accordingly supports teacher's processing, internalizing the newly acquired knowledge and associating it with the previous knowledge within the brain efficiently (Abdal-Haqq 1998). According to this approach, learning is a process of creating an understanding related to the world. The knowledge in the learning environment is produced through social interactions, and is specific to the individual (Fox 2001). According to Snyder et al. (1992 cited in Turgut 2001), the knowledge in constructivism has “a created, discovered and experienced structure.” According to Applebee (1993), the knowledge in constructivism has a feature that cannot be defined absolutely, but structured through the social activities.

Although the constructivist learning approach has become popular in recent years, the real origin of constructivism goes back to the antique age philosophers such as Socrates, Plato, and Aristotle during the formation of knowledge. Moreover, Kant philosophy and thoughts of Italian philosopher Giambattista Vico in the 1800s and 1900s also provided a basis for the formation of the constructivist approach. At the beginning of the 20th century, it was dependent on names such as William James, John Dewey, F. C. Barlet, Jean Piaget and L. S. Vygotsky (Tezci and Gürol 2001). However, despite the contributions of all philosophers, Piaget (1896–1980) is accepted as the father of the modern constructivist approach. In “cognitive constructivism” understanding, Piaget suggested that the individuals adapt their mental schemes according to new ideas. This organization and adaptation process creates the main themes of constructivism (Fosnot 1996; Applefield et al. 2000; Durmuş 2001). Vygotsky (1896–1936) who developed a socio-cultural point of view to constructivist understanding emphasized the concept of cultural identity, the geographical area where the individual lives, and accordingly the spoken language on influencing the process of constructing knowledge in the brain. Vygotsky who emphasized the understanding of “social constructivism”, accepted the point of view that the connections between people, communication ways such as sharing, discussion, comparison between the teachers and students are the origin of knowledge structuring (Senemoğlu 1998; Applefield et al. 2000; Tezci and Gürol 2001). The cooperative nature of social constructivism is different from the individual nature of cognitive constructivism. Social constructivism emphasizes social change considering the effect of cognitive development and culture. It recognizes the importance of social and cultural context since learning occurs in models such as cooperative learning and situated cognition. However, it is really hard to understand the cognitive structure of an individual without observing the interaction s/he presents within a culture. For that reason, both social interaction and personal knowledge constructions are important factors of cognitive development (Maypole and Davies 2001). The constructivist understanding at the present time has become the focus point of modern educational systems through its being student-centered. For that reason, it is considered that determining the deficiencies of constructivist approach related to practice and analyzing in terms of the complexity theory is important.

The theory of complexity was suggested by Stuart Kauffman. According to this theory, the organisms having several little pieces immediately adopt a regular life. The driving forces within the system provide these structures with the apparatus to intermingle with each other. According to Kauffman (1991), the mixture qualified as “the chemical soup” of the Old World has turned into complex metabolism activities with time. What existed in the beginning of Complexity Theory were the mathematical propositions created to develop the computer systems. For that reason, the supporters of the theory had difficulty in practicing this in real life.

According to Mitchell (2009), the theory of complexity is a system presenting difficult, immediate, self-induced, and organized behaviors. According to Battram (1999), the theory of complexity expresses the situation of the universe as rich and various as we cannot understand through conventional, mechanical or direct ways. We can understand many parts of the universe through these ways; however, the

cases with bigger and more inner relationships can only be understood through the principles and rules. And according to Cramer (1998), the theory of complexity is the logarithm of the number of opportunities necessary for a system's actualizing itself or the logarithm of the number of situations possible for the system. The broadest meaning of complexity theory defines the behavior of complex and natural social and humanistic systems. It expresses that social systems can be changeable and progressive (Tekel 2006). The theory of complexity emphasizes that the relationships in the complex systems such as organizations are not linear, and have a structure revealing unexpected results and arising choices in which the events cannot be predicted (Tetenbaum 1998; Erçetin 2013). Considering that there can be a relationship between the attitudes of primary school teachers towards the constructivist approach within the educational system both as a system and an organization and their complexity features have formed the basis for the emergence of this study.

In general, attitude is defined with words such as emotional-content ideas, beliefs, prejudices, tendencies, evaluation and readiness (Kadhiravan and Balasubramanian 1999). Attitude is a fact expressing a pre-tendency reaction the individuals have against anything around themselves, directing the behaviors of individuals and causing partiality during the decision-making process (Ülgen 1995; Tavşancıl 2002). According to Ekici (2002), attitude is seen as an important explanation of behavior through its cognitive, affective and behavioral dimensions. When considering that the individuals have numerous attitudes related to their surroundings, it can be clearly seen that creating attitudes for each one is difficult. For that reason, the individuals categorize subjects according to a specific criteria and create attitudes for these categorizations. It is not necessary for the individuals to be experienced directly in order for them to have an attitude towards a specific subject (Baysal and Tekarslan 1998). The individuals can also have various attitudes through observing others or depending on the knowledge acquired from mass media.

Attitude is accepted as one of the most important factors influencing motivation of teachers both positively and negatively. The attitudes which are the tendencies of individuals to act in a negative or positive behavior about the events or behaviors can be learned through the knowledge acquired from observations and acquisitions (Hatzios 1996). The attitudes of an individual are not visible; but anyone can be informed about the attitude of the individual related towards an object by observing their behaviors. If the attitude developed towards an object or event is positive, then the possibility of decisions being positive is also higher. For that reason, the attitudes have a quality of prudential decision (Ülgen 1995; Tavşancıl 2002). Measuring the attitudes in the educational process provides some benefits such as determining the attitudes of learner at a specific time period, predicting the future behavior, determining attitudes related to their current conditions, changing their present attitudes in order to create new attitudes and learning their current preferences. So, trying to describe the behaviors of individuals scientifically provides an opportunity to direct the behavior towards the better through prediction (Baysal and Tekarslan 1998; Öner 1997). The studies carried out in parallel with this have also revealed that attitudes of students are one of the most important factors playing a

critical role in the school successes of students. The students having a positive attitude towards school show more success than the ones having a negative attitude; and so they realise more benefits from the education program (McCoach 2002). In recent years, measurement and evaluation of teachers' attitudes in different stages of the educational process has become important. According to Maxwell (2002), our attitude at the beginning of a work affects the result of that work more than other factors. Primary school teachers' developing of a positive attitude towards the constructivist approach makes us believe that they will train more successful students in their classrooms. When the studies carried out in recent years were analyzed, the attitudes of primary school teachers towards the constructivist approach were found to have been dully established (Evrekli et al. 2009; Kesercioğlu et al. 2009; İnel et al. 2010; Kasapoğlu and Duban 2012; Üredi 2013).

38.2 Significance of the Research

As result of a more efficient and terminal educational quest in our country, starting to practice curricula based on the constructivist approach as of the 2005–2006 academic year has created many complexities and increased the number of problems that should be dealt with. The leading problem is teachers' attitude towards the constructivist approach. Overcoming the problems of constructivist approach based curriculum related to practice in our country necessitates the researches that will be carried out on the complexity features (Theory of Complexity) and attitudes of teachers.

38.2.1 *Statement of the Problem*

The aim of this study was to analyze the relationship between the attitudes of primary school teachers towards the constructivist approach and their complexity features.

38.3 Sub-problems

1. What are the attitudes of primary school teachers towards the constructivist approach?
2. Do the attitudes of primary school teachers towards the constructivist approach differ according to **complexity variables** (gender, their age, the grade they teach, their professional seniority, the type of school where they carry out their duty and the school they graduated from)?

38.4 Method

38.4.1 Research Model

In the research, single screening model which is one of the general screening models was used. During the research process, the single screening model was adopted to determine the variables one by one, or according to types or amounts (Karasar 2000). The attitudes of primary school teachers towards the constructivist approach were determined; moreover, attitudes of teachers towards the constructivist approach were analyzed in terms of their complexity features. Whether there was a significant difference or not according to the gender of teachers, their age, the grade they teach, their professional seniority, the type of school where they carry out their duties and the school they graduated from as the complexity variables of primary school teachers was investigated.

38.4.2 Sample and Population

The research population included primary school teachers carrying out their duties in all official primary schools in Mezitli, Yenişehir, Akdeniz and Toroslar central districts of Mersin province in the 2012–2013 academic years. The study sample included 32 primary schools chosen randomly among the schools having different socio-economic levels (low, medium, high). Totally 504 primary school teachers including 277 female and 227 male teachers formed the sample of the research. In the research, 22 % of teachers included into the sample worked in schools located within high socio-economic level surroundings, 49.0 % worked within medium socio-economic level surroundings, and 28.8 % worked within low socio-economic level surroundings. The personal data related to primary school teachers were analyzed, their frequency and percentage tables were created and presented in Table 38.1.

38.5 Data Collection Tools

38.5.1 Data Analysis

The collected data were analyzed using the SPSS Windows 17.0 statistical package program. Frequency (f) and percentage (%) distribution tables were created to describe the attitudes of primary school teachers towards the constructivist approach in the research. Whether the attitudes of primary school teachers towards the constructivist approach differed according to **complexity variables** (gender of teachers, their age, the grade they teach, their professional seniority, the type of

Table 38.1 Frequency and percentage distribution table related to the study group

Variables	Participants	f	(%)
Gender	Female	277	55.0
	Male	227	45.0
Age	21–25 years old	5	1.0
	26–30 years old	61	12.1
	31–35 years old	84	16.7
	36–40 years old	84	16.7
	41–45 years old	126	25.0
	46 years old and over	144	28.6
Seniority	1–5 years	36	7.1
	6–10 years	76	15.1
	11–15 years	100	19.8
	16–20 years	82	16.3
	21–25 years	103	20.4
	26 years and over	107	21.2
The grade taught	1st grade	52	10.3
	2nd grade	91	18.1
	3rd grade	146	29.0
	4th grade	215	42.7
Type of school where they work	State	460	91.3
	Private	44	8.7
School graduated from	Training Institute	60	11.9
	Higher Teacher Training Sc.	22	4.4
	Associate's degree	55	10.9
	Faculty of Education	249	49.4
	Other faculties	98	19.4
	Postgraduate	20	4.0

school where they carry out their duty and the school they graduated from) was determined using One Way Variance Analysis (ANOVA). And in order to determine whether there was a significant difference or not in primary school teachers' level of creating a constructivist learning environment according to the type of school where they carry out their duties, Unrelated Group t-test analysis was used. After ANOVA analysis, Scheffe test was conducted to determine the difference between the age, the grade they teach, their professional seniority and the school they graduated from. In obtaining the results, 0.05 level of significance was accepted as a standard criteria.

38.5.2 Findings

In the first sub-problem of the research, the attitude level of primary school teachers towards the constructivist approach was determined. Total average score was calculated in order to turn primary school teachers' attitude towards the constructivist approach into verbal expression. Average of attitude scale total score towards the constructivist approach was taken as 70.61 (SD = 11.58387), and it was accepted that the teachers that had higher scores than the averages had positive attitudes towards creating a constructivist learning environment and the ones who had lower scores than the averages had negative attitudes towards creating a constructivist learning environment.

As can be seen in Table 38.2, it was inferred from answers given by the primary school teachers to the constructivist approach attitude scale questions that 52.8 % had positive attitudes and 47.2 % had negative attitudes.

In the second sub-problem of the research, an answer to the question of whether primary school teachers' attitudes towards the constructivist approach differ according to the primary school teachers' *complexity variables* (gender, age, the grade they teach, their professional seniority, the type of school where they carry out their duty and the school they graduated from) was sought. Firstly, whether primary school teachers' attitude towards the constructivist approach differed according to gender and the type of school where they carry out their duties was analyzed. Unrelated group t-test was conducted to determine whether primary school teachers' attitude towards the constructivist approach differed according to gender and type of school where they carry out their duties (Table 38.2).

The analysis of results revealed that constructivist approach attitude scale average scores of male and female primary school teachers showed similarities. The unrelated group t-test result proved that there was no statistically significant difference ($p > 0.05$) between the primary school teachers' attitudes towards the

Table 38.2 Frequency and percentage distribution table related to attitude levels of primary school teachers towards the constructivist approach

Attitude	F	(%)
Positive attitude	266	52.8
Negative attitude	238	47.2
Total	504	100.0

Table 38.3 Unrelated Group t-test results related to the differences in primary school teachers' attitudes towards the constructivist approach according to gender

Gender	N	\bar{X}	Ss	Sd	t	p
Female	227	70.4457	11.34444	502	-1.049	0.295
Male	277	71.3636	13.87333			

N = 504 * $p < 0.05$ ** $p < 0.01$

Table 38.4 Unrelated Group t-test results related to the differences in primary school teachers' attitudes towards the constructivist approach according to the type of school where they work

Type of school	N	\bar{X}	Ss	Sd	t	p
State	460	69.3833	11.63601	502	-2.166	0.031*
Private	44	71.6209	11.46374			

N = 504 * $p < 0.05$ ** $p < 0.01$

constructivist approach according to gender. Attitude of female primary school teachers related to constructivist approach was ($\bar{X} = 70.44$), and the attitude of male primary school teachers related to constructivist approach was ($\bar{X} = 71.36$). This finding can be interpreted in a way that there was no significant difference between the attitude towards the constructivist approach and gender (Table 38.3).

According to the analysis of results, attitudes of primary school teachers showed a significant difference at $p < 0.05$ level of significance according to the type of school where they carry out their duties. Attitudes of the primary school teachers working in private schools ($\bar{X} = 71.62$) were more positive than the attitudes of primary school teachers working in state schools. This finding can be interpreted in a way that there was a significant difference between the attitude towards the constructivist approach and the type of school where they carry out their duties (Table 38.4).

In part two of the second sub-problem of the research, an attempt was made to establish whether the primary school teachers' level of creating a constructivist learning environment differed according to their age, the grade they teach, their professional seniority, and the school they graduated from. To achieve this, One Way Variance Analysis (ANOVA) was conducted. After the ANOVA analysis, Scheffe test was conducted to determine the age, grades, professional seniorities and graduation schools where attitudes of primary school teachers towards the constructivist approach differed.

The analysis of results revealed that attitudes of primary school teachers towards the constructivist approach did not show a significant difference according to their age $F(5.498) = 1.070$, $p > 0.05$. In other words, attitudes of primary school teachers towards the constructivist approach did not differ significantly according to their age (Table 38.5).

The analysis of results proved that attitudes of primary school teachers towards the constructivist approach did not show a significant difference according to the grade they teach $F(3.500) = 0.983$, $p > 0.05$. In other words, attitudes of primary school teachers towards the constructivist approach did not differ significantly according to the grade they train (Table 38.6).

The analysis of results revealed significant differences at $p < 0.01$ level of significance between the primary school teachers' attitude towards the constructivist approach and their professional seniority $F(5.500) = 4.384$, $p < 0.01$. In other words, attitudes of primary school teachers towards the constructivist approach changed significantly according to their professional seniority. Scheffe test results according to which factors the attitude towards the constructivist approach differs proved a statistically significant difference between the primary school teachers

Table 38.5 One way variance analysis and Scheffe test results related to whether attitudes of primary school teachers towards the constructivist approach differ according to their age

Age	N	\bar{X}	Ss	Sh		
21–25 years old	5	76.2000	7.12039	3.18434		
26–30 years old	61	71.8852	11.34915	1.45311		
31–35 years old	84	69.7500	12.00690	1.31006		
36–40 years old	84	69.6667	9.55054	1.04205		
41–45 years old	126	69.6270	12.21588	1.08828		
46 year and over	144	71.7986	12.01897	1.00158		
Total	504	70.6131	11.58387	0.51599		
Source of variance	Sum of squares	sd	Average of Squares	F	P	Significant difference
Intergroup	717.512	2	143.505	1.070*	0.376	–
Intragroup	66778.041	498	134.092			
Total	67495.554	503				

N = 504 * $p < 0.05$ ** $p < 0.01$

Table 38.6 One way variance analysis and Scheffe test results related to whether attitudes of primary school teachers towards the constructivist approach differ according to the grade they teach

Trained grade	N	\bar{X}	Ss	Sh		
1st grade	52	70.2115	11.96783	1.65964		
2nd grade	91	71.5495	10.19288	1.06850		
3rd grade	146	69.3356	11.29008	0.93437		
4th grade	215	71.1814	12.22108	0.83347		
Total	504	70.6131	11.58387	0.51599		
Source of variance	Sum of squares	sd	Average of squares	F	P	Significant difference
Intergroup	395.873	3	131.958	0.983	0.400	–
Intragroup	67099.681	500	134.199			
Total	67495.554	503				

N = 504 * $p < .05$ ** $p < .01$

having 6–10 years professional seniority and the ones having 21–25 years seniority. This difference was found in favor of teachers having 6–10 years professional seniority (Table 38.7).

The analysis of results revealed significant differences at $p < 0.01$ level of significance between the primary school teachers' attitude towards the constructivist approach and the school they graduated from $F(5.500) = 3.218$, $p < 0.01$. In

Table 38.7 One way variance analysis and Scheffe test results related to whether attitudes of primary school teachers towards the constructivist approach differ according to their professional seniority

Professional seniority	N	\bar{X}	Ss	Sh		
1–5 years	36	71.5000	11.90078	1.98346		
6–10 years	76	71.5132	11.88107	1.36285		
11–15 years	100	70.8800	10.89876	0.99988		
16–20 years	82	70.5244	12.64250	1.39613		
21–25 years	103	70.1456	13.25793	1.30634		
26 years and over	107	70.8785	10.27978	0.99378		
Total	504	70.6131	11.58387	0.51599		
Source of variance	Sum of squares	sd	Average of squares	F	P	Significant difference
Intergroup	174.319	5	34.864	4.385**	0.001	6–10 years > 21–25 years
Intragroup	67321.234	498	135.183			
Total	67495.554	503				

N = 504 * $p < 0.05$ ** $p < 0.01$

Table 38.8 One way variance analysis and Scheffe test results related to whether attitudes of primary school teachers towards the constructivist approach differ according to the school they graduated from

School graduated from	N	\bar{X}	Ss	Sh		
Training Institute	60	70.6667	11.16239	1.44106		
Higher Teacher Edu Sc	22	69.9845	11.64342	2.48239		
Ass. Degree	55	70.9636	12.62414	1.70224		
Fac. of Education	249	72.9719	11.21182	3.11052		
Other faculties	98	69.9694	11.72930	1.18484		
Postgraduate	20	70.2000	14.04354	0.74023		
Total	504	70.6131	11.58387	0.51599		
Source of variance	Sum of squares	sd	Average of squares	F	P	Significant difference
Intergroup	424.427	5	84.885	3.218**	0.001	Educational Fac. > other fac.
Intragroup	67071.127	498	134.681			
Total	67495.554	503				

N = 504 * $p < 0.05$ ** $p < 0.01$

other words, attitudes of primary school teachers towards the constructivist approach differed significantly according to the school they graduated from. Scheffe test results related to differing attitudes of primary school teachers towards the constructivist approach according to the school they graduated from revealed that there was a statistically significant difference between the average scores of Faculty of Education graduates and average scores of teachers who graduated from other Faculties. This difference was found in favor of the teachers who graduated from the Faculty of Education. When the research findings were analyzed the result in general was that primary school teachers who graduated from the Faculty of Education had a more positive attitude towards the constructivist approach than the ones who graduated from the Other Faculties. Average scores of primary school teachers who graduated from the Faculty of Education and average scores of the teachers who graduated from other Faculties showed a statistically significant difference. This difference was in favor of primary school teachers who graduated from the faculty of Education (Table 38.8).

38.6 Discussion and Conclusion

According to the research results, the attitude of primary school teachers towards the constructivist approach was found to be positive. Primary school teachers' positive attitude towards the constructivist approach has also been indicated by other researches (Balım et al. 2009; Üredi and Tanriseven 2009; Üredi 2013). In a research carried out by Sert (2008), it was established that the teachers met the requirements of a constructivist curriculum at a high level. In the said research, it was found that there was no significant relationship between the attitudes of primary school teachers towards the constructivist approach and their gender. According to another result, a significant relationship was obtained between the attitudes of primary school teachers towards the constructivist approach and the type of school where they carry out their duties. The attitudes of primary school teachers working in private schools towards the constructivist approach were identified as more positive than the attitudes of primary school teachers working in state schools.

The constructivist approach which suggests active participation of the learners in the learning process provides opportunities such as obtaining more meaningful learning as well as developing independent thinking and problem solving skills. Many researches carried out abroad also support the view that a constructivist approach elicits positive results. In their study Simon and Schifter (1993) analyzed a constructivist curriculum and its effects on the learners. The constructivist approach developed at the end of seminars given to primary school teachers was found to be positively affecting the rate of success in standard tests and learners' considerations related to mathematics learning, and tendencies towards mathematics. Similarly, in a research carried out by Lord (1999), traditional and constructivist teaching approaches were compared within the scope of Environmental

Sciences lesson, and it was noticed that the students in the constructivist classroom took higher scores in exams than the ones in the traditional classrooms.

It was noticed that the attitudes of primary school teachers towards the constructivist approach did not differ significantly according to their age. Similarly, it was also concluded that the attitudes of primary school teachers towards the constructivist approach did not differ significantly according to the grade they teach. In other words, the attitudes of primary school teachers towards the constructivist approach did not differ significantly according to their age and the grade they teach.

A significant difference was however noticed between the attitudes of primary school teachers towards the constructivist approach and their professional seniority. The results related to this aspect revealed that the average scores of primary school teachers having 6–10 years professional seniority and the average scores of teachers having 21–25 years professional seniority showed a statistically significant difference. This difference was found in favor of teachers having 6–10 years professional seniority. The reason for this can be evaluated in such a way that the primary school teachers having 6–10 years professional seniority have not had much time of teaching since they were trained in their faculties. Similar to this result, it was established in a study carried out by Arslan (2011) that the teachers that have just started the teaching profession had higher level of knowledge related to constructivism than the ones who had been carrying out their duties for at least 15 years and over.

A significant relationship was also established between the attitudes of primary school teachers towards the constructivist approach and the school they graduated from. When the research findings were analyzed, it was concluded that the primary school teachers who graduated from the faculty of Education had a more positive attitude towards the constructivist approach than the ones who graduated from other Faculties.

Many studies conducted on constructivist learning revealed that it creates a positive effect on the viewpoints and beliefs of learners related to their learning experiences. In a study carried out by Maypole and Davies (2001) on high school students, viewpoints of high school students towards the learning experiences were analyzed using the constructivist theory in a history lesson. In this study, majority of the students who attended both traditional and constructivist classroom environments mentioned that they learned more and became more successful in completing their tasks in a constructivist classroom environment which was more entertaining. Similarly, in a study carried out by Wolf (1994) on high school students in a physics lesson, problem solving activities of learners were analyzed in a constructivist environment; and it was established that the students were more willing to collect data and presented a highly flexible behavior in situations in which their plans did not operate exactly.

In a study carried out by Çınar et al. (2006), the views of teachers and administrators related to constructivism were explored. The ones who participated in this research fully agreed with the view that this approach was student-centered, directed students towards thinking and searching, put the students away from memorizing, made educational activities more entertaining, and increased the social development of students. Furthermore, in another study carried out by Hovard et al.

(2000) on teachers, it was established that the beliefs of teachers related to epistemology changed as a result of a training program based on the constructivist teaching, and teachers were directed from an objectivist epistemology towards constructivism after the training process.

Positive attitudes of teachers towards the constructivist approach can be an important factor for adopting the constructivist approach during the teacher training process. Kim et al. (1998) concluded in their research that the educational process based upon constructivism had positive effects on pre-service teachers' planning and their teaching strategies. However, teachers need to have experiences based on constructivist practices not only during the pre-service period but also during their in-service trainings.

Beside the positive effects of the constructivist approach on learning, its limitation during the educational process is an important point to be emphasized. The constructivist approach which costs much rather than the traditional teaching and needs more educational sources can create complexities and chaos in the learning environment provided that the conditions that should be fulfilled cannot be actualized. In Turkey, classrooms are crowded schools in different socio-economic areas have different opportunities, material inadequacies, etc. accordingly they increase the limitations of a constructivist teaching approach in the realm of practice. For that reason, teacher training is the to unlocking the potential of a constructivist learning approach through providing opportunities for learners to take their own responsibilities, creating a democratic learning environment within the classroom and adopting a learner centered teaching approach rather than the teacher-centered one.

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