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The Predictive Power of Classroom Teachers' Self-efficacy Beliefs Related to Implementing the Constructivist Approach upon Their Level of Creating a Constructivist Learning Environment: A Mersin Case

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ABSTRACT Turkey adapted a constructivist curriculum with radical changes in programs at the elementary education level in 2005-2006. The teacher's belief of self-efficacy affects teaching quality, methods, and techniques, participation of students in learning, and the understanding of students, and these determined student success. It is unknown whether classroom teachers' belief of self-efficacy related to implementing the constructivist approach predicts their level of creating a constructivist learning environment. The research, a descriptive study on a relational screening model, included 812 teachers in 58 elementary education schools in Mersin. The self-efficacy belief of classroom teachers was measured with "The Scale of Self-efficacy Related to Implementing the Constructivist Approach" and their level of creating a constructivist learning environment was measured using the "Constructivist Learning Environment Scale", followed by simple and multiple regression analyses. Classroom teachers' self-efficacy beliefs related to implementing the constructivist approach positively predicted their level of creating a constructivist learning environment.

INTRODUCTION

In the 21st century, called the information age, education has become the most fundamental actor of change and transformation. For that reason, the educational system in Turkey innovated itself and reforms related to meeting the new human model were made. In Turkey, a curriculum based upon the constructivist approach was adapted with radical change in programs at the elementary education level in the 2005-2006 academic year. These new curriculums, prepared within the framework of these viewpoints, emphasized being prepared in accordance with a supporting and developing approach for the individual to actively participate, making correct decisions, solving problems, considering the experiences or the value of knowledge. This curriculum was aimed at actualizing a new student- and activity-centred understanding that provides the opportunity for students to interact with their surroundings, considering the individual differences between students, and balancing knowledge and skill; these expressed features are prioritized in the constructivist learning approach.

The constructivist approach, a theory of establishing knowledge, learning, and meaning (Richardson 1997:4; Sewell 2002: 25), argues that the students try to establish a relation between the previous knowledge and new knowledge which they encounter with any learning situation or information; in other words, constructivism expresses what students construct in their mind depending upon the relationship between their pre-knowledge and experiences (Aviram 2000: 473; Harland 2003: 265). According to this theory, providing an explanation for the nature of knowledge and how people learn creates new meanings through the interactions they establish between events, ideas, and activities they have encountered or experienced before. The knowledge is acquired through participation instead of repetition or memorizing. The learning activities in this approach are organized by actions, such as active participation, analysis, problem solving, and cooperation with others. Hackmann (2004) defined constructivism as a process in which learners create their own truths, interpret the meaning depending upon their own experience and perceptions, and, accordingly, use their previous knowledge to interpret the meaning of previous experiences, mental structures, objects, and events (p. 698). For that reason, the constructivist approach centralizes the learner

into the learning process. According to Brooks and Brooks (1999), the constructivist learning approach is a cognitive-based learning approach that actualizes as a result of an individual's mental construction (p. 19). According to the constructivists, this is an active process in which individuals actualize using their own experiences and cognitive processes (Cha and Yager 2003).

The constructivist learning approach is based upon consideration of students' creating, interpreting, and organizing knowledge actively, according to their pre-knowledge. During the process of creating knowledge, a cooperative learning environment and social interactions are necessary; constructivism thus plays a role as an umbrella between the creation of knowledge through social interactions and learners creating knowledge individually. In this process, learners' organizing, following, and evaluating their own learning is vital for the efficiency of the learning environment (Loyens et al. 2007: 179).

A constructivist learning environment is defined as an environment where students are provided and actively participate in real-life experiences to increase conceptual change and problem-based situations are created (Solomonidou and Kolokotronis 2008: 187; Loyens et al. 2007:183). In this environment, it is important to use past experiences, following a cooperative and inductive path, depending upon social interaction. Learning, as an efficient, social, creative, and cooperative process, necessitates learners being individuals that discuss, search, communicate, and produce new ideas. When implementations of the constructivist approach in learning environments are considered, there are greater changes in inner-class roles than in traditional approaches. In the constructivist approach, students are generally at the centre, and teachers lead them during the process of constructing the knowledge, creating their own meanings, and establishing the learning environment. According to Warwick and Stephenson (2002), constructivist teachers accept learning as an individual and active process, and they are aware that students generally come to the classroom environment with several perceptions contrary to the real scientific information (p. 144). In constructivist learning environments, teachers have very important roles, such as encouraging the entrepreneurship of students, guiding them to determine their own targets (Brooks and Brooks 1999: 21), helping them to create a learning environment more appropriate for their previous experiences, revealing their preliminary knowledge (Bagci-Kiliç 2001: 13), allowing them to actively participate into the lesson, and helping them to create social learning environments where they can learn together in a classroom (Evrekli et al. 2010).

The most important purpose of a learning environment based upon the constructivist approach is to allow students to learn deeply and meaningfully (Rikers et al. 2008: 464). In creating a constructivist learning environment, the features, such as presenting multiple explanations of the truth, providing knowledge to be created, emphasizing duties in meaningful relations, supporting the intellectual reflection upon experiences, creating the knowledge through context and content, and producing the information cooperatively in social interactions are important (Tezci and Gürol 2003: 53). Some studies revealed that constructivist curriculum implementations have positive effects upon the academic success (Bukova-Güzel 2007; Gültepe et al. 2008), thinking skills (Tynjala 1998), problem solving skills (Wolf 1994), perceptions (Maypole and Davies 2001; Atasay and Akdeniz 2006), and creativity (Tezci and Gürol 2003) of students. Moreover, there are also researches revealing the views of teachers, school managers (Çinar et al. 2006) and supervisors (Yanpar et al. 2010) related to the constructivist curriculum implementations.

Teachers' fulfilment of the requirements of the teaching profession is closely related with their being well-trained and their beliefs upon themselves to fulfil these duties and responsibilities. One of the fundamental factors of success in learning and teaching environments is the belief of efficiency; the self-efficacy belief of the teacher affects the quality of teaching, method and techniques to be used, participation of students in learning, and students' understanding what is taught, and this determines the success of students (Yilmaz et al. 2004). For that reason, well-trained teachers are expected to have a high self-efficacy belief, more than anything else. Self-efficacy belief first appeared in the Social Learning Theory of Bandura and is related to individual judgments related to how individuals achieve the actions necessary for coping with possible situations (Bikmaz 2002:198). According to Bandura (1994), self-efficacy belief includes the beliefs related to individuals' ability to perform at a significant level related to events

that can affect their lives. Those beliefs determine how individuals feel, think, motivate themselves, and behave (p.73). According to Senemoglu (1997), self-efficacy is individuals' self-judgment, belief, and perception of themselves related to their capacity, ability of achieving a specific activity, and coping with different situations. The concept of teachers' self-efficacy includes the perceptions related to their ability to provide students opportunities to actualize their learning products (Tschannen-Moran and Woolfolk-Hoy 2001: 785).There are four basic sources determining the self-efficacy belief: the knowledge acquired by individuals through their own earning experiences, observations related to other people's successful or failed implementations, the effect of society related to whether the individual achieves or not, and the psychological mood related to achieving or failing a duty. Each source affects the self-efficacy belief of an individual. Self-efficacy belief has an effect upon performance, determining the insistence on studying related to a duty and the use of strategy and duty selection of the learner (Bandura 1994:76; Sewell 2002: 27).

According to Bandura (1994), motivation of individuals, their responses to something, and their actions are related to what they believe, rather than the truth. In this sense, perception of self-efficacy level helps determine the abilities individuals have and what they can do with their knowledge (p.78). According to Butler (2002), positive qualifications related to the results of behaviours prove a link between the results and the effort made for actualizing the duty, and negative qualifications prove that the sense of self of learners is low. The learners who have negative qualifications evaluate success as luck and failure as bad luck (p.86). According to Schunk (1990), belief of efficacy is the most important predictor of human behaviours (p.78); if individuals believe that they have the ability necessary for actualizing a duty and self-control, they become more willing to select this duty, express their decisiveness on this, and present the required behaviours (Bandura 1994: 77). In comparison with the learners suspicious on their abilities and capacity, the learners who have high self-efficacy belief at a high level upon learning a subject or acquiring an ability adapt more easily, work harder, and present more endurance and success when they encounter a difficulty (Pajares 1996; Schunk 1990; Zimmerman 2000).

One of the basic factors of success in the teaching environment is the belief of self-efficacy. The self-efficacy belief of teacher affects the quality of teaching, the methods and techniques to be used, participation of students in learning, and determines the success of students. For that reason, classroom teachers that improved themselves are expected to have high self-efficacy belief, more than anything else. Self-efficacy belief affects people's way of thinking and emotional reactions. Individuals who have high levels of self-efficacy can be more at ease and productive when they encounter studies with a high level of difficulty. The people with low level of self-efficacy belief believe that the works they do are more difficult than the reality. Such thinking increases anxiety and stress and decreases the viewpoint necessary for an individual to overcome a problem. For that reason, self-efficacy belief affects the success level of individuals strongly (Pajares 1996: 554; Bikmaz 2002: 199). The measurements related to teachers' self-efficacy for the constructivist approach provide an opportunity to understand their behaviours more accurately. Moreover, the data that can be obtained from the studies related to the self-efficacy beliefs of teachers on teaching will also provide important information related to precautions that should be taken to increase success in teachers who have low levels of ability to create a constructivist learning environment.

When the studies carried out on the subject wereanalysed, self-efficacy belief related to implementing the constructivist approach (Evrekli et al. 2010; Kasapoglu and Duban 2012) and the level of creating a constructivist learning environment (Tenenbaum et al. 2001; Fer and Cirik 2006; Loyens et al. 2007; Solomonidou and Kolokotronis 2008; Üredi 2013; Koç 2013; Çayak 2014) were analysed as independent from each other. However, the absence of studies analysing the self-efficacy belief related to constructivism and the level of creating a constructivist learning environment together is remarkable. For that reason, it was considered that evaluating teachers' self-efficacy beliefs related to the constructivist approach and their level of creating a constructivist learning environment together will be important and analysing their relationship will be significant. For that reason, in this study it was aimed to reveal whether the self-efficacy beliefs of classroom teachers related to implementing the constructivist approach predicted

their level of creating a constructivist learning environment. In accordance with this purpose, answers to the questions below were sought:

1. At what level are the self-efficacy beliefs of classroom teachers related to implementing the constructivist approach?
2. What are the levels of classroom teachers that create a constructivist learning environment?
3. Do the self-efficacy beliefs of classroom teachers related to implementing the constructivist approach predict their level of creating a constructivist learning environment?
4. Do self-efficacy sub-dimensions (lesson planning based upon the constructivist approach, learning-teaching process related to constructivist approach, creating a constructivist learning environment, assessment and evaluation process related to the constructivist approach) related to classroom teachers' implementing the constructivist approach predict their level of creating a constructivist learning environment?

METHODOLOGY

Research Model

The research was a descriptive study on a relational screening model; relational screening is performed to determine the relationship between two or more variables and obtain clues related to cause and result (Karasar 1998: 81; Büyüköztürk et al. 2008). In appropriation with this model, it was tried to reveal the degree and presence of the relationships between the dependent and independent variables (Crano and Brewer 2002).

Sample and Population

The research population included classroom teachers carrying on their duties in all official elementary education schools in central districts (Mezitli, Yenisehir, Akdeniz and Toroslar) of Mersin province in the 2013-2014 academic year. The research sample included 812 teachers carrying on their duties as classroom teachers in 58 elementary education schools in the Akdeniz, Yenisehir, Toroslar, and Mezitli central districts of the Mersin province. In accordance with the purpose of the research, 58 elementary education schools were selected among the schools representing the low, medium, and high socio-economic classes, with the cluster sampling method as one of the random sampling methods and a total of 812 classroom teachers, 461 females and 351 males, working in these schools comprised our sample. The personal information related to classroom teachers was analysed; a frequency and percentage table was created and the results are presented in Table 1.

Table 1: Frequency and percentage distribution table related to the study group

Variables	*Participants*	*F*	*%*
Gender	Female	461	56.8
	Male	351	43.2
Socio-Economic Level	High socio-economic level	211	26.0
	Mid socio-economic level	334	41.1
	Low socio-economic level	267	32.9
Age	21-25 years old	32	3.9
	26-30 years old	105	12.9
	31-35 years old	135	16.6
	36-40 years old	126	15.5
	41-45 years old	185	22.8
	46 years and over	229	
Seniority	1-5 years	67	8.3
	6-10 years	133	16.4
	11-15 years	144	17.7
	16-20 years	134	16.5
	21-25 years	155	19.1
	26 years and over	179	22.1
The Grade They Train	1st grade	103	12.7
	2nd grade	157	19.3
	3rd grade	230	28.3
	4th grade	322	39.7
Type of School They Work	State	707	87.1
	Private	105	12.9
The School they Graduated	Training Institute	103	12.7
	Teacher Education School	35	4.3
	Associate Degree	88	10.8
	Faculty of Education	390	48.0
	Other Faculties	160	19.7
	Master Degree	36	4.4

Data Collection Tools

In the research, the "Self-Efficacy Scale Related to Implementing the Constructivist Approach" (SESICA) developed by Evrekli et al. (2010) was used in order to determine the self-efficacy beliefs of classroom teachers related to the constructivist approach. The scale included 41 items based upon four factors. Those factors were self-efficacy related to lesson planning based upon the constructivist approach (8 items,

α=.84), self-efficacy related to teaching-learning related to the constructivist approach (10 items, α=.88), self-efficacy related to creating a learning environment in the constructivist style (11 items, α=.89),and self-efficacy related to measurement-assessment process in the constructivist approach (12 items, α=.91).The scale was a 5-point Likert-type measurement instrument. The degrees from one to five were graded between the expressions of "I totally agree" to "I totally disagree." Cronbach's alpha internal consistency coefficients related to the sub-dimensions of the measuring instrument varied between .84 and .91. The Cronbach's alpha reliability coefficient related to all scales was previously measured as .96 (Evrekli et al. 2010). In this research, Cronbach's alpha reliability coefficient related to all scales was measured as .97. Reliability coefficients measured for all sub-dimensions of the scale are presented in Table 2.

Moreover, the "Constructivist Learning Environment Scale" (CLES), developed by Tenenbaum et al. (2001) and adapted into Turkish by Fer and Cirik (2006), was used to determine classroom teachers' level of creating a constructivist learning environment. The scale measured classroom teachers' level of agreeing on considerations related to the situation most appropriate for the learning environment. The measuring instrument included 30 items that defined the appearance of a constructivist learning environment. The scale was a 5-point Likert-type measuring instrument. The grades from one to five included the expressions between "never" and "always." Cronbach's alpha reliability coefficient of the measuring scale was .91. In this research, Cronbach's alpha reliability coefficient of the scale was measured as .95 and is presented in Table 2. Moreover, a personal information form was added to the form, including the scales, to obtain information related to the classroom teachers that participated.

Data Analysis

Frequency (f) and percentage (%) distributions according to gender, age, the grade they train, type of school they work at, their professional seniority, and the socio-economic level of the surrounding area of the school were determined. Average and standard deviation values were calculated to determine the self-efficacy levels of classroom teachers related to implementing the constructivist approach. Classroom teachers' levels of creating a constructivist approach were measured over the total score and analysed into three categories as low, medium,or high. In order to determine classroom teachers' levels of creating constructivist learning environments, frequency and percentage distribution tables were created. The appropriateness of the scores obtained from the answers given by teachers regarding the "Self-Efficacy Scale Related to Implementing the Constructivist Approach" was tested (Buyukozturk 2009: 23); in this normal distribution curve, distribution of the data was observed to be close to normal. Whether classroom teachers' self-efficacy levels related to implementing the constructivist approach predicted their level of creating a constructivist learning environment or not was determined with a simple linear regression analysis. Furthermore, to what extent classroom teachers' self-efficacy levels related to implementing the constructivist approach predicted their level of creating a constructivist learning environment was determined with multiple linear regression analysis. The data obtained for the research were analysed using

Table 2: Reliability coefficients measured for scales and sub-dimensions in the research

	Scales	*Cronbach Alpha*	*Number of items*
	Scale for creating a constructivist learning environment	.95	30
	Self-efficacy scale for implementing the constructivist approach	.97	41
1.	Sub-dimension: Self-efficacy sub-scale related to lesson planning based upon constructivist approach	.90 .	8
2.	Sub-dimension: Self-efficacy sub-scale related to teaching-learning process for the constructivist approach	.93	10
3.	Sub-dimension: Self-efficacy sub-scale related to creating a learning environment in constructivist approach	.94	11
4.	Sub-dimension: Self-efficacy sub-scale related to assessment-evaluation process in the constructivist approach	.87	12

the SPSS for Windows 18.0 statistical package program. In all statistical analyses, a level of 0.05 was accepted as the significance criteria for all analyses.

FINDINGS

In order to turn numerical evaluation averages into oral expressions related to all and each dimension of the "Self-Efficacy Scale Related to Implementing the Constructivist Approach", average weight values were calculated (5-1=4; 4:5=0.8). Depending upon this obtained interval value, the value between 5.00-4.21 was evaluated as "I totally agree"; between 4.20-3.41 as "I agree"; between 3.40-2.61 as "I am indecisive"; between 2.60-1.81 as "I disagree", and between 1.80-1.00 as "I totally disagree."

Self-efficacy Beliefs of Classroom Teachers Related to Implementing the Constructivist Approach

The total score average was calculated to transform self-efficacy belief levels of classroom teachers related to implementing the constructivist approach into oral expressions. Classroom teachers agreed on self-efficacy scale items related to implementing the constructivist approach (X=3.98, SD=.61); in other words, the self-efficacy levels of classroom teachers related to implementing the constructivist approach were high. Average and standard deviation values calculated for self-efficacy dimensions related to the constructivist approach and creating a learning environment in the constructivist approach are presented in Table 3. The data obtained from the answers given by the classroom teachers to the "Self-Efficacy Scale Related to Implementing the Constructivist Approach" (SESICA) were analysed; an arithmetic average and standard deviation table was created and the results are presented in Table 3.

When the average and standard deviation values in Table 3 were analysed, self-efficacy of classroom teachers related to the teaching-learning process in the constructivist approach (X=4.03, SD=.64), related to the assessment-evaluation process in the constructivist approach (X=4.00, SD=.73), related to creating a constructivist learning environment (X=3.99, SD=.68), and related to the lesson planning based upon the constructivist approach (X=3.90, SD=.60) were all high;. classroom teachers' self-efficacy beliefs related to the learning-teaching process in the constructivist approach had the highest level (X=4.03, SD=.64) and their self-efficacy levels related to lesson planning based upon the constructivist approach had the lowest level (X=3.90, SD=.65).

Classroom Teachers' Level of Creating a Constructivist Learning Environment

Total factor scores obtained from the answer given by the classroom teachers to the constructivist learning environment scale were categorized as low, medium,or high. While categorizing, the appropriateness of the distributions obtained from the answers given by the classroom teachers to the constructivist learning environment scale into normal distribution was determined. While creating the low, medium, and high categories, arithmetic average and standard deviation values on the basis of scale factors were defined:X-SD and below was accepted as low; between over X- SD and belowX+SD was accepted as medium, and over X+SD was accepted as high. The data obtained from the answers of classroom teachers to the "Constructivist Learning Environment Scale" were analysed; their frequency and percentage table was created, and the results are presented in Table 4.

When Table 4 was analysed, the majority (f=544, 67/1%) of the classroom teachers could create the constructivist learning environment at a medium level, whereas 15.8 percent of classroom teachers created the constructivist learning environment at low level and 17.1 percent

Table 3: Average and standard deviation values calculated for "SESICA" sub-dimensions

N= 812	*X*	*SD*
Self-efficacy related to implementing the constructivist approach	3.98	.61
Self-efficacy related to lesson planning based upon the constructivist approach	3.90	.65
Self-efficacy related to teaching-learning process in the constructivist approach	4.03	.64
Self-efficacy related to creating a learning environment in constructivist approach	3.99	.68
Self-efficacy related to assessment-evaluation process in constructivist approach	4.00	.73

Table 4: Frequency and percentage distribution table related to classroom teachers' level of creating a constructivist learning environment

Constructivist learning environment	*Low*		*Medium*		*High*	
	F	*%*	*F*	*%*	*F*	*%*
• Constructivist Learning Environment Scale Total	129	15.8	544	67.1	139	17.1

created it at a high level. High (f=139, 17/1%) and low (f=129, 15.8%) level rates related to creating a constructivist learning environment were similar to each other.

Determining the Predictive Power of Classroom Teachers' Self-Efficacy Beliefs Related to Implementing the Constructivist Approach upon Their Level of Creating a Constructivist Learning Environment

Simple linear regression analysis analysed to what extent classroom teachers' self-efficacy beliefs for implementing the constructivist approach predicted their level of creating a constructivist learning environment; the results are presented in Table 5.

Although the self-efficacy scale related to implementing the constructivist approach had four sub-dimensions, regression analysis for all scales was performed and then regression analysis was repeated for each sub-dimension. Before the regression analysis, normality of error values, covariance, freedom of error values, linearity, multiple co-linearity, and the absence of extreme values were controlled. Error values' normality assumption was provided with a histogram proving that error values distributed in such a way that they created a normal curve and a P-P graphic proving that those have a 45° angle. The co-variance assumption was provided because no specific pattern was observed in the predicted value and distribution diagram of the error value. Error value's freedom assumption was provided because the d value,which should have a value between 1.5 and 2.5,was 1.95. Because there was only one predictive variable (self-efficacy belief related to implementing the constructivist approach), multiple co-linearity was not present. Mahalonobis distance, at the $p<.001$ level of significance, was controlled and no extreme value was encountered.

When simple linear regression analysis results were analysed, a significant relationship was observed between classroom teachers self-efficacy belief related to implementing the constructivist approach and their level of creating a constructivist learning environment ($R= .415$, $R^2= .172$) and their self-efficacy beliefs related to implementing the constructivist approach significantly predicted their level of creating a constructivist learning environment ($F_{(1, 810)}= 168.64$, $p<.01$). Self-efficacy belief related to implementing the constructivist approach expressed 17 percent of the change at the level for creating a constructivist learning environment.

According to the regression analysis result, regression equation predicting the level of creating a constructivist learning environment was as below:

Constructivist Learning Environment Level Scale Score

(0.329x Self-efficacy Scale Score Related to Implementing the Constructivist Approach) + 60.822.

Table 5: Simple linear regression analysis results related to whether classroom teachers self-efficacy beliefs related to implementing the constructivist approach predicted their level of creating a constructivist learning environment or not

Variable	*B*	*Standard Errors*	*Standardized β*	*t*	*p*
Constant	60.82	4.185	-	14.535	.000**
Self-Eff. Rel. to imp.Con.App.	.329	.025	.415	12.986	.000**

$R=.415$ $R^2= .172$
$F_{(1, 810)}= 168.64$ $p= .000$
$N= 812$ *p<.05 ** p<.01

Determining the Predictive Power of Classroom Teachers' Self-efficacy Beliefs Related to Implementing the Constructivist Approach upon Their Level of Creating a Constructivist Learning Environment

Multiple linear regression analysis was performed related to what extent sub-dimensions (self-efficacy related to lesson planning based upon the constructivist approach, self-efficacy related to teaching-learning process, self-efficacy related to creating a learning environment, and self-efficacy related to evaluation-assessment process) of the scale for classroom teachers' self-efficacy beliefs for implementing the constructivist approach predicted their level of creating a constructivist learning environment; the results are presented in Table 6.

Multiple regression analysis was performed to reveal to what extent dependent variables, such as self-efficacy, related to lesson planning based upon the constructivist approach, self-efficacy related to teaching-learning related to the constructivist approach, self-efficacy related to creating a learning environment in the constructivist approach, and self-efficacy related to measurement-assessment processes in the constructivist approach predicted classroom teachers' level of creating a constructivist learning environment. From the performed multiple regression analysis, a significant relationship was found between self-efficacy related to lesson planning based upon the constructivist approach, self-efficacy related to teaching-learning process, self-efficacy related to creating a learning environment,and self-efficacy related to evaluation-assessment processes and their level of creating a constructivist learning environment (R= .420, R^2= .176)($F_{(4, 807)}$ = 42.95, p<.01). These aforementioned independent variables expressed 17 percent of the change at the level of creating a constructivist learning environment. According to standardized regression coefficients, the relative importance of predictive variables upon the level of creating a constructivist learning environment was self-efficacy related to creating a learning environment (b= .201), self-efficacy related to lesson planning based upon the constructivist approach (b= .152), self-efficacy related to evaluation-assessment process (b= .100), and self-efficacy related to teaching-learning processes (b= .012). When the significance tests of regression coefficients were considered, self-efficacy related to lesson planning based upon the constructivist approach (p<.01), self-efficacy related to evaluation-assessment process (p<.05) variables significantly predicted the level of creating a constructivist learning environment. When the relationships between predictive independent variables and level of creating a constructivist learning environment were analysed, correlation was observed in self-efficacy related to lesson planning based upon the constructivist approach and (r=0.362), [when the effect of other predictive variables was controlled (r= 0.103)], self-efficacy related to teaching-learning process and (r=0.365), [when the effect of other predictive variables was controlled (r= 0.006)], self-efficacy related to creating a learning environment and (r=0.394), [when the effect of other predictive variables was controlled (r= 0.108)], and self-efficacy related to evaluation-assessment processes (r=0.369). According to the regression analysis results, the regression equation predicting the level of creating a constructivist learning environment was as below:

Table 6: Multiple linear regression analysis results related to whether classroom teachers self-efficacy beliefs related to implementing the constructivist approach predicted their level of creating a constructivist learning environment

Variables	*B*	*Standard errors$_B$*	*Standardized β*	*t*	*p*	*Binaryr*	*Partialr*
Constant	60.821	4.264	-	14.264	.000**	-	-
Lesson Plan.	.575	.196	.152	2.935	.003**	.362	.103
Teac.-Lear. Pro	.037	.202	.012	.183	.855	.365	.006
Creat. Lear. Env.	.532.228	.173.126	.201.100	3.0791.808	.002**.041*	.394.369	.108.064
Eva.-Ass. Proc.							
R= ,420	R^2= ,176						
$F_{(4, 807)}$= 42,95	p= .000						
N= 812	*p<.05	** p<.01					

Scale Score for the Level of Creating a Con structivist Learning Environment

(0.575 x self-efficacy related to lesson planning scale score) + (0.037 x self-efficacy related to teaching-learning process scale score) + (0.532 x self-efficacy related to creating a learning environment scale score) + (0.228 x self-efficacy related to evaluation-assessment process scale score) + 60.821.

DISCUSSION

As result of the research, it was determined that classroom teachers' self-efficacy belief related to implementing the constructivist approach was high; self-efficacy is a concept related to the learners' trust of their cognitive abilities to achieve an academic duty (Pintrich and De Groot 1990: 35). Accordingly, this feeling of trust directly affects the success and effort and efficiency selections of learners. In several researches carried out abroad, self-efficacy belief was the significant predictor of academic success (Andrew and Wialle 1998; Stevens et al. 2004; Zajacova et al. 2005). In their researches, Leung and Chan (1998) and Pintrich and De Groot (1990) determined that males had higher levels of self-efficacy than females. On the other hand, in their studies, Evrekli et al. (2010), Kasapoglu and Duban (2012) and Çayak (2014) specified that pre-service teachers had higher levels of self-efficacy related to implementing the constructivist approach. In parallel with the study results, in this research the researchers determined that classroom teachers had high levels of self-efficacy related to implementing the constructivist approach.

Adapting the constructivist approach during the process of training teachers can be an important factor for their having a medium level of creating a constructivist learning environment and their self-efficacy beliefs related to implementing the constructivist approach. In a research carried out by Howard et al. (2000) upon pre-service teachers, the implementations based upon the constructivist approach caused a change from objectivist epistemology towards constructivist epistemology. In their research, Kim et al. (1998) found that a teaching process based upon constructivism had a positive effect upon the pre-service teachers' planning teaching strategies based upon constructivism.

According to the research results, there was a significant relationship between classroom teachers' self-efficacy beliefs related to implementing the constructivist approach and their level of creating a constructivist learning environment; their self-efficacy belief related to implementing the constructivist approach predicted their level of creating a constructivist learning environment. Classroom teachers' self-efficacy belief related to implementing the constructivist approach explained 17 percent of the change at the level of creating a constructivist learning environment. According to another result revealed in the research, all self-efficacy scale sub-dimensions related to implementing the constructivist approach had a significant relationship with the level of creating a constructivist learning environment. These results of the research showed parallelism with the studies carried out abroad. In a study carried out by Chye et al. (1997) upon university students, there was a high relationship between self-regulation strategy use and self-efficacy and academic success. Similarly, in their study carried out upon elementary education 7th grade students, Pintrich and De Groot (1990) reported that self-regulation, self-efficacy, and exam anxiety were important variables that predicted student performance. Young and Vrongistinos (2002) determined in their study upon pre-service teachers that in highly successful pre-service teachers, inner purpose tendency, value given for the duty, self-efficacy belief, interpretation, and level of using metacognition strategy were higher rather than the pre-service teachers with low levels of success. Similarly, in their study upon nursing students, Andrew and Wialle (1998) reported significant relationships between academic self-efficacy in nursing, self-efficacy in science, value given to the duty, self-efficacy for learning and performance, critical thinking, and organizing the metacognition and academic performance.

The scale for self-efficacy beliefs for implementing the constructivist approach significantly predicted classroom teachers' self-efficacy related to lesson planning based upon the constructivist approach, self-efficacy related to teaching-learning process, self-efficacy related to creating a learning environment, and self-efficacy related to evaluation-assessment processes. Guskey (1988) concluded that teachers with high levels of self-efficacy belief were open to implement innovations in education. In their research, Ghaith

and Yaghi (1997) found that teachers with high levels of self-efficacy belief were open to implement innovations in education. On innovation, Tschannen-Moran and Woolfolk-Hoy (2001) emphasized in their study that self-efficacy levels of teachers related to an innovation depended upon their observing the efficiency of the actualized innovation. In their research, Charambous et al. (2004) specified that the teachers with high levels of self-efficacy belief had less anxiety related to reforms and they criticized the reforms less. In his study, Wheatley (2005) analysed whether teacher self-efficacy supported democratic education (constructivist approach) or not and suggested that self-efficacy should depend upon interpretation rather than the numbers. According to Wheatley (2005), there are several factors, such as reaction of parents, student motivation, and student success,that affect the belief of teachers related to implementing a new curriculum or method (p.757).

This research was limited with determining the prediction of classroom teachers' self-efficacy beliefs related to implementing the constructivist approach upon their level of creating a constructivist learning environment. The research is limited with classroom teachers' self-efficacy perceptions rather than real self-efficacy beliefs that could more accurately predict the behaviour. In order to generalize the research results, it can be repeated with teachers carrying on duties in different branches or in a larger sample. Finally, according to Wheatley (2005), several teachers reveal themselves as trusting themselves more than they actually feel (p.764). For that reason, the results of the research should be interpreted carefully.

CONCLUSION

One of the findings of this study is that classroom teachers' self-efficacy belief related to implementing the constructivist approach was high. It was also determined that classroom teachers had high levels of self-efficacy related to implementing the constructivist approach.

Therefore, adapting the constructivist approach during the process of training teachers can be an important factor for their having a medium level of creating a constructivist learning environment and their self-efficacy beliefs related to implementing the constructivist approach. Another result showed that there was a significant relationship between classroom teachers' self-efficacy beliefs related to implementing the constructivist approach and their level of creating a constructivist learning environment. It was determined that their self-efficacy belief related to implementing the constructivist approach predicted their level of creating a constructivist learning environment. Classroom teachers' self-efficacy belief related to implementing the constructivist approach explained 17 percent of the change at the level of creating a constructivist learning environment. According to another result revealed in the research, all self-efficacy scale sub-dimensions related to implementing the constructivist approach had a significant relationship with the level of creating a constructivist learning environment. The scale for self-efficacy beliefs for implementing the constructivist approach significantly predicted classroom teachers' self-efficacy related to lesson planning based upon the constructivist approach, self-efficacy related to teaching-learning process, self-efficacy related to creating a learning environment, and self-efficacy related to evaluation-assessment process.

RECOMMENDATIONS

For classroom teachers, it can be suggested to organize activities related to increasing their self-efficacy beliefs for implementing the constructivist approach, have practical in-service trainings related to creating a constructivist learning environment in their classrooms, and participate in the Ministry of National Education's organizing in-service trainings to implement constructivist approach. Furthermore, the self-efficacy beliefs of teachers related to creating a constructivist learning environment should be examined with a qualitative study.

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