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Prospective Preschool Teachers' Academic Achievements Depending on Their Goal Orientations, Critical Thinking Dispositions and Self-Regulation Skills

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Abstract: The aim of this study is to explain and predict prospective preschool teachers' academic achievements depending on goal orientations they adopt, their critical thinking dispositions and self-regulation skills. Research sample constitutes of 265 prospective preschool teachers attending the Faculty of Educational Sciences in Cukurova University. Research data were collected with the 2x2Achievement Goal Orientations Scale, Self-Regulation Questionnaire and Critical Thinking Disposition Scale. Demographical information about prospective teachers' gender, age, grade level and academic grade point averages were obtained with the personal information form. For the analysis of research data, One-Way Analysis of Variance (ANOVA) and discriminant analysis were used. In this study; it was concluded that prospective teachers with high level of learning approach orientation, critical thinking disposition and self-regulation skills had higher levels of academic achievement. However, it was determined that distinguishing variables among prospective preschool teachers with low, medium and high level of academic achievement included learning approach, performance approach goal orientation and critical thinking disposition and self-regulation skills. Correct classification percentage of distinguishing variables according to prospective preschool teachers' levels of academic achievement was determined as 48.8%. Considering the fact that prospective teachers' achievement-goal orientations, critical thinking dispositions and self-regulation skills may increase their academic achievement and shape their future teaching performances, it is suggested to implement programs that will contribute to the development of such skills and orientations among prospective preschool teachers.

Keywords: *Academic achievements, goal orientations, critical thinking, self-regulation skill, prospective preschool teacher, discriminant analysis.*

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Introduction

Achievement goal orientation is associated with objectives underlying success behavior (Ames, 1992b). This concept includes integrated effect of belief, quality and emotions on the intention of behavior (Weiner, 1985) and different ways, activities and reactions for success (Ames, 1992a). Achievement goal theory is based on analysis of students' motivation process towards success (Midgley et al., 1998). Motivational processes are known to be prerequisite of successful education. However, one of the problems that educators face during this process is reported to be lack of learners' motivation (Akin, 2006). In this context, achievement goal orientation is considered to be a useful framework for understanding learning and performance (Zweig & Webster, 2004).

Studies conducted in the field of goal orientation mainly focused on learning and performance (Dweck & Leggett, 1988; Nicholls, Patashnick, & Nolen, 1985). Learning orientation is associated with learner's focusing on increasing his/her knowledge by acquiring a concept and material literally and gaining competence on that issue. Performance orientation, on the other hand, covers situations in which there is concerns of meeting the social norms and as a result trying to be more successful than others by avoiding to be seen clumsy or unskilful (Elliot & McGregor, 2001; Pajares & Cheong, 2003; Zweig & Webster, 2004). Studies have shown that while there is a positive relationship between learning orientation and motivation, performance achievement orientation establishes negative relationship with motivation (Lemyre, Roberts, & Ommundsen, 2002; Urdan & Maehr, 1995). However, some other studies indicate that performance orientation can also be divided into two sub-factors such as performance-approach and performance-avoidance (Elliot & Harackiewicz, 1996). Both variables basically focus on fulfilling normative standards. While performance-approach is associated with a state of demanding positive evaluations, performance-avoidance is associated with efforts to avoid negative evaluations (Tan & Hall, 2005; Zweig & Webster, 2004).

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Using two-factor structure related to performance orientation also seems to apply for learning orientation. The framework of 2x2 goal orientation suggests that learning-avoidance orientation can also be adopted together with learning approach. Therefore, situations such as understanding subjects wrong, making mistakes, forgetting what they have learned and fear of losing physical or intellectual capacity can be evaluated within the framework of learning-avoidance. At this point, learning approach orientation arises from focusing on best premises and positive outcomes, and learning avoidance arises from focusing of inappropriate and negative outcomes (Elliot & McGregor, 2001).

Individuals' motivational orientations related to how they think about themselves, their duties and performances are important indicators for quality of learning process (Midgley, Tiger, & Middleton, 2001). It is considered that quality of learning process can be ensured by improving thinking skills. Thinking is a natural process, but adrift thinking may be generally distorted, partly unconscious and potentially biased. Considering the fact that quality of course of life varies directly proportional to quality of thinking, it is concluded that thinking activities should be improved in a systematical way (Scriven & Paul, 2004). A way of improving thinking processes is indicated as acquisition of critical thinking skills (Black, 2005). Dawsonl (2008) defines critical thinking as defining questions and problems, gathering and assessing information, testing results according to criteria, alternative thinking, monitoring indicators and expressing obtained outputs. Critical thinking with its most nominative form refers to the skill of evaluating information through analysis (Duron, Limbach, & Waugh, 2006).

Critical thinking skill which is in the center of cognitive skills such as analysis, interpretation, inference, description and following and regulating a person's own logic (APA, 1990) is among the basic qualifications expected to be gained during the process of education (Bohlin, 2009). In this way, it will be possible to improve learners' skills in establishing a bond between new information and old information, and structuring of new information will be supported, thus meaningful learning will be achieved (Phan, 2009b). Critical thinking supports individuals to improve their expertise in their professional fields, and evaluate and analyze their self-learning processes (Phan, 2010). For instance, critical thinking helps prospective teachers improve their pedagogical teaching skills. It is important for an individual to know his/her limitations during his/her learning process and what is needed for managing his/her shortcomings better (Zimmerman, 2002). Current education process emphasizes the importance of educating individuals to think, search, question, produce and take on responsibility of their own learnings (Ispir, Ay, & Saygi, 2011). The self-regulation skill in reaching this objective appears to be paramount. Self-regulation is a deep and intrinsic mechanism based on careful, deliberate and attentive behaviors (Bodrova & Leong, 2005). Academic self-regulation skill covers a self-regulated process in which learners transform their mental skills into academic skills rather than a mental ability such as intelligence or a qualification such as reading (Zimmerman, 1998).

Self-regulated learning is defined as level of meta-cognitive, behavioral and motivational active role individuals taking in learning processes (Zimmerman, 1986).Although all learners use regulatory processes up to a degree, those with self-regulation skills can be distinguished with their awareness in terms of strategic relationships between regulatory process and learning outcomes and their use of these strategies towards reaching academic objectives (Zimmerman, 1990). Individuals with high self-regulation skills take an active role in their own learning process. These individuals are aware of their strengths and weaknesses, and thus, they are guided by strategies appropriate to their goals. They monitor their behaviors from the point of their objectives and conduct self-evaluation by thinking about their behaviors. This situation increases their motivations by ensuring that they satisfy themselves towards improving their self-learning methods (Zimmerman, 2002). Generally speaking, self-regulated learning includes an active and structural process guided and restricted in accordance with objective and surrounding contextual features and in which learners establish their objectives related to their learning, and then they observe, regulate and control their cognition, motivation and behaviors (Pintrich, 2000).

Another variable that is considered important in understanding students' academic achievements is self-regulation skill (Schunk, 1984). Studies conducted have shown that students' use of self-regulated learning strategies plays an important role in their academic achievements (Nota, Soresi, & Zimmerman, 2004; Zimmerman, 1990). According to Zimmerman, Bandura & Martinez-Pons (1992), students' beliefs in their ability to regulate their self-learnings increase their self-efficacy perceived for academic achievement. Increasing academic self-efficacy positively affects students' academic objectives that they define for themselves and their academic achievements. Another predictor of academic achievement is critical thinking skill (Garett & Wulf, 1978). It is known that there is a positive relationship between academic achievement (Ip, Lee, Lee, Chau, Wootton, & Chang, 2000; Phan, 2009a) and critical thinking skill that supports students' motivations in teaching and learning processes (Phan, 2010). Process of assessment and development of self-learning skills through critical thinking skills brings along academic achievement to students (Phan, 2006). According to this; students with high critical thinking disposition are said to be more successful than those with low critical thinking disposition (Akbiyik & Seferoglu, 2002).

Academic achievement shows learners' performance that they exhibit based on what they understand on a subject (Marshall & Dorward, 2000). While learning-oriented students regard themselves as successful as they obtain new information with a perspective focused on development and progress, performance-oriented students approach success as doing a task better than others (Ames, 1992b). Learners' academic achievements can be associated with their learning and performance orientations, but direction of this relationship may differ. Indeed, there are studies

concluding that success may be associated negatively with performance orientation (Beck, Rorrer-Woody, & Pierce, 1991), positively with learning orientation (Schraw, Horn, Thorndike-Christ, & Bruning, 1995) and positively with performance orientation (Harackiewicz, Barron, & Elliot, 1998).

Achievement goal theory considers learners' achievement goal orientations towards carrying out a particular academic task as important pioneers for processes and outputs related to success. This theory brings along path, knowledge, effect and behavior patterns that an individual follows during reaching an objective (Ames, 1992b; Dweck & Leggett, 1988). This pioneer ensures that students' achievement goal orientations are one of the most important variables in motivation studies conducted in educational context (Poondej, Koul, & Sujivorakul, 2013). However, it is known that, compared to the performance orientation, learning orientation is associated with more positive outputs in educational sense. In a sense, students who adopt learning orientation tend to be motivated by more acceptable ways compared to students who adopt performance orientation (Midgley et al., 1998). Studies conducted suggest that there is close relationship with adopting learning orientation from achievement objective orientations and use of learning strategies (Gehlbach 2006; Greene, Miller, Crowson, Duke & Akey, 2004; Phan, 2009a). Considering from the point of educational process; it can be said that learning orientation is associated with all these factors stemming from the fact that use of deep learning strategies shows positive correlation with critical thinking and academic achievement (Liem, Lau, & Nie, 2008).

If techniques used by preschool teachers and classroom interactions are modified, critical thinking skills of preschool children may be improved (Melo, 2015). However, self-regulation skills gained during early childhood have significant effects on school readiness (Akawi, 2010), academic achievement (Bondurant, 2010; Graziano, Reavis, Keane, & Calkins, 2007; Smith-Donald, Raver, Hayes, & Richardson, 2007) and social skill (Eisenberg, Fabes, Bernzweig, Karbon, Poulin, & Hanish, 1993). During the process of acquiring these outcomes, effect of teachers on the child is inevitable (Bodrova & Leong, 2005; Guler Yildiz et al., 2014; Polnariev, 2006).

Studies have been conducted on relationships between academic achievement and achievement-goal orientations (Chan, 2008; Grant & Dweck, 2003; Meece, Anderman & Anderman, 2006), critical thinking (Adams, Stover, & Whitlow, 1999; Bulus, 2011; Gadzella, Baloglu, & Stephens, 2002; Villavicencio, 2011; Koray & Koksal, 2007; Ozturk & Ulusoy, 2008) and self-regulation (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996) in different science fields and educational levels. However, these studies were mainly conducted on mixed groups consisting of students attending different faculties in universities (Akin, 2006; Ozturk & Ulusoy, 2008; Gadzella, Baloglu, & Stephens, 2002; Steward & Al-Abdulla, 1989).

However, there are no studies that focus on the prediction of academic achievement in context of prospective preschool teachers' achievement-goal orientations, critical thinking dispositions and self-regulation skills. In this respect, the aim of this study is to examine prospective preschool teachers' academic achievements depending on variables of goal orientations, critical thinking and self-regulation. In line with this purpose, the following questions will be investigated.

1. Do prospective teachers' average scores in achievement goal orientations, critical thinking dispositions and self-regulation skills vary significantly as per their academic achievements?
2. On what correctness level do scores obtained from 2x2 Achievement Goal Orientations, Critical Thinking Disposition Scales and Self-Regulation Questionnaire by prospective preschool teachers from three different levels of academic achievement classify these individuals as per their academic achievement?

Methodology

Sample

The research was carried out with 265 prospective preschool teachers who attended Faculty of Educational Sciences in Cukurova University. Research population constitutes of 500 prospective teachers attending preschool teaching program in Cukurova University in 2016-2018 academic year. The following paths were followed in determining estimated sample size required according to number of teachers in the population (Buyukozturk, Kilic-Cakmak, Akgun, Karadeniz, & Demirel, 2014).

$n_0 = [(t \times S)/d]^2$

$n_0 = [(1.96 \times 0.5)/0.05]^2 = 384.16$

$n = [n_0/(1 + (n_0 / N))]$

$n = [384.16/(1 + (384.16/500))] = 217.24$

Accordingly, the sample size was calculated as 217 for 95% reliability. At this point, an ideally qualified research group was established with 256 prospective teachers in the study. Among participants included in the sample, 227 of them (85.7%) were female, 38 of them (14.3%) were male, 57 of them (21.5%) were in first grade, 71 of them (26.8%) were in the second grade, 69 of them (26.0%) were in the third grade, and 68 of them (25.7%) were in fourth grade.

Within the scope of the research, general academic grade averages of prospective preschool teachers included in the sample varied between 1.91 and 3.81. Cutoff score was used in classification of prospective teachers as per their levels of achievement in accordance with the related field literature (Demir, Dereboy, & Dereboy, 2009; Tatli, Ergin, & Demir, 2016). In this context, prospective teachers' general grade point averages were primarily converted into 100-point grading system using conversion table of Higher Education Council (HEC), and grade equivalents were obtained. Considering that prospective teachers' achievement scores showed normal distribution, higher and lower of half standard deviation (S=5.07098) from average (X=76.0293) were accepted as sub-cutoff points. Accordingly, those with achievement score of 70.9 and below were described as having low level of academic achievement (n=74), those with achievement score between 70.10 and 81.09 were described as having medium level of academic achievement (n=98), and those with achievement score 81.10 and higher were described as having high level of academic achievement (n=93).

Measures

Prospective teachers included in research sample were assessed in terms of their goal orientations, self-regulation skills and critical thinking dispositions. Research data were collected using 2x2 Achievement Goal Orientations Scale, Self-Regulation Scale and Critical Thinking Disposition Scale. Demographical information about prospective teachers' gender, grade level and academic grade point averages were obtained with the personal information form. Further information regarding measurement tools are presented below.

2x2 Achievement Goal Orientations Scale (AGOS): This scale was developed by Akin (2006) to determine students' achievement orientations within the framework of modern achievement orientations. The scale consists of 26 items in 5-point Likert-type collected under four sub-dimensions. Internal consistency coefficients were determined as .91 for learning-approach goal orientation (LPGO) sub-dimension, as .97 for learning-avoidance goal orientation (LVGO) sub-dimension, as .97 for performance-approach goal orientation (PPGO) sub-dimension and as .95 for performance-avoidance goal orientation (PVGO) sub-dimension. Test-retest reliability coefficients of the scale were calculated as .77, .82, .84 and .86 respectively for four sub-dimensions. Two-half reliability coefficients of the scale were determined to vary between .96 and .98, and it was identified that the scale could be used as a valid and reliable measurement tool in studies.

Self-regulation Questionnaire: The questionnaire was developed by Brown, Miller & Lawendowski (1999) with a view to measure behavioral self-regulation that covers performance regulation processes such as introspection and individual's learning methods. Original form of the scale consists of 63 items in 5-point Likert-type collected under seven sub-dimensions. The questionnaire was adapted into Turkish culture by Aydin, Keskin, and Yel (2015). In this context, a questionnaire consisting of 51 items and three dimensions were achieved as a result of analyses conducted. Internal consistency coefficients of the questionnaire were determined as .88 for self-reinforcement sub-dimension, as .87 for self-monitoring sub-dimension, and .60 for self-evaluation sub-dimension. Internal consistency coefficient for the scale in general was determined as .87. Among scores obtained from the questionnaire, scores equal to 198 and higher show high level of self-regulation capacity; scores in 197-160 score range show medium level of self-regulation capacity; and scores equal to 159 and lower show low level of self-regulation capacity.

Critical Thinking Disposition Scale: The scale was developed by Semerci (2000) under the name of "The Scale of Critical Thinking" with a view to measure critical thinking skills. With reference to one-dimensional structure of the scale and inadequacy of analyses in developing a scale, the scale was revised again by Semerci (2016) under the name "Critical Thinking Disposition Scale". Revised scale consists of a total of 49 items in 5-point Likert-type and four sub-dimensions. Internal consistency coefficients of the scale were calculated as .89 for metacognition sub-dimension, as .89 for flexibility sub-dimension, as .90 for systematicity sub-dimension, .83 for perseverance-patience sub-dimension and as .67 for open-mindedness sub-dimension. Internal consistency coefficient for the scale in general was determined that as .96. Fit index values revealed as a result of confirmatory factor analysis applied ($\chi 2/Sd=2.590$, RMSEA=0.0378, SRMR=0.0305, GFI=0.903, AGFI=0.889, CFI=0.932, NFI=0.90) show that the scale has a valid structure (Semerci, 2016).

Data Analysis

For the analysis of research data, SPSS 18.0 packaged software was used. One-Way Analysis of Variance (ANOVA) was used to test differentiation of prospective preschool teachers' scores related to achievement orientations they adopt, their critical thinking dispositions and self-regulation skills based on their current academic achievements. Tukey Test among Post-Hoc tests were used to analyze from which groups differences among groups emerged.

Discriminant analysis was used to determine at which correctness level prospective teachers' achievement orientations, self-regulation skills and critical thinking dispositions predicted prospective teachers' three different academic achievements within the scope of the research. In this context, firstly, assumptions of the discriminant analysis were tested. In this respect, data were analyzed according to z score in terms of their state of containing end value. According to calculated z scores, three end values outside the range of -3z + 3z scores were excluded from the analysis. Then, data normality was analyzed in accordance with skewness and kurtosis coefficients. Skewness and kurtosis coefficients were determined to vary between -1 and +1. According to these values obtained, normality of distribution was accepted. Another assumption that should be fulfilled to carry out discriminant analysis is the

existence of multiple linear connections between independent variables. In this respect, Pearson correlation coefficients between variables were analyzed, and it was determined that correlation among variables varied between .00 and .74. A correlation over .80 among variables indicates some possible multiple linear problems, and a correlation of .90 and higher indicates a serious multiple linear connection (Buyukozturk, 2002). Homogeneity of variance-covariance matrices were tested with Box M test, and it was determined whether homogeneity assumption was not fulfilled (F=1.58, sd1=42, sd2=149597.013, p<05). According to Ozdamar (2004), quadratic discriminant analysis should be used in such cases (Cited by Cokluk, Sekercioglu, & Buyukozturk, 2012). In this respect, quadratic discriminant analysis was preferred in analyses.

Findings

ANOVA results related to whether the prospective teachers' score averages in goal orientations (learning approach, learning avoidance, performance approach and performance avoidance), critical thinking dispositions and self-regulation skills varied according to their academic achievements are shown in Table 1.

Table 1. ANOVA Results Regarding the Prospective Preschool Teachers' Scores in Achievement Orientation, Critical Thinking disposition and Self-Regulation Skills as per their Academic Achievement Levels

Factor / Variable	Source of the variance	Sum of Squares	df	Mean Square	F	Sig.	Scheffe
AA / LPGO	Between groups	287.78	2	143.89	7.64	.00	High-low; high-medium
	Within groups	4859.39	258	18.83			
	Total	5147.17	260				
AA / LVGO	Between groups	7.40	2	3.70	.30	.74	-
	Within groups	3241.58	258	12.51			
	Total	3248.98	260				
AA / PPGO	Between groups	192.56	2	96.28	3.91	.02	Medium -low
	Within groups	6383.47	258	24.65			
	Total	6576.03	260				
AA / PVGO	Between groups	49.22	2	24.61	1.39	.25	-
	Within groups	4543.31	258	17.74			
	Total	4592.53	260				
AA / CTHD	Between groups	10769.76	2	5384.88	8.85	.00	High-medium
	Within groups	151458.46	258	608.27			
	Total	162228.22	260				
AA / SRQ	Between groups	10910.65	2	5455.32	12.41	.00	High-low; high-medium
	Within groups	115189.19	258	439.65			
	Total	126099.83	260				

AA : Academic Achievement CTHD: Critical Thinking Disposition
SRQ : Self-Regulation Questionnaire

As seen in Table 1; the prospective teachers' learning approach achievement orientation [F(2-258)=7.64; p<.01] and performance approach achievement orientation [F(2-258)=3.91; p<.05] varied significantly as per their academic achievements; but their learning avoidance achievement orientation [F(2-258)=30; p>.05] and performance avoidance achievement orientation [F(2-258)=.25; p>.05) did not vary significantly. Accordingly, the prospective preschool teachers demonstrating high (X=33.61, S=4.13) level of academic achievement adopted more learning approach achievement orientation compared to the prospective teachers demonstrating medium (X=31.50, S=4.18) and low (X=31.31, S=4.76) level academic achievement. Analyzing the prospective teachers' performance approach achievement orientation they gave according to their academic achievements; it is determined that prospective teachers with medium level of academic achievement (X=18.31, S=4.97) showed more performance approach achievement orientation at a significant level than the prospective teachers with low level of academic achievement (X=16.42, S=5.23).

The prospective preschool teachers' critical thinking disposition varied significantly compared to their academic achievements [F(2-258)=8.85; p<.01]. According to the results of Tukey test which was conducted to determine in which groups there was difference, it was determined that the prospective preschool teachers with higher (X=201.03, S=23.81) level of academic achievement tended to show significantly more critical thinking disposition compared to prospective teachers with medium (X=185.93, S=23.11) level of academic achievement.

Analyzing prospective the preschool teachers' self-regulation skills as per their academic achievements within the scope of the research, a significant difference can be seen between the prospective teachers' academic achievements and self-regulation skills [F(2-258)=12.41; p<.01]. Accordingly, it was determined that the prospective preschool

teachers with high (X=189.03, S=21.61) level of academic achievement had more self-regulation skills compared to the prospective teachers with medium (X=174.35, S=20.78) and low (X=178.05, S=20.37) level academic achievement.

Within the scope of the research, discriminant analysis was used in determination of distinguishing variables for the prospective preschool teachers with low, medium and high levels of academic achievement and in predicting the prospective teachers' levels of achievement. At the beginning, goal orientations, critical thinking disposition and self-regulation skills were taken into discriminant analysis model. Since the study included the prospective preschool teachers with three different levels of academic achievement, two functions were obtained as a result of discriminant analysis. The statistical results related to analysis functions are shown in Table 2.

Table 2. Canonical Discriminant Function Statistics.

Function	Eigenvalue	% of Variance	Canonical Correlation	Wilks' Lambda	X^2	df	Sig.
1	.14	78.9	.35	.85	38.65	12	.00
2	.04	21.1	.19	.97	8.45	5	.13

According to Table 2, assessments were applied over the first function by considering that fact that the first function produced as a result of discriminant analysis had the highest power of explaining the difference among groups. Eigen value of the function obtained in this context was determined as .14, function explained 78.9% of the total variance. Canonical correlation coefficient was determined as .35. Wilks' Lambda results (Λ=.85, X2 =38.65, p<.01) show that the model which included predictor variables distinguished significantly three groups including low, medium and high academic achievement.

Considering the level of significance for predictor variables, it was determined that there was significant difference among low, medium and high level of academic achievement groups in scores obtained from achievement orientation [F(2, 239)=6.17, p<.01], performance approach achievement orientation [F(2, 239)=4.32, p<.05], critical thinking disposition [F(2, 239)=8.28, p<.01] and self-regulation skills [F(2, 239)=12.31, p<.01]. Since learning avoidance and performance avoidance achievement orientations were not found statistically significant, they were not included in discriminant function (p>.05). Accordingly, standardized discriminant function coefficients and structure matrix coefficients are given in Table 3.

Table 3. Standardized Discriminant Function and Structure Matrix Coefficients.

Factors	Standardized Canonical Discriminant Function Coefficients	Structure Matrix
Self-Regulation Skills	.718	.850
Performance-approach goal orientation (PPGO)	-.541	-.385
Critical Thinking Disposition	.345	.705
Learning-approach goal orientation (LPGO)	.037	.540

According to standardized discriminant function coefficients given in Table 3, self-regulation skill (.718) is the variable with maximum contribution to separation into groups. Relative order of importance in terms of contributions of other variables to the function is listed as performance approaching achievement orientation (.-.541), critical thinking disposition (.345) and learning approach (.037). According to matrix coefficients related to the function, correlation between discriminant function and self-regulation skill was determined as .850, correlation between discriminant function and critical thinking disposition as .705, correlation between discriminant function and learning approach achievement orientation as .540, and correlation between discriminant function and performance approach as -.385. Factors with positive coefficients are indicated to be observed more in prospective preschool teachers with high level of academic achievement, and factors with negative coefficients are indicated to be observed more in prospective preschool teachers with low level of academic achievement. Results of discriminant analysis for correctness of classification of prospective teachers according to their academic achievements are presented in Table 4.

Table 4. Classification Matrix for Prospective Preschool Teachers with Low, Medium and High Level of Academic Achievement.

Groups	Low level of academic achievement		Medium level of academic achievement		High level of academic achievement		Total	
	f	%	f	%	f	%	f	%
Low	24	35.8	24	35.8	19	28.4	67	100.0
Medium	14	15.6	51	56.7	25	27.8	90	100.0
High	20	23.5	22	25.9	43	50.6	85	100.0

48.8 % of original grouped cases correctly classified

As presented in Table 4, 24 out of 67 prospective preschool teachers with low level of academic achievement (35.8%), 51 out of 90 prospective preschool teachers with medium level of academic achievement (56.7%) and 43 out of 85 prospective preschool teachers with high level of academic achievement were correctly classified. Correct classification percentage of prospective preschool teachers with low, medium and high levels of academic achievement by the discriminant analysis model as a whole was determined as 48.8%.

Discussion

Within the scope of the research, prospective teachers' academic achievements were examined depending on variables such as achievement orientations adopted by prospective preschool teachers, their critical thinking dispositions and self-regulation skills. In this context, the relationships were analyzed between the prospective teachers' levels of academic achievement and learning approach, learning avoidance, performance approach and performance avoidance dispositions constituting achievement orientation, their critical thinking dispositions and self-regulation skills. In the last stage, distinguishing variables between the prospective teachers' levels of academic achievement such as low, medium and high levels were determined and their level of academic achievement in accordance with these variables were classified.

Within the scope of this study, a significant relationship was found between the prospective preschool teachers' levels of academic achievement and their learning approach and performance approach achievement orientations. Accordingly, the prospective teachers with high level of academic achievement adopted more learning approach achievement orientation compared to the prospective teachers with medium and low level of academic achievement. Individuals adopting learning approach achievement orientation take on a critical approach in face of situations hindering their achievements (Akin & Arslan, 2014), do not give up when confronted with difficult tasks (Meece, Anderman, & Anderman, 2006; Pintrich, 2000) and make an effort towards eliminating reasons for failure (Akin & Arslan, 2014). Individuals with learning orientation use their self-regulation strategies more especially when faced with challenges or failures, have higher levels of intrinsic motivation and demonstrate better performance (Grant & Dweck, 2003). These individuals acting with the goal of learning a subject or material with intrinsic motivation rather than an effort towards meeting social norms are said to reach high academic achievement (Akin, 2006). Reviewing the literature reveals that other studies have found similar results (Akin, 2006; Buyuktanir, 2014; Meece, Anderman & Anderman, 2006; Grant & Dweck, 2003; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Wolters, 2004). Considering the fact that self-regulation, tenacity and making effort are the most important providers of academic achievement (Miller, Greene, Montalvo, Ravindran & Nichols, 1996), the result that prospective teachers with learning approach achievement orientation have higher academic achievements emerges as an expected outcome.

In this study, the prospective teachers with medium level of academic achievement adopted more performance approach achievement orientation compared to prospective teachers with low and high level of academic achievement. Students may want to achieve to satisfy their teachers or parents, impress their classmates or feel themselves important, thus they can be inclined towards performance approach tendency (Pajares & Cheong, 2003). Thus, students adopting the objective of demonstrating their skills or showing better performance than the others may do not make an effort towards in-depth learning, and their knowledge may remain superficial (Anderman & Young, 1994). Similarly, Meece, Blumenfeld, and Hoyle (1988) have found out that students with performance orientation focusing of providing social recognition, getting liked by teacher or refraining from study have lower levels of cognitive involvement compared to students with learning orientation. This situation is thought to result in decrease in academic performance among students with performance orientation. However, analyzing the field literature, it can be seen that different study results have been reached. In a study conducted by Harackiewicz, Barron, and Elliot (1998) towards the state of

feeding intrinsic motivation by performance approach, it was concluded that academic achievements among students showing performance goal orientation were higher. Although performance goal approaches are often associated with extrinsic motivation, the field literature includes some studies suggesting that this may not always improve in the same way (Heyman & Dweck, 1992). It is indicated that, especially when the threat of assessment on being found successful, performance orientation may carry positive potential (Dweck, 1985). Performance orientations promote an adaptable success by prompting individuals towards achievement based on normative comparison (Harackiewicz, Barron, & Elliot, 1998).

Findings of this study show that there is a significant relationship between critical thinking disposition and academic achievement. Analyzing the field literature, it can be seen that parallel results have been found, a positive correlation is determined between academic achievement and critical thinking skills (Gadzella, Baloglu, & Stephens, 2002; Garett & Wulf, 1978; Steward & Al-Abdulla, 1989; Tilson, 1986; Villavicencio, 2011). During the process of understanding course contents provided in schools, it is indicated that students should use their thinking process; otherwise, they will have to memorize information (Paul & Elder, 2002). From this perspective, findings of this study make sense. Students with high level of critical thinking disposition will have higher level of academic achievement if they try to understand contents rather than memorizing course contents. Therefore, it is important and necessary to improve learners' critical thinking skills and encourage transfer of these skills into learning process (Karbalaei, 2012).

In this study it was determined that there was a significant relationship between the academic achievement and self-regulation skills of prospective preschool teachers. Accordingly, the prospective preschool teachers with high level of academic achievement had more self-regulation skills compared to the prospective teachers with medium and low level academic achievement. According to Pintrich (2000), self-regulatory activities directly affect outcomes such as achievement and performance. Self-regulated learning includes learners' controlling their thoughts, emotions and movements on the way to academic achievement. In this way, learners can increase their performances using systematic and regular methods (Zimmerman & Schunk, 2001). Similar results have been found by other researchers (Akin, 2006; Buyuktanir, 2014; Meece, Anderman & Anderman, 2006; Grant & Dweck, 2003; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Wolters, 2004). Pintrich and De Groot (1990) found that self-regulated learning was one of the most important predictors of academic achievement. In this respect, it seems that increase in self-regulation skills is provider of high level of academic achievement (Paterson, 1996).

Because findings obtained within the scope the study did not show statistical significance, learning orientation and performance avoidance achievement dimensions did not enter the discriminant function. Analyzing the data related to the sample, it can be seen that 85.7% of the research study group constituted of female prospective teachers. This finding can be associated with the fact that study sample consisted mainly of female prospective teachers. Indeed, reviewing the relevant field literature, it can be seen that women have higher level of approach orientation perceptions compared to men (Aydin, Gurbuzoglu Yalman, & Yel, 2014; Gozler, Bozgeyikli, & Avci, 2017; Kucukoglu, Kaya, & Turan, 2010).

Conclusions and Recommendations

When results of this study were addressed as a whole, it was concluded that prospective teachers showing high level of academic achievement also had higher levels of learning approach orientation, critical thinking dispositions and self-regulation skills. In accordance with these results, the following recommendations are presented. Considering the fact that high-order thinking and ability to control learning processes in prospective teachers are factors that may serve for this purpose, improving these factors will play a significant role even in increasing academic achievement systematically. It can be seen that the rate of female prospective preschool teachers constituting the research sample is quite high compared to the males. This situation is thought to affect results related to findings obtained. To obtain comparative results, it is suggested to keep number of female and male prospective preschool teacher participants relatively equal in future studies in which gender will also be discussed as an independent variable.

Just like learners getting affected from educators' orientations (Kaplan & Maehr, 1999), preschool children can also be affected from their teachers' skills and orientations. In this context, considering the fact that prospective teachers' achievement-goal orientations, critical thinking dispositions and self-regulation skills may increase their academic achievement and shape their future teaching performances, it is suggested to implement programs that will contribute to the development of such skills and orientations among prospective preschool teachers. It should be considered that prospective teachers may need appropriate role models to reveal their learning approach orientation, critical thinking and self-regulation skill acquisitions, and at this point, academicians have significant functions. Accordingly, it is important to provide course contents in a way to improve these skills in question.

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