INVESTIGATING TURKISH ELEMENTARY STUDENTS' PERCEPTIONS ABOUT THEIR TEACHERS' ACHIEVEMENT GOALS IN SCIENCE

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Abstract

This study aimed to investigate Turkish elementary students' perceptions about their teachers' achievement goals in science classrooms. For this purpose Perceived Teacher Goal Emphases Scale, (Friedel, Cortina, Turner and Midgley, 2007) was adopted to Turkish and administered to nine hundred seventy seven 7th grade, elementary students. Paired sample t-test results was conducted to examine whether there is statistically significant mean difference between perceived teacher mastery goals emphasis and performance goal emphasis, or not. The results indicated that students generally perceive mastery goals from their teachers in science. In other words, elementary students generally think that their science teachers want them to enjoy learning new things, and understand science works.

Key words: *Achievement goals, Teachers, Science*

İLKÖĞRETİM ÖĞRENCİLERİNİN FEN BİLGİSİNDE ÖĞRETMENLERİNDEN ALGILADIKLARI HEDEFLERİN ARAŞTIRILMASI

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Özet

*Bu çalışma ilköğretim yedinci sınıf öğrencilerinin fen bilgisi dersinde, öğretmenlerinden algıladıkları hedefleri araştırmayı hedeflemiştir. Bu amaç için, Öğretmenlerden Algılanan Hedefler Ölçeği (*Friedel, Cortina, Turner and Midgley, 2007) *Türkçe' ye adapte edilmiş ve 977 öğrenciye uygulanmıştır. Eşleştirilmiş iki grup arasındaki farkların testi ile öğretmenlerden algılanan ustalık hedefleri ile başarım hedefleri karşılaştırılmıştır. T-testi sonuçlarına göre, 7. Sınıf öğrencileri, fen bilgisi dersinde genellikle öğretmenlerinden ustalık hedeflerini algılamaktadırlar. Diğer bir değişle, öğrenciler, fen bilgisi öğretmenlerinin, öğrencilerin fen bilgisi ile ilgili yeni şeyler öğrenmekten hoşlanmalarını, ilgi duymalarını ve fen bilgisini anlamalarını hedeflediklerini düşünmektedirler.*

Anahtar Sözcükler: *Hedef Yönelimi, Öğretmenler, Fen*

1. Introduction

Ames (1992) suggested that if students' motivation, cognition, affects, and behaviors are examined, their perceptions about learning environment should also be included as a factor. Moreover, the researcher added that students' perceptions about learning environment are influenced by teachers' behaviors. Therefore, teachers' beliefs and behaviors, and how these beliefs are reflected to students are notable determinants to understand students' motivation, cognition, affect, and behavior. Nowadays researchers investigate learning environment in achievement goal framework (Bong 2005). Achievement goals refers to students' reasons while engaging in a task. According to achievement goal theory, students can focus on learning new things, understanding the task, and developing new skills as mastery goals, or they can focus on demonstrating their ability, getting high grades as performance goals (Eliot& Harackiewicz, 1996; Pintrich, 2000a; Midgley, Kaplan& Middleton 2001 Anderman, Urdan, & Roeser, 2003). In the same manner, goal researchers also distinguished students' perceptions of their learning environment as perceive mastery goals and perceive performance goals. Teachers can create a learning environment that emphasizes mastery goals, by giving meaningful tasks to students, considering mistakes as a part of learning, focusing on learning and mastering new skills, etc., or they can create a learning environment that emphasizes performance goals, by encouraging ability, high succeed with little effort, etc. (Nicholls, 1989; Garner, 1990; Ames, 1992; Kaplan et all., 2002; Meece, Anderman& Anderman, 2006).

In mastery oriented classrooms, self improvement is seen as successful. Teachers focus on students' effort and learning and lead students work hard to learn new things, to improve their skills. Moreover, teachers also make students know that mistakes are a part of learning and if students learn something from their errors, it is acceptable. Further, students are evaluated according to the progress (Ames & Archer, 1988; Ames, 1992; Deemer, 2004). In these classroom, students have positive beliefs about their capacity to learn new things, they value the task, use different learning strategies, and study harder for the next time when they face an academic failure (Roeser, Midgley, &

Urdan, 1996; Kaplan & Midgley, 1999; Ntoumanis, Biddle, & Haddock, 1999;Brunel, 2006; Gutman, 2006; Friedel, Cortina, Turner & Midgley, 2007)

In performance oriented classrooms, high grades are seen as successful. Additionally, teachers focus on high ability and lead students to do better than others. Hence, students view mistakes as a failure and think that their value will decrease. Besides, the evaluation criteria in these class is normative. For this reasons, students focus on comparing their performance with their peers, and exert effort for high grades, and performing better than others (Ames & Archer, 1988; Ames, 1992; Deemer, 2004). In these classrooms, students have less self confidence about learning new things, have difficulty to realize the value of the task, think that failure will bring negativeness in their life, and tend to give up the task when they face an academic failure (Gutman 2006 ;Lau & Nie, 2008; Tsai, 2009).

In a study conducted in Turkey, Tas (2008) examined the goals that emphasized in the learning environment in science classes. One thousand, nine hundred and fifty seventh grade students participated in the study. The researcher suggested that when students perceive mastery goals from their learning environment, they tend to study for mastering new skills, learning new things and improving their knowledge. On the other hand, when students perceive performance goals, they tend to study for demonstrating their ability, or getting high grades. Besides that, Tas and Tekkekaya (2010) investigated effects of the goals that emphasized in the learning environment in science classes on the cheating behavior with one thousand, nine hundred and fifty, seventh grade Turkish students. According to the results, students who think that self improvement is important in their science classless tend to less likely to engage in cheating.

To sum up, the related researches demonstrated that students' perceptions about their teachers' goals have important effects on students' motivation, cognition and their goals (Ames & Archer, 1988; Ames, 1992; Deemer, 2004; Gutman 2006 ;Lau & Nie, 2008;Tas & Tekkekaya, 2010). Moreover, according to the related literature, in ideal learning environment, it is expected that teachers focus on learning new things,

developing skills, self improvement, emphasize mastery goals in all aspects. Regarding to relations between students' perceptions about teachers' goals and students' motivational, cognitive beliefs, and behaviors, investigating students' perceptions of teachers' achievement goals will help to understand students' motivation, cognition and behavior (Eccles et al.,1983; Eccles et al., 1998; Wigfield & Eccles 1992; Eccles & Wigfield, 2000; Pintrich & Schunk, 2002). Hence, this study aimed to investigate 7th grade, Turkish elementary students' perceptions about their teachers' achievement goals in science classrooms.

2. Method

2.1.Sample

All students are 7th grade, public school students from Kutahya, a city of Turkey was the population of the study. There were 111 elementary schools in the Kutahya. Twelve public school, nearly 10 % of the population, were selected randomly. Nine hundred seventy seven, 494 (50. 6 %) girls and 483 (49. 4 %) boys participated in the study.

2.2.Instruments

Perceived Teacher Goal Emphases Scale was used to assess' students' perceptions about their teachers achievement goals in science classroom. It is a self-report instrument adopted from the Patterns of Adaptive Learning Survey (PALS; Midgley et al., 1997) by Friedel, Cortina, Turner and Midgley (2007). The questionnaire was designed to assess students' perceptions about their teachers' goal emphases in the classroom. It is a five point Likert scale ranging from 1 "do not believe at all" to 5 "completely true". It consists 10 items in two sub scales: perceived mastery goals (5 items), and perceived performance goals (5 items). Items in the perceived mastery goals scale were designed to assess if teachers focus on learning, and understanding in the class (e.g. "My teacher gives us time to really explore and understand new ideas in science"), whereas, items in the perceived performance goals scale were developed to assess if teachers focus on highest grades in the class (e.g. "My teacher points out those students who get good grades in science as an example to all of us").

The Turkish version of the questionnaire was translated and adopted by the researcher of the current study. While adopting the instrument, it was examined by, two instructors from science education department at the faculty of education of Middle East Technical University for its content validity. The instructors also judged the quality of items with respect to clarity, sentence structure, and comprehensiveness. Additionally, the grammar structure of the translation was examined by one of the instructors from Academic Writing Center of METU. Considering the suggestions by the instructors from both faculty of education and Academic Writing Center of the METU, the instrument was revised. The English and Turkish version of the instrument was presented in Appendix A.

The translated instrument was pilot tested with 201 7^{th} grade elementary students, (104 boys and 97 girls) in Kütahya. The coefficient alpha values for the Turkish sample were found to be .67 for the perceived teachers' mastery goals, and .78 for the perceived teachers' performance goals (see Table 1). The explanatory and confirmatory factor analyses also conducted. The results of the confirmatory factor analysis were GFI = .99, CFI = .98, RMSEA = .08, SRMR = .02 for the perceived teachers' mastery goals, GFI = .96, CFI = .95, RMSEA = .13, SRMR = .04 for the perceived teachers' performance goals (see Table 2 and Table 3). The confirmatory factor analysis' results demonstrated that a reasonably good fit of the model to data since GFI and CFI values > .90 and RMSEA and SRMR < .10 Kline (2005). Thus, the instrument was conducted with large sample, 977 7^{th} grade students coefficient alpha values for the second study were .67 for the teachers' mastery goals and .78 for the teachers' performance goals. The results of the confirmatory factor analyses were GFI = .98, CFI = .98, RMSEA = .08, SRMR = .02 for the teachers' mastery goals, and GFI = .99, CFI = .99, RMSEA = .19, SRMR = .05 for the teachers' performance goals indicating a good model fit .

Table 1. Subscales of the Perceived Teacher Goal Emphasis

Scale	***Number of Items***	***Reliability of original version***	***Reliability of First Study***	***Reliability of Second Study***
Perceived teacher mastery goal emphasis	*5*	*.74*	*.67*	*.83*
Perceived teacher performance goal emphasis	*5*	*.84*	*.78*	*.78*

Table 2. The results of the confirmatory factor analyses for Perceived Teachers' Goals Emphasize Scale

Scale	***GFI***		***CFI***		***SRMR***		***RMSEA***	
	First study	*Second study*	*First study*	*Second study*	*First study*	*Second study*	*First study*	*Second study*
Perceived Teachers' Mastery Goals	*.99*	*.98*	*.98*	*.98*	*.02*	*.02*	*.08*	*.08*

Question	*Wilks Lamda*				*Scale*			
Perceived Teachers' Performance Goals	*.96*	*.99*	*.95*	*.99*	*.04*	*.09*	*.13*	*.19*

Table 3. Lambda ksi Estimates for Perceived Teacher Goal Emphases

q1	*0.79*	*Perceive Teachers' Mastery Goals*
q2	*0.45*	
q3	*0.71*	
q4	*0.37*	
q5	*0.52*	
q6	*0.58*	*Perceive Teachers' Performance Goals*
q7	*0.76*	
q8	*0.76*	
q9	*0.83*	
q10	*0.61*	

3. Results

The descriptive statistics were used to identify the perceived teacher goal emphasis profile of the sample. According to the results, seventh grade students perceive mastery goals emphasis (*M=4.07, SD= .92*) from their science teachers more than performance goals emphasis (*M=3.83, SD= .97*). Paired sample t-test results also indicated a statistically significant mean difference between perceived teacher mastery goals emphasis and performance goal emphasis, t (976)= 7. 46, p= .000 with medium effect size (*d= .24*), see also Table 4.

	t	*df*	*p*	*Cohen's d*
Perceived teacher mastery goal emphasis- Perceived teacher performance goals emphasis	*7. 46*	*976*	*.000*	*0. 24*

Table 4. Pairwise comparisons for perceived parents goals

4. Discussion

The present study aimed to investigate 7th grade, elementary students' perceptions about their teachers' achievement goals in science classrooms. According to the results, students generally perceive mastery goals from their teachers in science. In other words, elementary students generally think that their science teachers want them to enjoy learning new things, and understand science works. On the other hand, a majority of students also think perceive that their teachers also focus on comparing them with their peers. Most students report that their teachers make them know about who get the highest or lowest grades in science, and shows students who gets good grades in science as an example of the others. Long of short, many students also perceive performance goals from their teachers.

Although students perceive mastery goals from their teachers more than performance goals, considering students' perceptions of mastery goals' association to positive outcomes (Roeser, Midgley, & Urdan, 1996; Kaplan & Midgley, 1999; Ntoumanis, Biddle, & Haddock, 1999;Brunel, 2006; Gutman, 2006; Friedel, Cortina, Turner & Midgley, 2007), it can be suggested that teachers should create much mastery oriented classrooms. There are several different ways to create a mastery oriented

classroom. Epstein (1989) defined six dimensions of classrooms that effect students' motivation: Task, Authority, Recognition, Grouping, Evaluation, and Time. The task dimension refers to learning activities. In order to emphasize mastery goals in the classrooms, teachers can use different types of tasks. The difficulty of the task is also an important factor. The task should be challenging, but in an optimal level. The second dimension, authority, concerns the students' rights over learning activities. Students should have some choice and control in the classroom settings. Teachers should give them leadership roles. Recognition involves using rewards. Each student in the class should have a chance to earn reward. Rewarding individual learning and progress, not normative comparisons, can emphasize students, the importance of improving knowledge. The other dimension, grouping, refers group works. Teachers can allocate time, and orient students to work with their peers in the classroom. Evaluation focuses on methods that used to assess students' learning. Teachers should use private evaluation methods, because a public evaluation stresses the social comparisons so it emphasizes performance goals. Teachers should determine evaluation criteria that allow assessing individual progress to make students focus on self improvement. The last component, time, refers to time for completing work. Teachers should adjust time according to the workload. Given time should also allow students to plan their timetables for the progress (Ames, 1992; Pintrich& Shunk, 2002).

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Appendix A The English and Turkish version of the instrument

	Original version		Turkish version
Perceived teacher mastery goal emphasis	*My teacher really wants us to enjoy learning new things in science*	*Öğretmenler-den Algılanan Ustalık Hedefler*	*Öğretmenimiz, fen dersinden zevk aldığımızı görmek ister*
	My teacher gives us time to really explore and understand new ideas in science		*Öğretmenimiz, fen dersindeki yeni düşünceleri tam olarak araştırmamız ve anlamamız için bize yeterli*
	My teacher recognizes us for trying hard in science		*Öğretmenimiz ,fen dersi için gösterdiğimiz çabanın farkındadır.*
	My teacher thinks mistakes are okay in science as long as we are learning		*Öğretmenimiz ,öğrendiğimiz sürece fen dersinde hata yapmamızı anlayışla karşılar.*
	My teacher wants us to understand our science work, not just memorize it		*Öğretmenimiz ,fen dersini ezberlemekten çok anlayarak yapmamızı ister*
Perceived teacher performan-ce goal emphasis	*My teacher lets us know which students get the highest scores on a science test*	*Öğretmenler-den Algılanan Başarım Hedefler*	*Öğretmenimiz, bir fen testinde hangi öğrencilerin en yüksek notları aldığını bize bildirir.*
	My teacher points out those students who get good grades in science as an example to all of us		*Öğretmenimiz, fen dersinde iyi not alan öğrencileri bize örnek olarak gösterir.*
	My teacher tells us how we compare in science to other students		*Öğretmenimiz, diğer öğrencilerle karşılaştırıldığında fen dersinde nasıl olduğumuzu bizlere söyler.*
	My teacher lets us know if we do worse in science than most of the other students in class		*Öğretmenimiz, fen dersinde sınıftaki diğer öğrencilerden daha kötü yaparsak bunu bize bildirir.*
	My teacher makes it obvious when certain students are not doing well on their science work		*Öğretmenimiz, sınıftaki bazı öğrenciler fen etkinliklerinde iyi olmadıklarında bunu açıkça belirtir.*