The role of motivating tasks and personal goal orientations in students' coping strategies in science

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Received 10 Oct., 2016
Revised 26 Dec., 2016

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Abstract

This study aims to investigate coping strategies of middle school students in science classes in relation to students' goal orientations and motivating tasks conducted in the classroom environment. The study was conducted in spring semester of 2015-2016 academic year. Sample of the study consists of 316 middle school students receiving education in Erzurum province of Turkey. The study utilizes a quantitative research methodology and it is nonexperimental. Examining the relationships among variables, it is a correlational research. Hierarchical regression is used in order to analyze how motivating classroom environment perception and personal goal orientation of students predict their academic coping strategies. The data were collected using four instruments: Demographic Information Questionnaire, Academic Coping Inventory, Achievement Goal Questionnaire, and Survey of Classroom Goals Structures. Results show that a higher perception of motivating tasks provided in the classroom environment is positively related to positive coping strategies and negatively related to projective coping strategies. Students with higher mastery-approach goal orientation tend to utilize more positive coping strategy and less projective coping strategy and non-coping strategy. It is found that mastery-avoidance goal orientation is negatively associated with positive coping strategy and positively associated with projective coping and non-coping strategies. Moreover, it is seen that students with higher performance-avoidance goal orientation have a higher tendency to use positive coping strategy.

Keywords: Coping strategies, personal goal orientations, motivating task, science

Introduction

People use various coping strategies when they encounter with difficulties (Kaplan & Midgley, 1999). Coping may be defined as strategies, thoughts, and behaviors people utilize in case of negative or stressful event or academic failure in order to handle such situations (Folkman & Moskowicz, 2004). Coping strategies are personal preferences and they may vary from person to person. For example, in the face of a hard task while some students immediately give up, other students insist on succeeding the task (Kaplan & Midgley, 1999).

Classification of coping strategies by the researchers differed in the process of time. First, they grouped coping strategies into three as problem oriented coping, emotion focused coping, and avoidance. Problem focused coping means coping or solving problems which are encountered. It aims to strengthen the relationship between the person and the environment. Examples of problem focused coping include taking teacher's advice and time scheduling.

Emotion focused coping, which sees seeking emotional support as a solution, aims to manage emotions. Avoidance, on the other hand, aims to avoid problem by denying it (Lazarus & Folkman, 1986; Folkman, Lazarus, Gruen & DeLongis, 1986; Cited: Kahraman, 2011). Tero and Connell (1984) grouped coping strategies into four as positive coping, projective coping, denial coping, and non-coping. In positive coping, the student seeks his/her mistakes, analyzes his/her faults, and plans his/her time. In projective coping, the student blames his/her teacher, his/her parents, and people around him/her for his/her own mistakes. If the student blames himself/herself for his/her failures, the strategy is non-coping; while if he/she ignores his/her failures and states that said failures are unimportant and meaningless for him/her, the utilized strategy is denial coping (cited by: Kaplan & Midgley, 1999). In the later process, coping strategies are grouped into two as adaptive and maladaptive coping strategies in accordance with their results. Examples for adaptive coping strategies include finding out own mistakes, working harder, and seeking help, while examples of maladaptive coping strategies include blaming other people, ignoring failures, and blaming self (Friedel, Cortina, Turner & Midgley, 2007; Kaplan & Midgley, 1999). Generally, coping strategies act as a buffer zone in the relation between a stressful environment and wellbeing of the person. Structure of learning environments are connected to coping strategies utilized (Kaplan & Midgley, 1999). While positive coping strategy of Tore and Connell (1984) provides control over academic success outcome, projective and denial have negative effect on control and learning motivations. Non-coping causes school anxiety and low success, and it affects personality of the student negatively (cited by: Kaplan & Midgley, 1999). Therefore, it is considered important to study the correlation of learning environment characteristics and student motivation with the coping strategies utilized by the students.

One of the motivational factors related to the coping strategies utilized by individuals is the personal achievement goal orientation. Goal orientation has contributed significantly to education and psychology fields since late 1970s (Elliot & Harackiewicz, 1996). Although goal orientation may be applied to many fields such as happiness and safety, achievement goals were specially developed in order to explain perception, thoughts, and beliefs of students towards learning (Pintrich & Schunk, 2002). In other words, it studies why students want to be successful, how they approach success, and their experiences and efforts regarding this subject (Pintrich, 2000; Urdan, 1997). In recent years, there has been a significant increase in the number of studies regarding achievement goals in various levels of education ranging from primary school to teacher training (Gegenfurtner & Hagenauer, 2013).

There are two main achievement goals which are mastery goal orientation and performance goal orientation. While individuals with mastery goals focus on comprehension and self-improvement, individuals with performance goals focus on demonstrating their

competence and skills to others and comparing themselves with other people (Ames, 1992; Elliot & McGregor, 2001; Pintrich & Schunk, 2002). While mastery goals provide positive outcomes such as being insistent and producing effective strategies in the face of a difficulty, performance goals provide negative outcomes such as avoidance and reducing efforts. Students with mastery goals ask more questions in order to specialize in a subject while students with performance goals may even avoid asking questions for the fear that all their actions will be compared to others' and that their incompetence will become evident (Ryan, Gheen & Midgley, 1998). Mastery and performance goals are both divided into two categories as approach and avoidance and form mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goal orientations. While a student who tries to show himself/herself as smart to others has high levels of performance-approach goals, a student who studies in order to avoid feeling humiliated when compared to others endorse performance-avoidance goals. If the student tries to improve his/her knowledge and skills, he/she adopts mastery-approach goals, and if he/she avoids misunderstanding and failing to learn, he/she is oriented towards mastery-avoidance goals (Pintrich & Schunk, 2002).

Studies on the relationship between achievement goals and coping strategies generally indicate positive relationship between mastery goals and adaptive strategies such as taking advice, planning, finding out the mistake, and not repeating it, while maladaptive coping strategies such as denial and blaming other people are positively related with performance goals (Friedel et al., 2007; Kahraman, 2011; Taye & Zhou, 2009). Studies which utilize a different classification in coping strategies indicate that students with mastery goals use problem focused coping strategies while students with performance goals tend to utilize emotion focused coping strategies more (Brdar, Rijavec & Lancaric, 2006; Delahaij & Dam, 2016). Moreover, these studies indicate that student with emotion focused coping strategies have much negative outcomes (Brdar et al., 2006).

It is known that classroom goal structures have an effect on both the achievement goal orientation of the students and the coping strategies through the goal orientations (Kaplan & Midgley, 1999). Classroom goal structures may be communicated to the students in many methods such as types of academic tasks assigned to the students, the way the students are evaluated, and the way the students are encouraged to complete academic tasks (Ames, 1992). Moreover, classroom goal structures affect academic beliefs and behaviors of the students (Ryan et al., 1998). Classroom environments in which skill displaying and comparison remain at the forefront (i.e., classroom performance goal structure) may be stressful and may produce negative outcomes, while environments in which developing understanding and skills are forefront (i.e., classroom mastery goal structure) provides opportunities for improvement and produces positive outcomes (Kaplan & Midgley, 1999). Students like classroom environments

with mastery goal structured more than classroom environments with performance goal structured. This is because in performance goal structured classes, students refrain from making mistakes in front of others and feel uncomfortable. This lowers students' academic success level and increases their level of anxiety. In mastery goal structured classrooms, students are subjected to these negative situations much less (Ames & Archer, 1988).

Classroom structures which may facilitate establishment of mastery goals in students include autonomy support, mastery evaluation, and motivating tasks (Ames, 1992). Autonomy support means that the person makes his/her own choices and has control over his/her actions. Individuals whose feeling of autonomy is supported have a higher level of success, enjoyment, desire, and participation (Ames, 1992; Sungur & Gungoren, 2009). Moreover, autonomy support eliminates negative effects of performance based classroom goal structure (Ciani, Middleton, Summers & Sheldon, 2010). Mastery evaluation includes criteria and methods used by the teachers in order to evaluate their students and control their learning. Evaluations should be fair, not allowing for social comparison, focusing on personal development, and intending learning and student effort (Ames, 1992). Motivating tasks are materials given in classroom in learning process and as homework. Tasks given to students should be different, varying, meaningful and related to students, and involve special and short term goals. Different and varying tasks arouse curiosity towards learning in the student. Moreover, activities which are meaningful and related to the student increase tendency towards learning (Ames, 1992). Students who find the activities provided in the classroom meaningful, useful, and interesting feel more confident in reaching goals of the lessons (Ames, 1992; Greene, Miller, Crowson, Duke & Akey, 2004; Hidiroglu, 2014; Pintrich & Schunk, 2002; Sungur & Gungoren, 2009). Students who find classroom activities significant, enjoyable, and interesting not only have a much positive belief regarding learning, but also try to find out their mistakes and work harder when they encounter an academic failure and blame other people less for their failures (Kahraman, 2011).

In the relevant literature, some found that students' perceptions of classroom goal structure significantly predict their achievement goal orientations (e.g., Greene et al., 2004; Linnenbrink & Pintrich, 2003; Lyke & Young, 2006; Pintrich, 2000; Sungur & Gungoren, 2009; Tas, 2008) and academic coping strategies (e.g., Kahraman, 2011; Kaplan & Midgley, 1996; Ryan et al., 1998). Besides, it was found that achievement goal orientations of students are related to their academic coping strategies (Brdar et al., 2006; Delahaij & Dam, 2016; Friedel et al., 2007; Kahraman, 2011; Taye & Zhou, 2009). However, few studies have examined the relationship between students' perceptions of motivating tasks provided in the classroom, personal achievement goals, and academic coping strategies. Furthermore, in the revised Turkish science curriculum, the importance of utilizing tasks which are interesting for

students and relevant to their lives are emphasized (Ministry of National Education, 2013). Given that few studies on the relationship between motivating tasks, achievement goals, and coping strategies have been conducted and highlights in Turkish science curriculum for using motivating tasks in the science class, this study explores how students' personal goal orientations and perceptions of motivating tasks provided in the classroom predict students' coping strategies. Research questions of the study are as follows:

1. Do students' perceptions of motivating tasks in the science class predict their academic coping strategies?
2. Do students' personal goal orientations predict their academic coping strategies?

Methodology

This study utilized a quantitative research methodology and it is nonexperimental. "Nonexperimental research describes phenomena and examine relationships between different phenomena without any direct manipulation of conditions that are experienced" (McMillian & Schumacher, 2010, p. 22). This study could be described as a correlational research since it looks for whether relationships exist between variables without any interference (Fraenkel, Wallen, & Hyun, 2012). Additionally, it is cross-sectional since the data were collected at one time point.

Sample

The sample of the study consisted of 316 middle school students attending 4 public schools in one of the districts in Erzurum, a large city located in the eastern part of Turkey. These schools were easily accessible for the researchers and voluntary participation was considered. Data were collected in spring semester of 2015-2016 academic year. There were equal number of girls (n= 158, 50%) and boys (n= 158, 50%) in the sample. There were 107 (%33.9) sixth grade students, 107 (%33.9) seventh grade students, and 102 (%32.3) eighth grade students. The participants' mean age was 13.18 (SD=1.00).

Instruments

Demographic Information Questionnaire was used to get information about participants' background characteristics. It asks students' gender, age, grade level, employment status and educational level of parents, and number of siblings.

Academic Coping Inventory was developed by Tero and Connell (1984) to investigate students' coping strategies when they face with academic failure. It is responded on a five point Likert scale from (1) "do not believe at all" to (5) "completely true". Inventory consists of 13 items and 4 subgroup: positive coping (3 items), projective coping (3 items), denial coping (3 items), and non-coping (4 items). The scale starts with a half sentence like "If something bad happened to me during science, such as doing poorly on a test or not being able to answer a question in class." and wants students to complete this sentence with items given. Positive coping determines students' adaptive strategies (example item: "I would try to figure out what I did wrong so it wouldn't happen again"). Students blame others for their failure in projective coping (example items: "I would get angry at the teacher"). In denial coping, students do not emphasize this negative event or ignore failure (example item: "I would tell myself it didn't matter"). If students blame themselves for this academic failure, this is non-coping (example item: I would feel really stupid.). The scale was translated and adopted to Turkish by Kahraman (2011) who validated the scale with middle school students. She conducted confirmatory factor analysis (CFA) to investigate factor structure for the Turkish version and fit indices obtained from CFA supported proposed factor structure (GFI = 1.00, CFI = 1.00, RMSEA = .00, S-RMR = .00). The coefficient alpha values of the subscales ranged from .73 to .84.

Achievement Goal Questionnaire (AGQ) was developed by Elliot and Church (2001) to examine students' adaption of goals. It is a five point likert scale ranging from choice of (1) "strongly disagree" to (5) "strongly agree". Questionnaire consisted of 15 items and 4 sub-scale: mastery-approach goals (3 items), mastery-avoidance goals (3 items), performance-approach goals (3 items) and performance-avoidance goals (6 items). While mastery-approach goals deal with learning new things and developing skills (example item: I desire to completely master the material that presented in this class), mastery-avoidance goals refers to avoiding not learning and misunderstanding (example item: "I just want to avoid doing poorly in this class"). Performance-approach goals emphasize showing abilities and success to others (example item: It is important to me to do better than other students), performance-avoidance goals emphasize fear of failure among students (example item: "My goal for this class is to avoid performing poorly"). The questionnaire was adapted to Turkish by Senler and Sungur (2007). They investigated factor structure for the Turkish version and fit indices obtained from CFA supported proposed factor structure (GFI = .92, CFI = .90, RMSEA = .06, S-RMR = .07). Reliabilities of the subscales ranged from .64 to .81.

Survey of Classroom Goals Structures (Blackburn, 1998; Greene et al., 2004) was based on classroom structure proposed by Ames (1992) to support achievement goal. It is a four point Likert scale ranging from (1) strongly disagrees to (4) strongly disagree. The scale consists of

26 items and has 3 subscales: motivating tasks (10 items), autonomy support (5 items), and mastery evaluation (11 items). Motivating tasks subscale was used in this study. Motivating tasks refers to whether class activities and assignments are interesting for students (example item: "In this class activities and assignments are interesting"). The translation and adaptation of the scale into Turkish was made by Sungur and Gungoren (2009). They investigated factor structure for the Turkish version with middle school students and fit indices obtained from CFA supported proposed factor structure (GFI = .95, CFI = .98, RMSEA = .04, S-RMR = .03). The cronbach alpha reability of the motivating task subscale is .85.

Results

In the present study, it is aimed to predict coping strategies of middle school students in science classes by means of their personal goal orientations and their perception towards motivating tasks provided in the classroom. Data were analyzed using SPSS 20 program. In Table 1, titled Descriptive statiscs, mean, standard deviation, minimum, maximum, skewness, and kurtosis values were presented. The highest achievement goal that was reported by the participants was mastery-approach goal (M = 4.31, SD = .63) while the lowest was mastery-avoidance goal (M = 3.53, SD = 1.06). Students generally agreed that they use coping strategies when encountering with a difficulty in science class. The most frequently used coping strategy was positive coping (M = 4.31, SD = .83) which was followed by noncoping (M = 2.84, SD = 1.41). Additionally, students perceived science class work as motivating (M = 3.24, SD = .58).

Table I. Descriptive statistics

		M	SD	Min	Max	Skewness	Kurtosis	α
Achievement goals	**Mastery-approach**	4.43	.63	1.67	5.00	-1.29	1.94	.50
	Mastery-avoidance	3.53	1.06	1.00	5.00	-.50	-.53	.73
	Performance-approach	4.28	.81	1.33	5.00	-1.26	1.16	.70
	Performance-avoidance	3.85	.85	1.00	5.00	-.72	.43	.73
Academic coping strategies	**Positive coping**	4.31	.83	1.33	5.00	-1.60	2.15	.76
	Projective coping	2.04	1.21	1.00	5.00	1.04	.03	.82
	Denial coping	2.48	1.15	1.00	5.00	.52	-.59	.73
	Non-coping	2.84	1.41	1.00	5.00	.19	-.88	.76
Classroom goal structure	**Motivating tasks**	3.24	.58	1.30	4.00	-.92	.54	.81

Bivariate correlations between the variables of the study are calculated using Pearson moment correlation coefficient (r) and presented in Table 2. Accordingly, motivating task is positively correlated with positive coping (r = .41, p< .01) while negatively correlated with projective coping (r = -.25, p< .01). Besides, there are also some correlations between achievement goals and coping strategies. For instance, mastery-approach goal is positively related with positive coping (r = .37, p< .01) while negatively related with projective coping (r= -.25, p< .01) and non-coping (r = -.14, p< .05).

Table II. Bivariate correlations between achievement goals, coping strategies, and motivating tasks

Variables	1	2	3	4	5	6	7	8	9
1.Mastery-approach	1								
2.Mastery-avoidance	.20**	1							
3.Performance-approach	.35**	.26**	1						
4.Performance-avoidance	.29**	.59**	.50**	1					
5.Positive coping	.37**	.06	.29**	.23**	1				
6.Projective coping	-.25**	.10	-.10	-.01	-.23**	1			
7.Denial coping	-.10	.09	-.11*	.01	-.10	.55**	1		
8.Non-coping	-.14*	.33**	.12*	.17**	-.01	.23**	.15**	1	
9.Motivating tasks	.32**	.16**	.25**	.21**	.41**	-.25**	-.10	.06	1

*Note: **p< .01, *p< .05*

In order to examine how motivating tasks and achievement goals predict coping strategies, hierarchical multiple regression analyses were conducted. In hierarchical regression, predictor variables are entered in the model in an order (Tabachnick & Fidell, 2007). It is recommended to include predictors according to their importance for the prediction of the dependent variable (Field, 2009). Hierarchical regression enables to assess how newly added set of variables predict dependent variable after the previously entered set of variables controlled for (Tabachnick & Fidell, 2007). In this study, four separate hierarchical regression analyses were conducted with each coping strategy dependent variable (See Table 3). In the first step, motivating task was entered while in the second step, personal achievement goals were included in the model. In the model with positive coping dependent variable, motivating task (β= .43, p<.001) was a statistically significant and positive predictor which explained 18.8% of the variance in the dependent variable. In the second step, achievement goals were entered in the model. Mastery-approach (β= .26, p< .001) and performance-avoidance (β= .14, p< .05) were statistically significant and positive predictors while mastery-avoidance (β= -.14, p< .05)

was a statistically significant and negative predictor of positive coping. Achievement goals explained an additional 10.7% of the variance in the dependent variable. The total amount of variance explained in positive coping was 29.6%.

In the second model, projective coping was the criterion variable. In the first step, motivating task was entered in the model as a predictor variable and it (β = -.27, $p < .001$) was a statistically significantly and negatively related to projective coping. Motivating task explained 7.3% of the variance in the dependent variable. In the second step, achievement goals were entered to the model which helped to explain 7.1% of an additional variance. Thus, the total amount of explained variance in projective coping was 14.4%. Mastery-approach (β = -.24, $p < .001$) was a statistically significant and negative predictor while mastery-avoidance (β = .19, $p < .001$) was a statistically significant and positive predictor of projective coping.

Denial coping was predicted in the third model. Neither motivating task nor achievement goals were statistically significant predictors of denial coping. In other words, motivating task and achievement goals were unrelated to students' use of denial coping strategies when encountering with a difficulty in science class. The total amount of explained variance in denial coping was 4.2%.

In the last model, non-coping was the criterion variable. Motivating task, which was entered in the model in the first step, was unrelated to the criterion variable. In the second step, achievement goals were entered to the model. Among achievement goals, mastery-approach (β = -.29, $p < .001$) was a statistically significant and negative predictor while mastery-avoidance (β = .31, $p < .001$) was a statistically significant and positive predictor of non-coping. The amount of total variance explained in non-coping was 17.1%.

In summary, hierarchical multiple regression analyses results demonstrated that science class learning environment which was perceived to include motivating tasks was positively related to students' use of positive coping strategies while negatively related to students' use of projective coping strategies. Furthermore, mastery-approach goal oriented students were more likely to use positive coping strategies and less likely to use projective coping and non-coping strategies when encountering with a difficulty in science class. On the contrary to mastery-approach goal oriented students, students who endorse mastery-avoidance goals were less likely to use positive coping strategies while more likely to use projective coping and non-coping strategies. Additionally, performance-avoidance goal oriented students tended to use more positive coping strategies.

Table III. Hierarchical regression analyses predicting academic coping strategies

	Positive coping			Projective coping			Denial coping			Non-coping		
	B	**SE B**	***β***	**B**	**SE B**	***β***	**B**	**SE B**	***β***	**B**	**SE B**	***β***
Step 1	.20**	1										
Constant	2.32	0.24		3.86	0.37		3.17	0.37		2.52	0.36	
Motivating tasks	0.61	0.07	0.43***	-0.56	0.11	-0.27***	-0.21	0.11	-0.10	0.10	0.11	0.05
Step 2												
Constant	0.84	0.33		4.95	0.53		3.73	0.54		2.85	0.49	
Motivating tasks	0.44	0.07	0.31***	-0.44	0.12	-0.21***	-0.15	0.12	-0.07	0.13	0.11	0.07
Mastery-approach	0.34	0.07	0.26***	-0.46	0.12	-0.24***	-0.15	0.12	-0.08	-0.52	0.11	-0.29***
Mastery-avoidance	-0.11	0.05	-0.14*	0.21	0.07	0.19**	0.14	0.08	0.13	0.39	0.07	0.37***
Performance-approach	0.10	0.06	0.09	-0.03	0.10	-0.02	-0.18	0.10	-0.13	0.16	0.09	0.11
Performance-avoidance	0.14	0.07	0.14*	-0.01	0.11	-0.01	0.05	0.11	0.03	-0.06	0.10	-0.04

Notes:

1. In the first model with positive coping dependent variable, $R^2 = .19$ for Step 1; $\Delta R^2 = .11$ for Step 2 ($p < .001$).
2. In the second model with projective coping dependent variable, $R^2 = .07$ for Step 1; $\Delta R^2 = .07$ for Step 2 ($p < .001$).
3. In the third model with denial coping dependent variable, $R^2 = .01$ for Step 1; $\Delta R^2 = .03$ for Step 2 ($p < .05$).
4. In the fourth model with non-coping dependent variable, $R^2 = .00$ for Step 1; $\Delta R^2 = .17$ for Step 2 ($p < .001$).
5. *p< .05, **p< .01, ***p< .001.

Discussion

This study aims to investigate middle school students' coping strategies in relation to students' personal goal orientations and perceptions of motivating tasks provided in science class. Results show that a higher perception of motivating tasks in the classroom predicts students' use of positive coping strategies positively, while it predicts use of projective coping strategies negatively. This result indicates that in science classes where teacher makes use of activities which draws students' attention, are related to students' daily lives or future profession, and are meaningful for students, students have a higher tendency to use positive coping strategies like trying to understand their mistakes when they fail. Moreover, in the classrooms where motivating tasks are conducted more, students have a lower tendency to use

projective coping strategies such as blaming the teacher for their failures. This shows the importance of teachers' inclusion of motivating tasks into the lessons. By enriching the classes with activities that draws students' attention, science teachers may contribute to increasing students' use of positive coping strategies and decreasing their use of projective coping strategies. Class environments which increase curiosity of students towards learning by conducting different and varying activities increase tendency towards learning (Ames, 1992). Furthermore, students who find the activities provided in the classroom meaningful, useful, and interesting feel more confident in achieving goals of the lessons (Ames, 1992; Greene et al., 2004; Hidiroglu, 2014; Pintrich & Schunk, 2002; Sungur & Gungoren, 2009). Individuals with higher self-efficacy insist on succeeding a task for long term while individuals with lower self-efficacy have a tendency to give up the task quickly (Pintrich & Schunk, 2002). Individuals who insist on their tasks for long term use adaptive coping strategies, while those who get tired of the task very quickly have a tendency to use maladaptive strategies (Kaplan & Midgley, 1996). In this study, Classroom Goal Structures Survey (Blackburn, 1998; Greene et al., 2004) was used for detecting students' classroom goal structures and the survey was developed in order to exhibit classroom mastery goal structure (Ames, 1992). Providing motivating tasks in the classroom, which is one of the subdimensions of the scale, emphasizes classroom mastery goal structure. The findings of the current study which states that motivating tasks in classroom environment is positively associated with positive coping strategies and negatively associated with projective coping strategies are supported by the studies conducted by Dweck and Leggett (1988) and Kaplan and Midgley (1999). In these studies, the relationship between students' perceptions of learning environment, which handles mastery and performance goal structure, and academic coping is examined. The fact that students with mastery structured classroom perception exhibit positive outcomes (adaptive coping strategies) such as being insistent in the face of a difficulty and creating effective strategies are supporting the findings of the current study.

Another finding of the study is that the students with higher mastery-approach goals tend to utilize more positive coping strategies and less projective coping and non-coping strategies. In other words, it is seen that students who focus on developing their own skills and understanding the lesson better try to find their mistakes and tend not to blame their teacher in the event of a failure. Similarly, in Friedel et al. (2007)'s study with seventh grade students in mathematics class demonstrated that mastery goal orientation is positively related with positive coping strategies and negatively related with projective coping and denial strategies. The same result is supported by Taye and Zhou (2009), Brdar et al. (2006), and Delahaij and Dam (2016) who investigated coping strategies with a different classification. Taye and Zhou (2009) found that mastery goal orientation is positively associated with adaptive coping strategies of active coping, positive reinterpretation and growth, and planning. Moreover, the

fact that students with mastery goal orientation makes use of problem focused coping strategies (Brdar et al., 2006; Delahaij & Dam, 2016) is consistent with the findings of this study.

Another finding of the study is that contrary to mastery-approach goal orientation, mastery-avoidance goal orientation is negatively related to positive coping strategy and positively related to projective coping and non-coping strategies. This result is inconsistent with the literature (Brdar et al, 2006; Delahaij & Dam, 2016; Friedel et al., 2007; Taye & Zhou, 2009). However, previous studies (e.g. Brdar et al, 2006; Delahaij & Dam, 2016; Friedel et al., 2007) generally did not use approach and avoidance division but used mastery and performance goal orientation and examined how these two goal orientations were related with coping strategies. When the items of the scales used in these studies are inspected, it is seen that mastery and performance goals were addressed from approach dimension. There are a few studies which make a distinction between approach and avoidance goal orientation and examine their relations with coping strategies. For example, Kahraman (2011) investigated the relationship between personal goal orientations (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) and coping strategies among middle school students in Turkey. A positive relation between maladaptive coping strategies and mastery-avoidance goal orientation was found. That is, students with mastery-avoidance goals tend to utilize maladaptive strategies such as ignoring and blaming self and others when they encounter an academic difficulty. Findings of the current study are consistent with the findings of Kahraman.

Another interesting result is that in the face of an academic difficulty, students with performance-avoidance goal orientation utilize positive coping strategies such as seeking help, and recognizing and analyzing own mistakes. In their study, Taye and Zhou (2009) found that performance-avoidance goal orientation is not related with adaptive coping strategies but it predicts maladaptive coping strategies positively. The researches state that cultural factors, family, and beliefs of the society in which the students are raised have a significant role in this result. While explaining the relationship between the goal orientations and coping strategies, Kahraman (2011) also referred to the importance of factors such as Turkish education system and cultural factors and stated that in societies with collectivist culture such as Turkey, mastery-avoidance goal orientation is more dominant. Individuals in collectivist societies have a higher tendency to adopt avoidance goals and in this type of societies, avoidance goal orientation is not associated with maladaptive outcomes. This is because impulse of blocking and coping with negative results is valuable in these societies in which individuals define their personality in accordance with the society (Elliot, Chirkov, Kim, & Sheldon, 2001). In their study conducted in Turkey, Sungur and Senler (2009) pointed out that having a

performance-avoidance goal orientation may act as a driving force for students for a better performance in a competitive education system. The results of the present study show that students who focus on not receiving lower grades and not failing in front of others have a higher tendency to utilize positive coping strategies and support the findings of the studies conducted in Turkey.

The present study found no relationship between personal goal orientations and denial coping strategies. Similarly, Friedel et al. (2007) and Taye and Zhou (2009) did not find a relation between mastery goal orientation and denial coping. This result supports that in the event of failure, having a mastery goal orientation is not associated with ignoring the failure. While Taye and Zhou (2009) could not also find an association between performance-approach and denial coping, Friedel et al. (2007) found that students who endorse performance-approach goals have a higher tendency to utilize denial coping. Taye and Zhou (2009) found that only performance-avoidance predicts denial coping and they are positively related. Consistent with the results of the present study, Kahraman (2011) also could not establish a relation between Turkish middle school students' goal orientations and their use of denial coping strategies. This result may be related to the highly competitive and exam oriented structure of Turkish education system. This is because in such a system, students do not have the luxury to ignore their mistakes. In a system like this, students have a tendency towards both to attend a good high school and to avoid being the worst student in their class (Kahraman, 2011). The fact that there are different results in the literature regarding performance goals and denial coping shows that further studies are needed on this subject.

Findings of the present study support benefits of motivating tasks in science classes and endorsing mastery-approach goals for students' use of more adaptive coping strategies. Thus, it is suggested science teachers to use tasks which are interesting and meaningful for students and are related to students' lives or future careers. Furthermore, in order to promote students' orientations toward mastery-approach goals, teachers may emphasize that comprehension of the material is important, recognize students' effort, and highlight self-improvement (Ames, 1992).

This study has some limitations which must be mentioned. First of all, the results obtained in the study relies on the responses given by the students to the data collection tools. In future studies, in addition to data collection with surveys, interviews and observations may be utilized in order to explore the relations between the variables of the study. For example, with observations, the motivating classroom tasks utilized by the teachers may be analyzed in depth. Another limitation of this study is about the handled classroom environment dimension. In this study, among classroom environment goal perceptions, motivating tasks dimension is

focused on. In future studies, investigation of academic coping strategies in relation to autonomy support and mastery evaluation dimensions of classroom structure can be done. Moreover, the study is limited to science lesson. Examining the relations between handled factors in different lessons is required for generalizing the results to other courses.

References

Ames, C. & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, *80*(3), 260-267.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, *84*(3), 261-271.

Blackburn, M. (1998). *Academic cheating*. Unpublished doctoral dissertation, University of Oklohoma.

Brdar, I., Rijavec, M. & Loncaric, D. (2006). Goal orientations, coping with school failure and school achievement. *European Journal of Psychology of Education*, *21*(1), 53-70.

Ciani, K. D., Middleton, M. J., Summers, J. J. & Sheldon, K. M. (2010). Buffering against performance classroom goal structures: The importance of autonomy support and classroom community. *Contemporary Educational Psychology*, *35*(1), 88-99.

Delahaij, R. & Van Dam, K. (2016). Coping style development: The role of learning goal orientation and metacognitive awareness. *Personality and Individual Differences*, *92*, 57-62.

Dweck, C. S. & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, *95*(2), 256-273.

Elliott, A. J. & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation. *Journal of Personality and Social Psychology*, *73*, 171-185.

Elliot, A. J. & McGregor, H. A. (2001). A 2× 2 achievement goal framework. *Journal of Personality and Social Psychology*, *80*(3), 501.

Elliot, A. J., Chirkov, V. I., Kim, Y. & Sheldon, K. M. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science*, *12*(6), 505-510.

Field, A. (2009). *Discovering statistics using SPSS*. (3rd Ed). Thousand Oaks, CA: Sage.

Folkman, S. & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annu. Rev. Psychol.*, *55*, 745-774.

Friedel, J. M., Cortina, K. S., Turner, J. C. & Midgley, C. (2007). Achievement goals, efficacy beliefs and coping strategies in mathematics: The roles of perceived parent and teacher goal emphases. *Contemporary Educational Psychology*, *32*(3), 434-458.

Fraenkel, J. R., Wallen, N. E. & Hyun, H. H. (2012). *How to design and evaluate research in education.* (8th Edt.). New York: McGraw-Hill.

Gegenfurtner, A. & Hagenauer, G. (2013). Achievement goals and achievement goal orientations in education. *International Journal of Educational Research*, *61*(1), 1-4.

Greene, B. A., Miller, R. B., Crowson, H. M., Duke, B. L. & Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*, *29*(4), 462-482.

Hidiroglu, F. M. (2014). *The role of perceived classroom goal structures, self-efficacy, and the student engagement in seventh grade students' science achievement*, Doctoral dissertation, Middle East Technical University, Ankara, Turkey.

Kahraman, N. (2011). *Antecedents and consequences of achievement goals*. Doctoral dissertation, Middle East Technical University, Ankara, Turkey.

Kaplan, A. & Midgley, C. (1999). The relationship between perceptions of the classroom goal structure and early adolescents' affect in school: The mediating role of coping strategies. *Learning and Individual Differences*, *11*(2), 187-212.

Linnenbrink, E. A. & Pintrich, P.R. (2003). The role of self-efficacy beliefs in student engagement and learning in the classroom. *Reading & Writing Quarterly*, *19*, 119-137.

Lyke, J. A. & Young, A. J. K. (2006). Cognition in context: Students' perceptions of classroom goal structures and reported cognitive strategy use in the college classroom. *Research in Higher Education*, *47*(4), 477-490.

McMillan, J.H. & Schumacher, S. (2006). *Research in education: Evidence-based inquiry*. (6th Ed.). London: Pearson.

Ministry of National Education (2013). *Primary and middle school science curricula (grades 3, 4, 5, 6, 7, and 8)*. Ankara.

Pintrich, P. R. (2000). An achievement goal theory perspective on issues in motivation terminology, theory, and research. *Contemporary Educational Psychology*, *25*(1), 92-104.

Pintrich, P. R. & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications* (2nd Ed.). Englewood Cliffs, NJ: Prentice Hall Merrill.

Ryan, A. M., Gheen, M. H. & Midgley, C. (1998). Why do some students avoid asking for help? An examination of the interplay among students' academic efficacy, teachers' social–emotional role, and the classroom goal structure. *Journal of Educational Psychology*, *90*(3), 528-535.

Senler, B. & Sungur, S. (2007). Hedef yönelimi anketinin Türkçeye çevrilmesi ve adaptasyonu, 1. *Ulusal İlköğretim Kongresi*, *18*.

Sungur, S. & Gungoren, S. (2009). The role of classroom environment perceptions in self-regulated learning and science achievement. *Elementary Education Online*, *8*(3), 883-900.

Sungur, S., & Senler, B. (2009). An analysis of Turkish high school students' metacognition and motivation. *Educational Research and Evaluation, 15*(1), 45-62.

Kahraman, N. & Sungur, S. (2011). The contribution of motivational beliefs to students' metacognitive strategy use. *Egitim ve Bilim, 36*(160), 3-10.

Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th Ed.). Boston: Pearson Education.

Tas, Y. (2008). *The interplay of students' perceptions of classroom goal structures, personal goal orientations and learning related variables*. Master's Thesis, Middle East Technical University, Ankara, Turkey.

Taye, E. A. & Zhou, Z. (2009). Effects of Goal Orientations on Coping Strategies and Self-Efficacy for Ethiopian University Students in Their Academic Life. *Pakistan Journal of Social Sciences*, *6*(6), 372-375.

Urdan, T. C. (1997). Examining the relations among early adolescent students' goals and friends' orientation toward effort and achievement in school. *Contemporary Educational Psychology*, *22*(2), 165-191.