



INVESTIGATING TURKISH MIDDLE SCHOOL STUDENTS' COPING STRATEGIES IN SCIENCE

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Abstract

This study aimed at investigating firstly, whether gender differences exist in Turkish middle school students' use of coping strategies in science classes, and secondly, whether there are mean level differences in students' positive coping, projective coping, denial coping, and non-coping when they face an academic failure in science. For this purpose Academic Coping Inventory, were administered to 997 7th grade elementary students. The findings suggest that there is no significant difference between girls and boys in terms of using coping strategies when they face an academic failure in science. Further, overall, Turkish middle school students tend to use positive coping strategies or non-coping strategies when they face an academic failure in science. In other words, they try to find what they did wrong, and they study hard for the next time, and they tend to blame themselves for the failure.

Keywords: Coping Strategies, Science, Gender

INTRODUCTION

Coping can be defined as thoughts, behaviors, or may be strategies that are used to manage a negative or stressful event like an academic failure (Lazarus and Folkman, 1987; Kamins and Dweck, 1999; Folkman and Moskowitz, 2004). Students cope with an academic failure in three stages. In the first stage, students define the event as an obstacle to their goals. In the second stage, students think about the possible strategies to handle the negative event, and choose one of them. In the third stage, students apply the decided solution (Lazarus and Folkman, 1986; Lazarus and Folkman, 1988; Lazarus, 1990).

There are various coping strategies that people can use when they face a difficulty. Tero and Connel (1984) classified coping strategies under the four categories; positive coping, projective coping, denial coping and non-coping. Positive copers may ask for help and try to find out where the wrong was done when they face an academic failure. On the other hand, projective copers blame other people, like their teacher, for their failure. Thirdly, denial copers try to forget, or ignore the failure. Lastly, non-copers blame themselves.

Some of the coping strategies are related to positive outcomes, while others are related to negative outcomes. Therefore, researchers also classified coping strategies as adaptive and maladaptive strategies. Trying again, studying more or finding errors, and help seeking are examples of adaptive or positive coping. On the other hand, accusing others, or ignoring the mistakes are examples of maladaptive or negative strategies (Kaplan and Midgley, 1999; Friedel, Cortina, Turner and Midgley, 2007). In Tero and Connel's classification, while positive coping refers to adaptive coping because of their relation to positive outcomes, projective, denial and non-coping refer to maladaptive coping because of their relation to negative outcomes (Kaplan and Midgley, 1999).

Additionally, using a coping strategy is a personal choice; that is reactions to a stressful event can change person to person. For instance, while some students persist at the difficult task in science, others can give up quickly (Lazarus and Folkman, 1986; Folkman, Lazarus, Gruen and DeLongis, 1986; Folkman, Lazarus, Dunkel, Schetter, DeLongis, and Gruen, 1986; Lazarus and Folkman, 1988; Lazarus, 1990). Besides, there are many factors that may influence students' use of coping strategies. Although, relevant literature suggests gender as one of the demographic factors that influence coping styles (Feldman, Fisher, Ransom, and Dimiceli, 1995), there are a few studies that examined gender differences in students' coping strategy use for academic failure (Altermatt, 2007). These studies revealed that girls tend to use maladaptive coping strategies more than boys and tend to blame their ability for the failure. In general, they tend to use maladaptive coping strategies when they face an academic failure (Altermatt, 2007; Hampel and Petermann, 2005). According to the Thinklin (2003), girls value education, and tend to be better prepared more than boys (Lawrance, Ashford, and Dent, 2006). However, there is a large difference in the performance tests of science (Meece and Jones, 1996). These may be because society gives different roles to girls and boys (Piko, 2001). For example, science is known as more male dominant field. Much science oriented occupations like physical science and engineering are chosen by males since the tradition lead them in that way. On the other hand, girls tend to choose occupations that can help society like teachers or nurses (Eccles, 1994). Hence, girls tend to think that their ability is inadequate in the domains such as science, and math and they tend to blame themselves when they face an academic failure in these domains. In contrast, boys tend to blame other external factors or study harder for the next time instead of blaming their ability.

In the light of abovementioned literature, the present study aims at examining firstly, whether gender differences exist in Turkish middle school students' use of coping strategies in science classes, and secondly, whether there are mean level differences in students' positive coping, projective coping, denial coping, and non-coping when they face an academic failure in science.

METHOD

Design of The Research

This study is a descriptive research. It aim to investigate Turkish middle school students' use of coping strategies in science classes. Moreover, it is a cross sectional study and the findings of the present study are based on students' responses to self-report instruments.

Participants

Nine hundred and seventy seven, 7th grade, public school students (494 girls, 483 boys) participated in the study.

Instruments

Academic Coping Inventory (ACI) is a self-report questionnaire developed by Tero and Connell (1984) to assess students' use of coping strategies when faced with an academic failure. It is a five point likert scale from 1 "do not believe at all" to 5 "completely true". It consists 13 items in four sub-scales namely, positive coping (3 items), projective coping (3 items), denial coping (3 items), and non-coping (4 items).

It was translated and adopted to Turkish by the researchers of the current study. During its validation for Turkish sample, a series of confirmatory factor analyses were conducted. Additionally, cronbach's alpha coefficients were computed to assess internal consistencies of the sub-scales. The internal consistency reliabilities were found to be .70 for the positive coping, .78 for the projective coping, .75 for the denial coping and .83 for the non-coping for the current study.

FINDINGS

A Multivariate Analysis of Variance (MANOVA) was conducted to investigate gender differences in middle school students' coping strategy use in science. The results indicated that there is no significant difference between girls and boys in terms of using coping strategies when they face an academic failure in science (Wilks' Lambda = .990, $F(3,976) = 2.343$, $p = .053$).

A repeated measure ANOVA was conducted to investigate middle school students' coping strategies when they face a failure in science. The results indicated statistically significant differences in means among four coping strategies (Wilks' Lambda = .346, $F(3,976) = 6.126$, $p = .000$, $\eta^2 = .654$). Paired sample t-test with Bonferroni procedure indicated that students adopt positive coping strategies at significantly higher levels ($M = 4.48$, $SD = .66$) compared to projective coping ($M = 2.63$, $SD = 1.30$), denial coping ($M = 2.89$, $SD = 1.22$), and non-coping ($M = 3.33$, $SD = 1.14$). The second highest mean belonged to non-coping strategies, and it was also significantly higher than projective coping and denial coping. Additionally, students were found to use projective coping strategies at lower levels than denial coping strategies.

DISCUSSION

The present study aimed to investigate firstly, gender differences in Turkish middle school students' use of coping strategies in science classes, and secondly, whether there are mean level differences in students' positive coping, projective coping, denial coping, and non-coping when they face an academic failure in science. The results indicated that there is no difference between girls and boys in the use of coping strategies when they face an academic failure in science. It was a surprising result since, based on the relevant theory and literature, boys were expected to use coping strategies at higher levels. But, at this point it's worth mentioning that the recent literature relating to gender differences suggest that girls started to compete head to head with boys in science (Gibb, Fergusson and Horwood, 2008). The recent studies in Turkey also demonstrated that the gender difference in the science attitude and achievement is on the decrease (Horzum and Alper, 2006). Parallel to these findings, the result of the current study is highly promising that girls and boys do not differ in coping strategy use and they use adaptive strategies at high levels. Furthermore, results also suggested that Turkish middle school students appeared to use positive coping strategies or non-coping strategies at higher levels when they face an academic failure in science. In other words, they try to find what they did wrong, they study hard for the next time, and they tend to blame themselves for the failure. To make students use adaptive coping strategies more effectively, teachers should focus on students' self improvement in science classrooms. They should lead students learn new things and improve their skills in science, and should emphasize that each students can learn science if s/he put the necessary effort forth. In other words, students should be able to realize that learning science is not depending on the ability. Moreover, teachers should emphasize that making mistakes are acceptable, if students learn something from them (Kaplan and Midgley, 1999; Ntoumanis, Biddle, and Haddock, 1999).

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