



ACADEMIC PROCRASTINATION AND GENDER AS PREDICTORS OF SCIENCE ACHIEVEMENT

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Abstract

The present study investigated elementary students' science achievement in relation to academic procrastination and gender. A total of 4725 public elementary students ($n = 2335$ girls, $n = 2379$ boys, and $n = 11$ gender not provided) participated in the study. In order to collect the data The Tuckman Procrastination Scale and a Science Achievement test were utilized. Multiple regression analysis revealed that the overall model was statistically significant. In the model both academic procrastination and gender were found to make a significant contribution to the variation in elementary students' science achievement. More specifically, results showed a negative relationship between academic procrastination and achievement. Additionally, girls appeared have higher science achievement compared to boys.

Keywords: Procrastination, Gender, Science Achievement.

INTRODUCTION

Science has greater importance in today's world more than the past because rapid technological development inserts scientific knowledge in everyday life and makes it more valuable. In this direction radical change in science education is inevitable. Regarding the need for change and keeping up with the change, the curriculum used in elementary science education in Turkey has been changed. The main vision of the curriculum defined by Ministry of National Education of Turkey [MONE] (2005) is that regardless of the individual differences of students, they are educated to become scientifically literate. The uniqueness nature of the learner; background and culture of the learners and motivation of the learners were taken into consideration in the development of the curriculum (MONE, 2005). Dealing with individual differences and aiming to make every student scientifically literate, the new science curriculum in Turkey bring necessitate examining the reasons differences in the achievement level of students.

Study habits distinguish underachieving students from overachieving students (Lum, 1960) and educational psychology provides an explanation for the differences in students' achievement level by procrastination based mainly on cognitive- behavioral factors (Boffeli, 2007). The most commonly used definition procrastination is "the act of needlessly delaying tasks to the point of subjective discomfort" (Solomon & Rothblum, 1984, p. 503). In another aspect, Urdan and Midgley (2001) defined procrastination as intentional decisions and intentional production of impediments to success. Specifically, academic procrastination is a students' tendency to intentionally postpone such academic tasks such as reading assignments, homework and studying for examinations despite of its negative outcomes (Howell & Watson, 2007; Senecal, Koestner, & Vallerand, 1995; Steel, 2007). More than 80% of the Turkish adolescents procrastinate with spending one hour each day and more than 40% of them spend three or more hour with procrastinating during school days (Klassen & Kuzucu, 2009).

Steel (2007) found nature of procrastination history back to 800 B.C..However, procrastination in academic settings was not studied until the 1980s (Schouwenburg, 2004). And from that day forward various studies have been conducted to reveal the relationships of procrastination with other variables; one of the most widely studied variables with academic procrastination is academic achievement. Majority of such studies revealed



negative association between, academic procrastination and academic achievement (Beswick, Rothblum & Mann, 1988; Klassen, Krawchuk & Rajani, 2008; Owens & Newbegin, 1997; Steel, 2007). Almost all studies, investigating the relationship between procrastination and achievement in academic setting, were conducted on college or undergraduate students (e.g. Bruinsma & Jansen, 2009; Lay & Schouwenburg, 1993). So the number of studies, done on young students about their procrastination level and achievement is insufficient. One of the rare studies was conducted by Dietz, Hofer and Fries (2007) on 6th- 8th grade students and the variables were found negatively related. Another common tendency in academic procrastination literature is working with the students from psychology or psychology related courses (e.g. Howell & Watson, 2007; Klassen, Krawchuk & Rajani, 2008; Solomon & Rothblum, 1984). But task characteristics play important role in students' procrastination behavior (Steel, 2007). Therefore, there is need for studies examining the relationship of young students' procrastination and achievement, rather than the achievement of psychology or psychology related courses.

Gender difference in students' science achievement is a fluid field in the literature because related literature revealed mixed results concerning gender differences in science achievement; some studies show that girls achieve at an equal or higher level than boys (e.g. Greenfield, 1996; Sencar & Eryilmaz, 2004; Zohar & Sela, 2003) and some others indicated boys achieve higher level than girls (e.g. Altınok, 2005; Burkam, Lee, & Smerdon, 1997). Besides, more recent report of the Program of International Student Assessment (PISA) focused on examination of gender differences in students' science achievement and found minimal gender differences and different outcomes depending upon the country (OCED, 2009). Specifically, Turkish girls scored higher than boys in PISA. Also, results of some studies claimed that underachieved students' gender has been shifted over years from girl to boy (Epstein, Elwood, Hey & Maw, 1998; Frosh, Phoenix & Pattman, 2002; Van Houtte, 2004). For instance, girls in the U.S. have been encouraged in the areas; they academically troubled in such as math and science, as a result of this approach boys are underachiever in the areas now (Breskin, 2009). Since there are conflicted results for the relationship between gender and science achievement, there is need for examination of the relationship.

Overall, in line with the aforementioned literature, current study aims to investigate how well procrastination and gender predict Turkish elementary students' science achievement.

METHOD

Sample

A total of 4725 seventh grade students (2335 girls and 2379 boys) with a mean age of 13.12 participated in the study.

Instruments

Background Characteristics Survey was used to gather information about elementary students' gender and age. *The Science Achievement Test* was used to assess 7th grade students' science achievement. It is 14 item multiple-choice test. The items were about the force and motion, body systems, and electricity and selected from previous years' nation-wide examinations. Cronbach alpha for the present study was .75.

The Tuckman Procrastination Scale (Tuckman, 1991) was used to measure elementary students' procrastination tendencies in science. It is a self-report instrument and adapted to Turkish by Uzun Özer, Saçkes and Tuckman (2009). In the present study the alpha coefficient for the scale was .88.

Procedure

The present study aimed to explore relationships among seventh grade elementary students' science achievement in relation to academic procrastination and gender using multiple regression analysis. Accordingly, this study is a correlational study which relies on the data from self-report instruments.

RESULTS

A multiple linear regression analysis was conducted to evaluate the prediction of science achievement of students from linear combination of academic procrastination and gender. Preliminary analyses were



conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Academic procrastination and gender variables explained 4 % of the variance in students' science achievement scores. Results showed that the overall model was statistically significant ($F(2, 4711) = 103.129, p = .000$). In the model both academic procrastination ($\beta = -.187$) and gender ($\beta = -.061$) were found to make a significant contribution to the variation in elementary students' science achievement. While procrastination was found to be negatively linked to science achievement, girls ($M = 8.37, SD = 3.18$) appeared to have higher science achievement scores compared to boys ($M = 7.80, SD = 3.28$).

DISCUSSION AND CONCLUSION

The current study aimed at examining elementary school students' science achievement in relation to their academic procrastination and gender. Consistent with the findings in the relevant literature, which were conducted mainly at college or undergraduate levels, results revealed a negative relationship between elementary students' procrastination levels and their science achievement. Because this study was conducted with elementary students, it has potential to make contribution to literature about young students' study habits and their relation with achievement. Indeed, it is generally mentioned by teachers, parents and school psychologists that there is not enough study in the literature about the young students' procrastination behavior (Ferrari, Johnson and McCown, 1995) especially for young Turkish students. However, conducting studies about young students' study habits are vital since early recognition about dysfunctional behaviors of students' could be used to detect the children under risk and to develop prevention strategies for these students (Ferrari, Johnson and McCown, 1995). In addition, studies on academic procrastination in science or related courses are very limited in the related literature: most of the studies were about the procrastination in psychology related courses. Findings of the present study suggested that relationship between students' procrastination in science and their achievement do not show any different patterns. Still, there is a need for conducting similar studies for different courses such as mathematics, social studies.

Additionally, results of the present study showed that girls have higher science achievement compared to boys. This relationship might be affected by individual, sociocultural, family, and educational variables (Kahle & Meece, 1994). Students' approach to science is related to topics; girls prefer biological sciences and boys are more interested in physical sciences (Brotman & Moore, 2008). And students' science preference has been consistent for years also it has been influenced by culture. Gender role stereotypes are dominant also in Turkish culture (Eskin, 2003). Girls are expected to be more successful because of the collectivistic and interdependent nature of Turkish culture (Karabatipoğlu & İmamoğlu, 2002). Additionally, girls' achievement motivation is related with their feelings of loyalty and obligation to their family (Verkuyten, Thijs & Canatan, 2001). Aforementioned reasons may account higher science achievement of girls in Turkey. Besides, future studies can examine the effect of new Turkish science curriculum on the relationship between science achievements and gender because the new curriculum was prepared considering individual differences of the students and aiming to make every student scientifically literate.

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