

The Relationship Between Problem-Solving Ability with Academic Procrastinating and Academic Self-Efficacy Among Male First Grade High School Students

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Abstract--*The purpose of this study was to determine the relationship between problem-solving skill with academic procrastination and self-efficacy among male first grade high school students. This research method was descriptive and correlational. The participants consisted of all male first grade high school students from Tehran's 4th District in the academic year 1396. A number of 250 students were selected through multistage cluster sampling. The instruments of this study were academic self-efficacy questionnaire (Jinks & Morgan, 1999), problem-solving inventory (Heppner & Peterson, 1982), and academic procrastination questionnaire (Solomon & Ruthblum, 1984). Data were analyzed by descriptive statics, coefficient correlation, and regression using IBM SPSS-22 software. The results showed a positive and significant ($P < .05$) relationship between three components of problem-solving skill _confidence in problem-solving, proximity-avoidance and academic self-efficacy, and a reverse significant ($P < .05$) relationship with academic procrastination. Regression analysis indicated that problem-solving skill compromised 40 percent of academic constructs (academic self-efficacy and procrastination) variance among male first high school students.*

Key words--*Problem-solving skill, academic procrastination, academic self-efficacy, male students.*

I. INTRODUCTION

In recent years, especially after the introduction of Bemdura's influential theory of social learning, the impact of socio-cultural factors on learning has received considerable attention. Pajares and Valiate (2004) consider self-efficacy as the most important part of Bemdura's Scio-cognitive theory; and they believe that self-efficacy beliefs forms the basis of motivation, mental health, personal preferences, and one's capability to change his/her behavior (1). Bemdura (1996; cited in Parsakev, Boutu & Papagianni) defines self-efficacy as the personal judgements of one's capabilities to accept certain behaviors and actions to attain specific goals and achievements. Based on this theory, self-efficacy plays has the highest impact on behavior control and environmental demands. Academic self-efficacy is defined as the confidence in completing academic tasks such as studying, answering the questions in the classroom, and being prepared for exams (2).

High levels of academic self-efficacy results in higher GPA and persistence in completing tasks. Therefore, students with higher academic self-efficacy will have better academic adjustments and overall performance (3). Many studies has shown the positive relationship between self-efficacy and academic achievement (4).

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In another study, Hosseini and Karimnia (1395) argued that problem-solving is one of the variables that has positive relationship with academic self-efficacy. In the late 1960s, problem-solving was a part of cognitive-behavioral therapy; Drozill and Goldfrid (2003, cited in Izaditameh, Borjali, Delavar & Eskandarizadeh, 1389) who designed this approach in a series of research articles put a great emphasis on applying problem-solving skill in skill teaching programs. Based on Macmurran and Christopher's definition, problem-solving is a cognitive-behavioral process in which a person or a group attempts to find an effective solution for daily living problems (2011). The problem is when one has a goal, but there is not a specific and clear way to achieve that goal. Problem-solving processes provides solution to any problem and difficult situation (5). Problem-solving is regular logical process that enables a person to seek different solutions when facing a problem, therefore, he/she can choose the best solution. In other words, problem- solving is a conscious- logical, demanding, and purposeful process (6). Having sufficient ability for successful problem-solving increases self-esteem and self- controlling, but the lack of required problem-solving skills and using inappropriate solutions will cause problems for adjustment to the environment, and consequently mental health will be at risk. Acquiring necessary problem-solving skills enables you to deal with your problems more productively (7). Haghighi and Hashemi's (1394) study showed that self-efficacy has a negative significant relationship with students' academic procrastination. Procrastination is defined as the willingness to avoid completing tasks, delaying a task, and making excuses (8).

The concept of procrastination derives from the difference between its cognitive, emotional, and behavioral components that a procrastiner has all of them together. Procrastination, regarding the complexity of its components, has different manifestation including general procrastination, compulsive procrastination, neurotic procrastination, and academic procrastination (9). The most common type is academic procrastination which Ruthblum, Solomon and Murkami (2003) argue that in this type of procrastination, learners show constant tendency to delay completing academic tasks that always causes anxiety. For instance, some students may delay studying until the night before exam.

Undoubtedly, students' growth and efficacy is influenced by psychological traits in their adolescence, and different factors affect their growth and well-being. Most of the factors that affect students' performance in school derives from the emotional problems and the efforts and they make to tackle their personal and social problems. And studies has shown that lower level of self-efficacy is one the main reasons of academic failure among students (10). Students with higher self-efficacy have better academic performance; and, based on intrinsic motivations they will complete their academic tasks automatically(11). Moreover, several studies has shown that different psychological factors such as problem-solving skills and procrastination affect students' academic self-efficacy (12). In other words, students with higher problem-solving skill, and lower levels of procrastination have higher motivation for completing their tasks; they also have better self-controlling skills and higher automaticity. Although findings of several studies has in emphasized the role of self-efficacy in students' academic achievements, more researches are needed to determine the factors that affect self-efficacy. Furthermore, regarding the importance of self-efficacy, its relationship with several factors such as problem-solving skills and personal fulfillment has been investigated. Since the concept of self-efficacy is of paramount importance to some organizations such as Sate Welfare Organization and Ministry of Education, and the needs of such organizations for the findings of researches investigating self-

efficacy and because of lack of comprehensive and in-depth studies; this study was aimed at determining the relationship between problem-solving skill and procrastination with academic self-efficacy among male first grade students.

II. METHODOLOGY

This study was descriptive and correlational. Research population consisted of a total number of 250 males first grade students from 1st District of Tehran in the academic year 1396-97. A sample of 150 were selected through multistage cluster sampling. Research instruments consisted of:

A) Academic self-efficacy inventory (Jinks & Morgan, 1999): this scale contains 30 items on 4-degree Likert measure rating from 4 (strongly agree) to 1 (strongly disagree). Items number 4, 5, 15, 16, 19, 20, 22, and 23 are negatively keyed. Internal consistency of this scale was reported as 0.82 using Cronbach's alpha (Mutong, 2015). In Iran, the reliability of this scale was calculated by Adhami (1395).

B) Problem-solving inventory: this questionnaire was designed by Hepener and Peterson (1982) for the purpose of the beliefs of participants about their problem-solving behaviors. This questionnaire contains 35 items on 6-degree Likert scale rating from 1 (strongly agree) to 6 (strongly disagree). This scale is based on factor analysis rotation and contains three subscales: problem-solving confidence (PSC) containing 11 items (5, 10, 11, 12, 19, 23, 24, 27, 33, 34, 35), approach and avoidance (AA) with 16 items (1, 2, 4, 6, 7, 8, 13, 15, 16, 17, 18, 20, 21, 28, 30, 31), personal control (PC) with 5 items (3, 14, 25, 26, 32), and the exterior items (9, 22, 29). Items marked with asterisks has been negatively keyed. The questionnaire was translated into Farsi by Razaati under Khosravi's supervision for the first time in Iran in 1375 (13). In a study by Khosravi, Darvizeh, and Razaati (1377), based on Dazel's (1383) research, a satisfactory Cronbach's alpha was yielded for this questionnaire. In another study by Rastgoo and his colleagues (1389) the reliability coefficients for this scale were calculated as 89% and 83% in a two-week interval. Based on alpha coefficient calculations (PSC 85%, AA 84%, and PC 72%), these subscales enjoy satisfactory internal consistency. Since original questionnaire was in English an expert helped the researcher to translate it into Persian. Then, the researcher and his colleagues revised the questionnaire for several times and they handed it out to 100 students. The obtained alpha coefficient for PSC, AA, and PC were 80%, 78%, and 70% respectively (14).

C) Academic procrastination questionnaire (Solomon & Ruthblum, 1989): this scale was designed by Solomon and Ruthblum (1986) to measure students' academic procrastination in subscales (preparing the task, preparation for exams, and midterm reports). This scale contains 21 items that should be rated on a 5-point scale (1= never, 2= rarely, 3= sometimes, 4= often, and 5=always). In addition to these items, a number of 6 items (7, 18, 19, 26, 27) are also included in the questionnaire to measure "desire to change procrastination" and "procrastination is problem". Cronbach's alpha coefficient was used to assess the reliability of academic procrastination scale (15). Onwuegbuzie (2004) from University of South Florida calculated Cronbach alpha coefficient for three components of this questionnaire as 84%, 85%, and 76% respectively. Jokar and Delvarpour (1386) administered factor analysis and total item correlation to calculate the reliability of academic procrastination scale.

Based on Initial factor analysis, KMO value was reported as 88%; and the correlation of items with total scale was significant and at the desired level. This measure has been used in research domains and it does not have a cut-off score. But Hopped (16). has defined the score more than 60 as high, and less than 35 as low level of procrastination. Data were analyzed by descriptive statics, coefficient correlation, and regression using IBM SPSS-22 software.

III. RESULTS

Table 1. Descriptive statics of research variables for male first grade students

Variables		Mean	Standard deviation
Problem -solving	Confidence	41.74	4.84
	Approach-Avoidance	44.52	5.33
	Self-Control	21.96	3.62
	Total score	108.22	12.56
Procrasti nation	Task preparation	16.43	3.22
	Exam preparation	18.39	4.11
	Report preparation	14.91	2.55
	Anxiety-Related procrastination	17.86	3.89
	Total score	63.54	8.12
	Academic self- efficacy	56.14	9.23

As can be seen in Table 1 the mean for problem-solving is 108.22 (12.56). Furthermore, according to the table approach-avoidance 44.52 (5.33) and personal control 21.96 (3.62) has the highest and the lowest mean (and - +SD) respectively. Data of problem-solving and self-efficacy subscales for first grad high school male students are shown in table 1.

Table 2. Kolmogorov–Smirnov test for normal distribution of scores

Variables	Kolmogorov–Smirnov test static	Level of significance
Academic procrastination	2.408	0.342
Academic self-efficacy	1.327	0.462
Problem-solving skill	1.219	0.601

Results of Kolmogorov–Smirnov test are shown in Table 2. As can be seen, internal confidence for normal distribution of research variables is reported as 95%.

Table 3. Pearson correlation coefficient between problem-solving skill and academic self-efficacy among male first grade students

Predictor variable	Academic self-efficacy	P-value
Problem-solving skills	0.420**	0.001
Confidence in problem-solving	0.211**	0.001
Approach-avoidance	0.317**	0.002
Self-control	0.361**	0.001

**P<0.05

According to table 3 there is a positive significant relationship between problem-solving skill and it's with academic self-efficacy among male first grade students (P<0.05)

Table 4. Pearson correlation coefficients between problem-solving skill and academic procrastination among male first grade students

Variables	Procrastination	Level of significance
Problem-solving skills	-0.251**	0.001
Confidence in problem-solving	-0.133**	0.002
Approach-avoidance	-0.127**	0.003
Self-control	-0.121**	0.002

$P \leq 0.01$ ** $P \leq 0.05$ *

Table 4 shows that there is a negative significant relationship between problem-solving skill and its subscales with academic procrastination among male first grade students.

Table 5. Pearson correlation coefficient between academic self-efficacy and academic procrastination among male first grade students.

Predictor variable	Academic procrastination	Level of significance
Academic self-efficacy	-0.166**	0.002

$P \leq 0.01$ ** $P \leq 0.05$ *

Table 5 Shows that there is a negative significant relationship between academic self-efficacy with academic procrastination.

IV. DISCUSSION

Based on correlation coefficient and regression analysis, the results of the present study show that there is a positive significant correlation between problem-solving skill and its subscales with academic self-efficacy among male first grade students ($P < 0.05$). Therefore, first hypothesis of this research has been confirmed. This is consistent with previous findings including results of studies researches by Sahib (17), Chong, Liem abd Huan (18) Flies, Mansfield and Grant (19), Schnoell, Huebner, Kappeler and Fichtel (20), Holekamp, Smith, Strelloff, Van Horn and Watts (21), Mohamadi and Yousefi (22), Nasri, Saleh Sedeghpour and Cheraghian (23), and Jaafar zاده ghadimi (24).

It can be said be inferred that problem-solving is an important coping strategy that enables students to deal with a difficult situation and its deleterious consequences, attenuate psychological distress. Nowadays, the aim of

educational institutes is to enhance mental capabilities of the students, and help them to improve their problem-solving skills. Therefore, problem-solving coping strategy by which students can attain more academic and social achievements in any difficult situation.

The role of problem-solving skill and its relationship with self-efficacy has been clarified. In fact, the problem-skill enables students to obtain more academic achievements; thus based on these achievements and the feedbacks received from peers, teacher, and parents, she/he compares him/herself with other students, as a result he/she can attain higher levels of academic self-efficacy.

This part of research findings is related to Shure's perspective (25). From Shure's point of view (2000) students high problem-solving skill have better performance in school. He believes that without this skill, students cannot predict their behavior in a difficult situation and therefore cannot think of different solutions to tackle the problems. Emphases on problem-solving orientation, explaining the problem, presenting the solutions, and selecting a solution improves students' self-confidence and helps them control and manage difficult issues. This skill enables leads them to subscribe to the belief that "problems be solved by trying to achieve the goals"; and accordingly, they can use problem-solving skills as a suitable strategy to enhance their academic self-efficacy.

Based on regression analysis and correlation coefficients, the results of this study showed that there is a negative significant relationship between problem-solving skill and its subscales with academic procrastination among male first grade students ($P < 0.05$). Thus, the second hypothesis of this study is also confirmed. This is consistent with the findings of previous studies by Huebner and Fichtel (2015)(26). Griffin and Guez (2014) (27), Benson-Amram and Holekamp (2012) (28), Ghasemi, Mansouri, Zennipour, and Hosseini (1395) (29), Azizpour and Valizadeh shafagh (1393) (30), and Ganji and Amirian (1390) (31).

To explain this part of the findings, it can be said that in a difficult situation, one may tend to delay acting or even avoid any action instead of coping with that problem properly. Several studies have shown that there is a negative significant relationship between sufficient problem-solving skills, psychological distress, and emotional problems with students' academic procrastination. That is, one with better problem-solving skill will have a better performance in dealing with challenges, adjusting to the stressful academic and interpersonal relationship in academic settings.

Therefore, in spite being in a difficult situation, they will lower procrastination; and they have sufficient flexibility to deal with any difficult situation. In fact, it can be said that one with problem-solving skill possesses some degrees of commitment and contention to deal with academic and professional problems. They believe that problems cannot prevent them from achieving their goals, instead they consider them as a challenge to show their capabilities.

On the other hand, one with lower problem-solving skill cannot deal with the problems appropriately; and instead of coping with the problems, he/she may avoid any action necessary to improve their academic performance in. Regarding the relationship between problem-solving skill and procrastination, it can be said that one with lower

problem-solving skill, because of lack of required cognitive capabilities such as focusing on the purpose, will use inefficient strategies (e.g. procrastination and avoidance) to deal with the problems.

According to factor analyses, correlation coefficients, and regression analyses of this study, it has been shown that there is a negative significant relationship between academic self-efficacy and academic procrastination among male first grade students ($P < 0.05$). Thus, the hypothesis of this study has been confirmed. This is consistent with the findings of previous studies including researches conducted by de Palo & Monacis (2017) (32), Westgate, Wormington and Oleson (2017) (33), Nowinski, Gershon and Manly (2015) (34), Ha, Hu, Petrini and McCoy (2014) (35), Iizuka, Eguchi, Akase, Ishizuka and Yoshiy (2010) (36), Seifollah kunjohh, Alamdari, and Garehaghahi (1396) (37), Mohamadi, Aryanpour and Dinarvand (1395) (38), Soltani, Jamali, Khojasyeh niam and Dargahi (1395) (39), and Javadi, Hashemi and Hashemi razini (1394) (40).

Based on this part of the research findings, it can be argued that in the modern world, being productive and being able to accomplish a task is a valued norm. Delaying a task and failing to complete that task on due time, especially an academic task, is considered as transgressing from the proper ways of task completion.

Several reasons for procrastination such as personality, personal traits, conception of the task, and strategies have been identified. Personal traits have received considerable attention in the literature. In this regard, Iizuka et al (2010) argue that a Procrastinator has unrealistic expectations of their capabilities. The researchers believe that, to some extent, people tend to delay academic tasks. They argue that a Procrastinator defines high standards for him/herself but believes they cannot be accomplished. There are also considerable experimental studies that confirm the relationship between procrastination and self-esteem (39). Therefore, it can be inferred that fear of failure, shyness, lower self-esteem, and lack of sufficient audacity are among the reasons for procrastination. According to Bemdura's cognitive-social learning, one with higher perceived self-efficacy believe in their capabilities for completing any task on due time. Moreover, they also show sufficient willingness the task. Furthermore, one with higher self-efficacy has Lower fear of failure; and even in difficult situations shows their full competences, as a result they, they are successful in completing their tasks. In addition, they are always admired by their family members, teachers, and their friends. This can affect their beliefs about academic self-efficacy that can reduce procrastination. Therefore, the one with higher perceived self-efficacy has the traits that lower their tendency for procrastination.

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