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Effectiveness of Process Mental Simulation on Academic Procrastination and Stress of Gifted Students

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Purpose: The present research was done to determine the effectiveness of training process mental stimulation on academic procrastination and academic stress of gifted students.

Methodology: The present quasi-experimental study was done with a pretest posttest design and follow-up along with a control group. The research population consisted of high school gifted students in academic year 2019-2020. The research sample included 30 students, who were chosen through multistage cluster sampling method, and assigned into two equal groups as treatment and control via randomization. The treatment group was trained for nine sessions of 90 min (one session per week) through process mental simulation training method, while the control group did not receive such training during this time. The data were collected through academic procrastination scale (Solomon and Rothblum, 1984) and academic stress (Zajacova and et al., 2005), and then analyzed using repeated measure analysis of variance and Bonferroni post hoc test in SPSS-19 software.

Findings: The results revealed that the treatment and control group differed significantly with each other in the posttest and follow-up stages. In other words, the process mental simulation training resulted in diminished academic procrastination and academic stress of gifted students, and the results were also preserved in the follow-up stage ($P<0.001$).

Conclusion: The results indicated the effectiveness of process mental simulation training on academic procrastination and academic stress of gifted students in post-test and follow-up stages. Thus, the education experts can use the mentioned method alongside other effective methods for reducing the academic procrastination and academic stress of students.

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1. Introduction

Given their role in the future development and growth of the society, gifted students are very important individuals, and intelligence is an important issue in the educational system (Smith and Wood, 2020). Intelligence refers to above-average intelligence performance, which is associated with superior adaptive behaviors; gifted individuals can understand issues earlier than their peers and find solutions for them (Kaya and Akgul, 2022). Intelligence is characterized by cognitive, intellectual, creative, and motivational superiority in gifted people compared to their peers (Kulegel and Topsakal, 2021).

An important issue to be discussed regarding gifted students is academic procrastination (Korkmaz, Ilhan and Bardakci, 2018). It is a common problem among both high-school and university students, and has changed into an important educational subject among researchers and educational planners (Wang, 2021). The results of a research showed that 46% of students had academic procrastination in writing papers, 30.1% in doing their weekly homework, and 27% in study for exams (Solomon and Rothblum, 1984). Procrastination is used for performing tasks and behaviors that have been postponed without any special reason. In other words, procrastination means postponing something we decide to do (Fernie, Kopar, Fisher and Spada, 2018). Academic procrastination refers to postponing the academic tasks and homework assignments such as preparation for exams and doing the assignments (Eisenbeck, Carreno and Ucles-Juarez, 2019). This construct is one of the most important issues wasting a considerable share of facilities, resources, as well as potential human and economic talents in the education sector, leaving irrecoverable effects on personal and social dimensions (Margaretha, Saragih, Mariana and Simatupang, 2022). Academic procrastination indicates illogical tendency to postponing the initiation or completion of an academic task; although the person decides to perform that task, they get involved in inessential activities and transient pleasures, and cannot establish the motivation required for doing that academic task in them (Turel and Dokumaci, 2022).

Another important issue to be investigated among gifted students is academic stress (Yang, 2012). It refers to a progressive sense of need to knowledge, information, and awareness and perception on lacking enough time for achieving them concurrently (Scheffert, Parrish and Harris, 2021). A research reported that 67% of learners introduced academic pressures and stresses as the major stress in their life (Tavakoli, Hasanzadeh and Emadian, 2020). Academic stress refers to self-evaluation based on experience of incompatibility between situational demands and intrapersonal resources (Chee, Shorty and Robinson Kurpius, 2019). This construct causes development and increase of psychological stress, physical harms, reduction in energy and motivation a well as sleep problems and diminished psychological health and well-being (Jiang, Ren, Jiang and Wang, 2021).

One of the methods for improving the academic characteristics is process mental simulation training method (DeKoning, Bos, Wassenburg and Vander Schoot, 2017). Mental simulation is a window into the future helping people perform assignments more effectively and when used properly, it can enable the person to manage the essential life tasks and take effective steps towards personal goals when facing academic challenges (Dehghan Mangabadi, Mojtabai and Dortaj, 202). Mental simulation is a form of information representation, which is very similar to real situations, and involves imitative representation of a set of real or imaginary events. In mental simulation, the person represents their previous experiences in order to achieve their enjoyable and motivational features (Koka, 2017). The mental simulation method emphasizes the person's creativity; in most individuals, the left hemisphere judges using logic and reasoning, which can hamper creativity. Meanwhile, the right hemisphere is weak and inactive in most individuals, and is responsible for tasks such as musical perception and visualization (Jarczewska-Gerc and Gorgolewska, 2015). Mental simulation causes events to be perceived as real, which is due to the fact that simulation is compatible with reality and as such it is effective in future prediction (Baghbani and Radmanesh, 2021). In process mental simulation, the person deals with simulating the procedure required for achieving their goal. Indeed, the person chooses a goal and then actively practices the steps required of achieving that aim mentally (Khalili Shorofeh, Minakari, Pakdaman and Saleh Sedghpour, 2008).

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Sparse studies have been done on the effectiveness of training process mental simulation on academic variables, some of their results being reported further.

Dehghan Mangabadi and et al (2021) concluded that training process simulation caused diminished academic procrastination of students in the posttest and follow-up stages.

Baghbani and Radmanesh (2021) found that practicing process and outcome simulation led to enhanced academic self-regulation and self-perception of students, and process simulation was more effective than its outcome counterpart.

Azizian, Ramak, Vahid, Rezaee and Sangani (2020) reported that training group cognitive simulation techniques led to enhanced academic engagement and reduced academic procrastination of students.

Khalili Shorofeh and et al (2018) concluded that training simple mental simulation and concurrent with process and outcome simulation resulted in enhanced academic performance as well as self-efficacy, planning, and motivation of students. However, it did not show a significant effect on the academic progress of students.

Masalimova, Levina, Platonova, Yakubenko, Mamitova, Arzumanova and et al (2017) reported that mental simulation had an effective role in improving social interactions in academic and learning process.

Pecaric, Boutis, Beckstead and Pusic (2017) concluded that the cognitive mental simulation resulted in diminished academic handicapping of students.

As can be seen from the abovementioned points, on the one hand very few studies have dealt with effectiveness of process mental simulation training, and on the other their results have been variable. In other words, the results of some studies suggest effectiveness of process mental simulation training method, while findings of other studies have showed its lack of effectiveness. Another important point based on the research by (2021) is that the effectiveness of process simulation was greater than that of outcome simulation. Based on the abovementioned points and since gifted students have an effective role in constructing and developing the country's future, thus the present research was done to determine the effectiveness of process mental simulation training on academic procrastination and academic stress of gifted students.

2. Methodology

The present quasi-experimental research was done with a pretest, posttest, and follow-up design along with a control group. The research population consisted of high-school gifted students in Tehran in academic year 2019-2020. The research sample included 30 students, chosen through multistage cluster sampling, and randomly assigned into two equal groups as treatment and control. For choosing the subjects, the following method was used. First, from among all districts in Tehran, District 1 was chosen randomly, and then from that district, an gifted high-school was chosen randomly. Thereafter, for screening, the Academic procrastination scale and Academic stress scale were distributed among third-grade students, whereby 30 participants who acquired the highest scores in both instruments were chosen as the sample, and assigned randomly intro treatment and control groups.

To conduct this research, and after approval of proposal as well as the necessary coordination with the authorities of educational organization of District 1 in Tehran along with the authorities of the selected high school, the Academic procrastination scale and Academic stress scale were implemented among third-grade students. From among them, 30 subjects who acquired the highest scores were selected, and randomly assigned into treatment and control groups via lottery method. The treatment group was trained for nine sessions of 90 min (one session per week) through process mental simulation method, while the control group did not receive any training during this period.

The protocol used for the process mental simulation training method was adapted from the protocol of Rivkin and Taylor (1999). Since their protocol had investigated occurring stress-inducing events and this research in addition to that has also considered occurring events and has a prospective approach, thus some modification was made in the manner and tense of sentences. Thus, in this research, the subjects were preferentially asked to simulate the skill learnt in each session proportionally for problem-solving, and this issue was also added to the protocol. Therefore, the protocol or instruction of the intervention session is as follows. We ask you

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to imagine the problem is being formed. Start from the beginning of the problem. Draw the first moments of problem initiation. Imagine the problem is happening. Envisage it in your mind. Imagine what would occur after the problem. Review the problem. Imagine it step by step as it has occurred or think would occur. Envisage anything that you could do for that problem. Suppose that you want to apply yhe method you have learnt to the problem. Envisage your surroundings at the time of event. Imagine those who may be there, their reaction, the place where you will be, and its physical features. Imagine your feelings at the time of occurrence of the event. Now, suppose that you apply the suitable emotion regulation method. Imagine how this special event would end. Envisage the end of the event. What happened exactly that led to termination of this event, and eventually shape the final image of the event in your mind.

In the present research, for data collection, Academic procrastination scale and Academic stress scale were used, which are described further.

Academic procrastination scale: This scale was designed by Solomon and Rothblum (1984) with 27 items. The items were scored based on four options ranging from never with score 1 to always with score 4, while some items were reversed scored. Thus, the minimum score in the academic procrastination scale was 27 and the maximum score 108, with higher scores indicating greater academic procrastination. They reported the validity of this instrument using internal consistency as 0.84 and its reliability via Cronbach alpha coefficient 0.64. In Iran, Ghadampour, Darakhshanfar, Padervand and Ghorbani (2020) reported the reliability through calculating Cronbach alpha coefficient as 0.78. In the present research, the reliability based on Cronbach alpha method was obtained 0.83.

Academic stress scale: this questionnaire was designed by Zajacova, Lynch and Espenshade (2005) with 27 school-related tasks. The items were scored based on an 11-option scale with options of 'not stressful at all' with score 0 to 'absolutely stressful' with score 10. Thus, the minimum score in the academic stress scale is 0 and the maximum score is 270, with higher scores representing greater academic stress. They investigated the construct validity of this instrument via exploratory factor analysis method, and reported its reliability as 0.90 according to the Cronbach alpha coefficient method. In Iran, Poorseyed and Khormaei (2019) reported that reliability through Cronbach alpha coefficient calculation as 0.92. In the present research, the reliability based on Cronbach alpha method was found 0.88.

Once the data were collected via academic procrastination and academic stress scales, the data were analyzed through repeated measure analysis of variance and Bonferroni post hoc test in SPSS-19 software at significance level of 0.05.

3. Findings

No attrition or dropout occurred in any of the treatment and control groups, with the participation rate being 100% in this research. The results of mean and standard deviation of the pretest, posttest, and follow-up criteria of academic procrastination and academic stress of gifted students are presented in Table 1.

Table 1. Results of mean and standard deviation of pretest, posttest, and follow-up of academic procrastination and academic stress of gifted students

Variable	Stage	Pretest		Posttest		Follow-up	
		Mean	SD	Mean	SD	Mean	SD
Academic procrastination	Treatment	86.50	74.14	53.38	12.12	80.40	02.13
	Control	00.50	59.14	53.50	70.14	46.50	77.14
Academic stress	Treatment	66.213	29.51	60.186	18.32	06.189	38.35
	Control	73.209	27.48	20.211	26.49	80.212	20.50

Before data analysis via repeated measure analysis of variance, its presumptions were examined. The results of Kolmogorov-Smirnov test suggested normality of the distribution of the variables of academic procrastination and academic stress in both treatment and control groups in the evaluation stages (P>0.05).

Also, the results of Mbox test revealed homogeneity of the variance-covariance matrices, and the results of Leven's test showed homogeneity of the variances of the variables of academic procrastination and academic stress (P>0.05). In contrast, the results of Muchly sphericity test showed lack of homogeneity of the intra-subject variances (sphericity assumption) (P<0.001). Thus, in the analyses, Greenhouse-Geyser index was used for reporting the effects of time as well as the time- group interaction. The results of multivariate tests for determining the effectiveness of training process mental simulation on academic procrastination and academic stress of gifted students are shown in Table 2.

Table 2. The results of multivariate test for determining the effectiveness of process mental simulation on academic procrastination and academic stress of gifted students

Test	Value	F statistic	Significance	Effect size	Test power
Pillais trace	28.0	46.6	004.0	28.0	87.0
Wilks Lambda	71.0	46.6	004.0	28.0	87.0
Hoteling's trace	39.0	46.6	004.0	28.0	87.0
Roy's Largest Root	39.0	46.6	004.0	28.0	87.0

According to the results of Table 2, the process mental simulation training method at least caused a significant change in one of the variables of academic procrastination and academic stress of gifted students (P<0.001). The results of repeated measure analysis of variance for determining the effectiveness of process mental simulation training on academic procrastination and academic stress of gifted students are reported in Table 3.

Table 3. Results of repeated measure analysis of variance for determining the effectiveness of training process mental simulation on academic procrastination and academic stress of gifted students

Variable	Source	Sum of squares	Degree of freedom	Mean squared	F statistic	Significance	Effect size	Test power
Academic procrastination	Group	50.1339	1	50.1339	59.3	036.0	13.0	44.0
	Time	34.3913	05.1	65.3714	22.284	001.0	001.0	86.0
	Group * time	26.1285	05.1	06.1224	65.93	001.0	80.0	81.0
Academic stress	Group	90.28	1	90.28	26.7	005/0	20.0	59.0
	Time	26.49	07.1	95.45	25.10	003/0	26.0	67.0
	Group * time	20.72	07.1	34.67	02.15	001.0	34.0	71.0

Based on the results of Table 3, the effect of group, time, and group-time interaction was significant in both variables of academic procrastination and academic stress of gifted students (P<0.05). Thus, it can be stated that the intervention method involving process mental simulation training both caused improvements in both variables of academic procrastination and academic stress of the intervention group compared to the control, and also the mean differences in both variables were significant in the pretest, posttest, and follow-up stages. The results of Bonferroni post hoc test for paired comparison of academic procrastination and academic stress of gifted students in the evaluation stages are shown in Table 4.

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Table 4. The results of Bonferroni post hoc test for paired comparison of academic procrastination and academic stress of gifted students in the evaluation stages

Variable	Evaluation stages		Mean differences	Standard error	Significance
Academic procrastination	Pretest	Posttest	00.12	12.0	001.0
	Pretest	Follow-up	85.11	11.0	001.0
	Posttest	Follow-up	23.1	12.0	000.1
Academic stress	Pretest	Posttest	69.28	21.0	001.0
	Pretest	Follow-up	70.26	19.0	001.0
	Pretest	Follow-up	48.2	19.0	000.1

According to Table 4 results, the mean difference of pretest, posttest, and follow-up in both variables of academic procrastination and academic stress of gifted students was significant ($P<0.001$). However, the mean difference of process and follow-up was insignificant in both variables ($P>0.05$). In other words, training process mental simulation in the posttest and follow-up stages when compared with the pretest stage led to significant reduction of academic procrastination and academic stress of the gifted students. However, there was no significant difference between posttest and follow-up stages in any of the variables. The significant difference of posttest compared to pretest indicated effectiveness of the intervention method, and a significant difference of follow-up compared to the pretest suggested preserved effectiveness of the intervention method in the follow-up stage.

4. Discussion

Given the importance of examining academic procrastination and academic stress in gifted students and the role of these students in the future of society, the present research was performed to determine the effectiveness of training process mental simulation on academic procrastination and academic stress of gifted students.

Regarding the first hypothesis of the present research, it can be stated that process mental simulation training led to reduced academic procrastination of the gifted students, with the results being preserved in the follow-up stage as well. Considering the effectiveness of process mental simulation training on academic procrastination, some sparse studies have been done, and this result has been in line with the results of Dehghan Mangabadi and et al (2021), Azizian and et al (2020), and Pecaric and et al (2017) findings in some aspects. In interpreting the effectiveness of process mental simulation training on reducing academic procrastination of gifted students, it can be stated that procrastinators postpone fulfilling tasks in an extreme way. Thus, they postpone the tasks to an uncertain time in the future, and their catchphrase is that we will eventually do them. Such individuals (procrastinators) avoid expressing information about their abilities. Thus, they prefer low-level homework and have poor temporal estimation. This means they cannot suitably determine the duration required for performing a task, and mostly act based on the thoughts and beliefs related to the past, rather than based on their own intention and goal at the present time. The process mental simulation training method through establishing familiarity with sequence of representation of actions required for achieving the aim trains the person to become familiar with the stages of performing a task and academic activity, and can identify the duration required for performing an assignment. Also, the mentioned intervention method familiarizes individuals with problem-solving and planning, and also trains the way they should be applied in problem solving. All these lead to spontaneous mental activity in them, whereby the individuals in response to the process mental simulation training become prepared to confront future events, and adjust them concurrently for proper undertaking of different behaviors and actions, and also enhance their motivation, self-efficacy, and self-confidence. Thus, it can be expected that that process mental

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simulation training method would play an effective role in reducing academic procrastination in gifted students.

Considering the second hypothesis of the research, it can be stated that training process mental simulation led to reduced academic stress of gifted students, with the results being preserved in the follow-up stage as well. Regarding the effectiveness of training process mental simulation on academic stress, some sparse studies have been done, and this finding has concurred with the findings of Baghbani and Radmanesh (2021), Khalili Shorofeh and et al (2018), and Masalimova and et al (2017) in some aspects. In interpreting the effectiveness of training process mental simulation on reducing academic stress of gifted students, it can be inferred that the mentioned intervention method led to improvements in planning, adjusting a time and place of study, problem-solving skills, motivation and increasing the time of study which would improve the variables related to the test score and reducing academic stress. The impact of process mental simulation training method occurs through establishing familiarity with the sequence of representation of the actions required for achieving the aim. In such a state, the person can lower their worries because of familiarity with the stages of achieving the goal which occurs through representation of the actions required for performing an assignment. Also, process simulation of achieving a goal is an effective method for behavior regulation. Mental exercise or practice of the stages of progress is essential for predicting the status as well as determining and organizing the stages of performing an activity or working with a problem. This method with a focus on the steps required for achieving the aim facilitates performance in different assignments such as academic homework. Thus, it can be expected that the process mental simulation training method would play a key role in lowering the academic stress in gifted students.

When implementing a research, there would be some limitations. The most important limitations of this research included the difficulty of receiving permission for conducting research, the sample size being limited to the gifted high school students in Tehran city, and not investigating the role of demographic variables including gender. Thus, conducting research on gifted students of other cities, gifted male and female students separately, and comparison of the process mental simulation training method in both gifted and ordinary students are suggested. Overall, the results indicated effectiveness of the process mental simulation training on academic procrastination and academic stress of gifted students in posttest and follow-up stages. These results have practical implications for teachers, counselors, experts, and planners of education. Thus, they can use the mentioned method alongside other effective methods for reducing academic procrastination and academic stress. Another practical suggestion is organizing in-service training courses as well as educational workshops about process mental simulation for teachers and incorporating them in the course books of student-teachers.

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References

Azizian F, Ramak N, Vahid F, Rezaee S, Sangani A. (2020). The effectiveness of cognitive simulation techniques group training on academic engagement and academic procrastination in nursing students. *Journal of Nursing Education*. 9(2): 54-62. [Persian]

Baghbani M, Radmanesh E. (2021). Review and comparison effectiveness of process and product mental simulation on self-regulation and academic self-concept. *Journal of School Psychology and Institutions*. 10(1): 32-45. [Persian]

Chee CL, Shorty G, Robinson Kurpius SE. (2019). Academic stress of native American undergraduates: The role of ethnic identity, cultural congruity, and self-beliefs. *Journal of Diversity in Higher Education*. 12(1): 65-73.

Dehghan Mangabadi Sh, Mojtabai M, Dortaj F. (2021). The effectiveness of mental simulation process on academic procrastination in gifted students. *Journal of Islamic Life Style Centeredon Health*. 5(2): 194-200. [Persian]

DeKoning BB, Bos LT, Wassenburg SI, Vander Schoot M. (2017). Effects of a reading strategy training aimed at improving mental simulation in primary school children. *Educational Psychology Review*. 29(4): 869-889.

Eisenbeck N, Carreno DF, Ucles-Juarez R. (2019). From psychological distress to academic procrastination: Exploring the role of psychological inflexibility. *Journal of Contextual Behavioral Science*. 13: 103-108.

Fernie BA, Kopar UK, Fisher PL, Spada MM. (2018). Further development and testing of the metacognitive model of procrastination: Self-reported academic performance. *Journal of Affective Disorders*. 240: 1-5.

Ghadampour E, Darakhshanfar R, Padervand H, Ghorbani M. (2020).Comparison of academic procrastination and academic self-regulation in male students with epilepsy and normal students. *Journal of School Psychology*. 9(1): 173-188. [Persian]

Jarczewska-Gerc E, Gorgolewska A. (2015). Imagine the emotion: The use of mental simulations in supporting the development of emotional skills of preschool children. *Early Child Development and Care*. 185(8): 1268-1282.

Jiang S, Ren Q, Jiang C, Wang L. (2021). Academic stress and depression of Chinese adolescents in junior high schools: Moderated mediation model of school burnout and self-esteem. *Journal of Affective Disorders*. 295: 384-389.

Kaya NG, Akgul G. (2022). Evaluating online education for gifted students: Parents' views. *Gifted Education International*. 38(1): 138-158.

Khalili Shorofeh F, Minakari M, Pakdaman Sh, Saleh Sedghpour B. (2008). Impact of simple and combined process and outcome of mental simulations on educational academic achievement. *Journal of Applied Psychology*. 2(8): 657-672. [Persian]

Koka A. (2017). Effectiveness of a brief intervention using process-based mental simulations in promoting muscular strength in physical education. *European Physical Education Review*. 23(4): 412-427.

Korkmaz O, Ilhan T, Bardakci S. (2018). An investigation of self-efficacy, locus of control, and academic procrastination as predictors of academic achievement in students diagnosed as gifted and non-gifted. *European Journal of Education Studies*. 4(7): 173-192.

Kulegel S, Topsakal UU. (2021). Investigating perceptions and skills of gifted students in STEM education. *World Journal of Education*. 11(3): 39-46.

Margaretha M, Saragih S, Mariana A, Simatupang KM. (2022). Academic procrastination and cyberloafing behavior: A case study of students in Indonesia. *Cypriot Journal of Educational Sciences*. 17(3): 752-764.

Masalimova AR, Levina EY, Platonova RI, Yakubenko KY, Mamitova NV, Arzumanova LL, et al. (2017). Cognitive simulation as integrated innovative technology in teaching of social and humanitarian disciplines. *EURASIA Journal of Mathematics, Science and Technology Education*. 13(8): 4915-4928.

Pecaric M, Boutis K, Beckstead J, Pusic M. (2017). A big data and learning analytics approach to process-level feedback in cognitive simulations. *Academic Medicine*. 92(2): 175-184.

Poorseyed SM, Khormaei F. (2019). The effect of personality characteristics and perceived social support on gratitude with the mediation of academic stress and self-efficacy. *Positive Psychology Research*. 4(4): 25-44. [Persian]

Rivkin ID, Taylor SE. (1999). The effects of mental simulation on coping with controllable stressful events. *Personality and Social Psychology Bulletin*. 25(12): 1451-1462.

Scheffert AHM, Parrish DE, Harris H. (2021). Factors associated with social work students' academic stress during the COVID-19 pandemic: A national survey. *Journal of Social Work Education*. 57(1): 182-193.

Smith CK, Wood SM. (2020). Supporting the career development of gifted students: New role and function for school psychologists. *Psychology in the Schools*. 57(10): 1558-1568.

Solomon LJ, Rothblum ED. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*. 31(4): 503-509.

Tavakoli N, Hasanzadeh R, Emadian SO. (2020). Investigating the mediating role of information processing styles between achievement motivation and perceived academic stress in nursing students. *Research in Medical Education*. 12(2): 61-70. [Persian]

Turel YK, Dokumaci O. (2022). Use of media and technology, academic procrastination, and academic achievement in adolescence. *Participatory Educational Research*. 9(2): 481-497.

Wang Y. (2021). Academic procrastination and test anxiety: A cross-lagged panel analysis. *Journal of Psychologists and Counsellors in Schools*. 31(1): 122-129.

Yang Y. (2012). The interaction effects on academic stress of gifted student and normal student by academic self-efficacy and stress coping styles. *Journal of Gifted/ Talented Education*. 22(4): 841-853.

Zajacova A, Lynch SM, Espenshade TJ. (2005). Self-efficacy, stress, and academic success in college. *Research in Higher Education*. 46(6): 678-706.

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