The Effects of Study Skills Training on Qualitative Academic Achievement among Students

Saeid Motevalli[1*], Mohd Sahandri Ghani Hamzah[2], Samsilah Roslan[3], Siti Raba'ah Hamzah[4], Maryam Gholampour Garmjani[5]

[1]Department of Psychology and Counselling, Faculty of Human Development, Universiti Pendidikan Sultan Idris, Tanjong Malim, 35900, Malaysia
Motevalli.saeid@gmail.com*
[2] Kolej Universiti Poly-Tech MARA, Kuala Lumpur, 56100, Malaysia
sahandri@kuptm.edu.my
[3] Faculty of Educational Studies, Universiti Putra Malaysia, Serdang, 43400, Malaysia
samsilah@gmail.com
[4]Department of Professional Development & Continuing Education, Faculty of Educational Studies, Universiti Putra Malaysia, Serdang, 43400 Malaysia
srh@upm.edu.my
[5]University Payame Noor, Seri Kembangan, 43300, Selangor, Malaysia
maria.aramesh1@gmail.com
*Corresponding Author

Abstract: The aim of the present study was to investigate the effectiveness of study skills training on the qualitative academic achievement of girl high school students. This study was conducted by using an experimental design with pretest, posttest, and follow-up with the control group. The participants were 32 students from girl high school students of Tehran which were selected by cluster random sampling from girl high schools and then randomly assigned into control and experimental groups (Each group consisted of 16 students). The instruments used were Dortaj Qualitative Academic Achievement Questionnaire and Motevalli Study Skills Training Module. The experimental group received 8 sessions of psycho-educational group therapy and the control group did not receive any training. Two-way repeated-measures ANOVA was utilized for the analysis of data. Results revealed that there was a significant increase in qualitative academic achievement between pretest with post-test and follow-up among the experimental group. Moreover, there was a significant increase in qualitative academic achievement between post-test and follow-up in the experimental group with the control group. Additionally, the results showed that there is a significant increase in self-efficacy, planning, and motivation and also a significant decrease in emotional effects and lack of outcome control. In conclusion, the results of this study indicated that on the basis of deficit theory using learning and study skills training can lead to enhance student's skills to improve qualitative academic achievement. Further studies are required to examine whether exposing students to study skills training programs can lead them to enhance their qualitative academic achievement.

Keyword: Motivation Study Skills Training, Planning, Qualitative Academic Achievement, Self-efficacy.

1.   Introduction

Academic achievement means the amount of individual school learning, and the assessment of academic achievement is to compare the results of measuring the performance of learners with educational goals or learning objectives that indicate the success rate of teacher training activities and student learning efforts (Saif, 2013). In spite of, and perhaps because of its nebulous nature, the term of academic success is one of the most broadly conducted constructs in educational research and assessment within education and higher education (York, Gibson, & Rankin, 2015). Academic achievement is measured by the general or private knowledge or skills acquired in the subjects in which tests or indications, or both, that are provided by teachers or students, are usually measured (Suskie, 2018). To date, many researchers have conducted various experiments and have identified the factors that may enhance students' academic achievement (Lim, Liu, & Hou, 2020).

In recent years, information processing has been widely considered as one of the learning theories in psychology. According to this theory, there are strategies that can be used to facilitate learning. Skills or strategies of study and learning include invisible thoughts and behaviors that are associated with success in learning and can be changed through educational interventions. These skills are also defined as any cognitive, emotional, or behavioral activity that facilitates the process of storing, retrieving, and using knowledge or learning (Derossis, Da Rosa, Schwartz, Hauge, & Bordage, 2004). Study and learning skills are a way to coding, storage, hold, and retrieve, and use information in a rational, effective and adequate way by using different activities such as time management, goal setting, study preferences, memory, and motivation. Study and learning skills reduce students' fatigue and anxiety, are time-saving, and increased their motivation to improve their learning and their academic achievement. Research indicated that students' motivation (e.g. achievement, recognition, relationship with peers, and relationship with lecturers) can moderate the relationship between learning styles and student engagement (Halif, Hassan, Sumardi, Omar, Ali, Aziz, ... & Salleh, 2020). Literature indicated that motivation is one of the most critical and effective components of learning, and also one of the most difficult items to measure and assess (Slavin, 2019; Sulaiman, Ibrahim, Motevalli, Wong, & Hakim, 2021). By knowing and employing them in the educational setting, they can increase the efficiency of the study and lead to better self-efficacy in them (Lyons-Wagner, 2010). The results of researches in the field of cognitive psychology have shown that study and learning skills facilitate learning and improve the decline in students' academic performance (Derossis et al., 2004; Motevalli, Roslan, et al., 2013) and educators need to play a more significant role in motivating students to read in order to impact students' reading habits and attitudes (Baba, & Affendi, 2020). Likewise, in different parts of the world, the effectiveness of using the various skills of study has been confirmed in better students' learning. In a study that was conducted as study skills training and its relation with students' academic status, the results showed that students with higher academic achievement had better study skills (Shamooshaki, Hosseini, Cherkzai, Jafari, & Bakhshi, 2013). Additionally, self-regulatory and study skills training can provide effective and useful strategies for increasing academic achievement and improving academic performance (Motevalli, Sulaiman, et al., 2013). With regards to deficit theory students who suffer from anxiety, test anxiety, and other emotional disorders have a low level of study and test-taking skills in order to solve their academic problems. Therefore, they experience test anxiety in which affects their academic performance and, consequently, poor academic and low level of self-concept in students (Arana, & Furlan, 2016).

Correspondingly, in the research of Yarmohamadian, Qamarani, Seifi, and Arfa (2015) by title, the effectiveness of teaching cognitive strategies on memory, reading performance, and data processing speed of dyslexic students showed that teaching cognitive strategies on reading performance, information processing speed, verbal memory, and visual memory of dyslexic children are effective. Also, the results showed that teaching cognitive strategies had the greatest effect on reading performance and visual memory. Based on this study, it can be concluded that teaching cognitive strategies on reading performance, information processing speed, verbal memory, and visual memory can be an effective therapeutic approach for dyslexic students. On the other hand, in the research of Karami, Allah, and Hashemi (2013) by title, the effectiveness of teaching cognitive and metacognitive strategies on creativity, achievement motivation, and self-concept showed that cognitive and meta-cognitive skills training is effective on creativity, achievement motivation, and self-concept. Regarding

the investigation of research findings have conducted both inside and outside the country and that no research has been done to examine the effectiveness of study and learning skills on qualitative academic achievement in which concentrate on self-efficacy, planning, motivation, emotional effects, and lack of outcome control. Thus, this research was conducted in order to help eliminate research lacks in this field and helping students with poor academic achievement. So, according to what has been said, the main question of the present research is whether study skills training (study habits and test-taking skills) affects students' qualitative academic achievement?

2.   Methods

2.1   Study Design

Based on the objectives of this study, a true experimental design was employed. The design in this category is called true experiments because subjects are randomly assigned to an experimental group and at least one control group. True experimental design strongly recommended design for educational experiments with respect to the control they provide (Ary et al., 2018). The randomization was considered in different sections such as selecting participants, assign participants to the experimental and control groups. In order to investigate the effects of intervention through the time, follow-up considered applying 4 weeks later after post-test. Hence, in this study, data was collected using a true experimental research design with randomized subjects, pre-test, post-test, and follow-up within the control group.

2.2   Research Hypotheses

Research hypotheses are constructed on the basis of the study design. With regards to the true experimental research design allows for one main hypothesis and three sub-hypotheses to be generated as follows:

Ho: The population mean of qualitative academic achievement in study skills training and control group across time are equal.

H_{o1}: The population means are equal over conditions (experimental and control group)

H_{o2}: The population means are equal over trials (pre-test, post-test, and follow-up)

H_{o3}: The population means are equal over combinations of condition and trial (interaction between time*group).

2.3   Population and Sampling

In this study, Tehran province was randomly selected out of 31 provinces in Iran as the sample population. The statistical population was female high school students in Tehran, 2016. From the 22 areas of Tehran, the area 15th was selected randomly, and then among the girl high schools of this area, one high school was selected randomly. Two classes of grade tenth of this high school were randomly selected and randomly selected 44 students to assign in experimental and control groups. The sample size on the base of G*Power 3.1.9.2 for ANOVA Repeated measures within-between interaction analysis by considering effect size of 0.25, α err probability of 0.05, power (1-β err prob) of 0.95, number of groups 2, and number of measurements 3, was 44 participants. Although, on the basis of the total required sample size 44 (22 students in each group) students were randomly selected to attend the experimental, and control groups in this study, 32 students were involved for data analysis in this study after cleaning data. With regards to previous researches in experimental designs, at least 15 participants need to attend in every group in order to utilize statistical analysis, and 32 participants in this study as sample size cannot violate parametric statistical analysis. The treatment or experimental group was given 8 sessions of the Study Skills Training Module (Motevalli, Roslan, et al., 2013) within 90 minutes for every session per week. All the respondents in this study must be girl students from high school; therefore, the aid of population in this study focused on Tehran girl high school students.

2.4   Inclusion and Exclusion Criteria

There were some inclusion criteria for attending in this study such as girls with aged between 16 and 17 years, registered as full-time students in the 10th grade, living in Tehran. Moreover, there were also some exclusion criteria for participating in this study such as inability or unwillingness to attend the evaluation in post-test and follow-up, and inability to attend the psycho-educational sessions for more than 3 sessions.

2.5   Ethical Approval and Informed Consent

The approval for the present study was obtained from the Faculty of psychology at the Qazvin Islamic Azad University (QIAU) and the Iranian Ministry of Education. Written informed consent was obtained from the high school principals. Parents also gave their informed consent in writing. Participants' informed verbal consent was also obtained. The researchers conducted the study in compliance with the ethical principles of research with human participants (Hammersley & Traianou, 2012).

3.   Materials

3.1   Qualitative academic achievement Questionnaire

This questionnaire was developed by Dortaje (2004). This questionnaire with 47 questions can measure five components as *Self-efficacy* (Sample item: I am confident that I can do the necessary activities for the exam well), *Planning* (Sample item: From the beginning of the semester at school, I have a specific program to prepare for exams), *Emotional effects* (Sample item: When I have prepared myself well for the exams again I feel very anxious), *Lack of outcome control* (Sample item: From the beginning of the year, I decide to study according to a regular schedule, but my decision is not implemented), and *Motivation* (Sample item: Even if the exam content is vague and boring, I will continue to work until I finish it). The scoring method is based on 5-point Likert scale (4 = very high, 3 = high, 2 = medium, 1 = low, and 0 = nothing). The Content validity was confirmed by professors in educational psychologist by using the table of contents and objectives, factor analysis was used to evaluate the validity of the structure, which confirmed the existence of five factors, and Cronbach's alpha coefficient was used to examine the internal consistency of the Academic Achievement Questionnaire indicated that self-efficacy (.92), planning (.73), emotional effects (.93), lack of outcome control (.64), motivation (.73), and for the whole questionnaire (.74) (Portaheri, Zandvanian Naeini, & Rahimi, 2014). In this study, Cronbach's alpha coefficient was used to examine the internal consistency of the Academic Achievement Questionnaire on students. Cronbach's alpha for self-efficacy dimensions was 0.74, planning 0.85, emotional effects 0.69, lack of outcome control 0.7, and motivation 0.83, and for the whole questionnaire was 0.76, which indicates the desirable reliability coefficient of this questionnaire.

3.2   Study Skills Training Package

More adequate learning and processing of the material directly enables students to gain a better knowledge of the study material and indirectly aborts irrelevant worry responses stemming from their anxiety about the fact they have not yet learned material. Completing the study skills training helped students to understand what study skills training (SST) was and how it could help them to improve their qualitative academic achievement and academic performance. In this study Motevalli Study Skill Training module researchers (see in Motevalli et al., 2013) aimed to trained students in some different dimensions of study habits (motivation, goal setting, time management, memory, study styles or preferences), and test-taking skills (how to approach with essay exams, oral exams, multiple-choice exams, and matching exams) in order to improve their qualitative academic achievement during eight sessions for 90 minutes was conducted during 8 weeks. Week one focus on the content of understanding the concept of anxiety and test anxiety, its effects on the academic achievement, identify two components of test anxiety (state and trait anxiety); Week two attempt to determine and explain two techniques of study skills training (Study Habits and Test-Taking Skills); Week three refers to list and

explain some techniques of study skills to improve academic achievement such as motivation (essential components of motivation such as activation, persistence, and intensity, intrinsic and extrinsic motivation, learned helplessness), and goal setting (small, milestones, and big goals, SMART goals, self-performance management system); and Week four focus to list and teach some methods of test-taking skills to improve academic achievements such as time management (activities such as time wasters self-assessment, time usage self-assessment, time-management strategies, my semester calendar, my weekly priority tasks list, and my weekly schedule) and memory [tips for sensory memory (filtering, attention, recognition, and perception), tips for short-term/working memory (highlight different approaches on short-term (Atkinson & Shiffrin, 1968) and working memory (Baddeley & Hitch, 1974), rehearsal training, duration and capacity), and tips for long-term memory such as explicit/declarative memory (conscious such as episodic and semantic) and implicit/non-declarative memory (not conscious such as procedural memory, priming, and conditioning)]; Week five try to define study styles (visual, auditory, and kinesthetic), reading efficiency (active vs. passive reader), muscle reading, MURDER (Mood, Understand, Recall, Detect, Elaborate, and Review), PQRST (Preview, Question, Read, Summarize, and Test), and PQ4R (Preview, Question, Read, Reflect, Recite, Review); Week six concentrate to define test-taking skills, advantages and identify the tests' structure (tips for oral and written exam such as multiple choice question, fill in the blanks, matching, true/false, short essay, essay, and open book exam); Week seven present some activities during the exam in order to deal effectively with oral exam (e.g. metacognitive strategies) and written exams (e.g. retrieval cues for multiple choice exams); Finally, Week eight concentrate on conclusion of the previous sessions and question and answer about all sessions.

3.3   Procedures

The study was conducted to investigate the effects of study skills training on qualitative academic achievement among girl high school students. Students were chosen from 10-grade Iranian high schools in Tehran, Iran. The first group was the study skills training group as an experimental group and the second group was the control group without any intervention or training. Upon random assignment, all participants were designed into two groups. In this study, data was collected using a true experimental research design with randomized subjects, pre-test, post-test, and follow-up within the control group. The pre-test (Qualitative Academic Achievement Questionnaire) was conducted before interventions in order to assess the homogeneity of students in experimental and control groups. Then later post-test (Qualitative Academic Achievement Questionnaire) was also carried out two weeks after the end of interventions to assess the effect of interventions on dependent variables. Finally, follow-up (Qualitative Academic Achievement Questionnaire) was conducted after interventions at the 6th week (4 weeks after post-test) due to examine the effects of applied interventions after a certain period of time. In addition to experimental design, a pre-test, post-test, follow-up, and the control group design was used to assess the effect of study skills training (SST) as the independent variable; while Qualitative Academic Achievement Questionnaire was the dependent variable. The control group in this study was introduced to all conditions and evaluations of the experiment except the experimental intervention and eventually this controlled some of the internal validity of the study. In the current study, IBM SPSS statistics (SPSS 22) was used to analyze the data. Two-way Repeated-Measures ANOVA was used to evaluate the effects of intervention (study skills training) for dependent variable qualitative academic achievement (i.e., self-efficacy, emotional effects, planning, lack of outcome control, motivation, and total qualitative academic achievement) to assess differences between experimental and control group among girl high school students.

4.   Results

Table 1 revealed that the pretest, posttest, and follow-up mean and standard deviation scores of self-efficacy, emotional effects, planning, lack of outcome control, motivation, and total qualitative academic achievement among students in experimental and control groups. The results show that the students' scores in the experimental group in self-efficacy, planning, motivation, and total score of qualitative academic achievement have increased more in the post-test and follow-up than in the control group. On the other hand, emotional effects and lack of outcome control have decreased more in the post-test and follow-up than in the control group.

Table 1. Mean and standard deviation of qualitative academic achievement between groups and time

Variable	Evaluation		Control Group		Experimental Group	
		N	*M*	*SD*	*M*	*SD*
Self-efficacy	Pre-test	16	16.4	1.43	16.6	1.26
	posttest	16	16.6	1.43	19.6	0.97
	Follow-up	16	16.5	1.51	19.4	1.07
Emotional effects	Pre-test	16	12.1	1.19	12.3	1.64
	posttest	16	11.4	1.51	8.2	1.93
	Follow-up	16	11.5	1.51	8.3	2.00
Planning	Pre-test	16	20.6	2.01	21.7	1.70
	posttest	16	20.9	1.85	24.6	1.17
	Follow-up	16	20.8	1.81	24.3	1.25
Lack of outcome control	Pre-test	16	7.8	1.03	7.9	0.88
	posttest	16	7.6	1.17	5.1	0.88
	Follow-up	16	7.7	0.95	5.3	0.95
Motivation	Pre-test	16	21.1	1.45	20.1	1.52
	posttest	16	24.5	1.62	24.5	1.51
	Follow-up	16	21.2	1.48	24.3	1.49
Total qualitative academic achievement	Pre-test	16	78	2.79	78.6	2.84
	posttest	16	77.7	2.67	82	4.05
	Follow-up	16	77.69	2.67	81.6	4.33

M mean, SD standard deviation

The main hypothesis: The population mean of qualitative academic achievement in study skills training and control group across time are equal. With regards to the hypothesis, Two-way Repeated-Measures ANOVA, with Greenhouse-Geisser correction, was conducted to assess whether there were differences between the mean of trait anxiety of pre-test, post-test, and follow-up among the students in study skills training and control groups. The following assumptions were tested, (a) independence of observations, (b) normality, and (c) sphericity. Independence of observations and normality were met. According to table 2, F index and the observed significant level for self-efficacy, ($F = 14.759$, sig = 0.001), emotional effects ($F = 9.36$, sig = 0.007), planning ($F= 15.559$, sig= 0.001), lack of outcome control ($F= 15.591$, sig = 0.001), motivation ($F = 9.529$, sig = 0/006) and total score of qualitative academic achievement ($F=4.64$, sig= 0.045), shows that there is a significant difference

between the groups. Accordingly, the results showed that the training had an effect on the post-test and was able to maintain its results in follow-up.

Table 2. Two-way Repeated measure ANOVA for qualitative academic achievement

variable	Variable resources	F	sig	Effect size	Partial Eta Squared
Self-efficacy	Time	37.72	.001	.68	1.00
	Group	14.76	.001	.45	.95
	Time * group	30.55	.001	.63	1.00
Emotional effects	Time	54.39	.001	.75	1.00
	Group	9.36	.007	.34	.82
	Time * group	28.43	.001	.61	1.00
Planning	Time	32.83	.001	.65	1.00
	Group	15.56	.001	.46	.96
	Time * group	22.61	.001	.56	1.00
Lack of outcome control	Time	64.09	.001	.78	1.00
	Group	15.59	.001	.46	.96
	Time * group	50.95	.001	.78	1.00
Motivation	Time	36.58	.001	.67	1.00
	Group	9.53	.006	.35	.83
	Time * group	33.34	.001	.65	1.00
Total score of academic achievement	Time	8.59	.006	.32	.84
	Group	4.64	.045	.20	.53
	Time * group	8.59	.006	.32	.84

In order to determine that in which stage the qualitative academic achievement variable and its dimensions are significant, post-hoc pairwise comparison (Bonferroni post-hoc test) conducted to determine the significant difference of the experimental and control groups based on study skills training in pairs. Table 3 describes the results of comparing two groups in pre, post, and follow-up tests in pairs on qualitative academic achievement (self-efficacy, emotional effects, planning, Lack of outcome control, motivation, and total score of qualitative academic achievement). Before doing Bonferroni post-hoc test the homogeneity of variances was confirmed. Table 3 shows that study skills training on student's qualitative academic achievement has a significant effect in both post-test and follow-up stages. Moreover, the results show that there was not any significant difference between posttest and follow-up means, which means that the intervention or training over the time is significant.

Table 3. Mean comparison between study groups in pre, post, and follow-up tests for qualitative academic achievement (Pairwise comparison)

variables	Adjusted mean		(I) Test	(J) Test	Mean Difference (I-J)	sig
Self-efficacy	Pretest	16,50	Pretest	posttest	-1.60*	.001
	Posttest	18.10	Pretest	follow up	-1.45*	.001
	Follow up	17.95	Posttest	follow up	.15	.226
Emotional effect	Pretest	12.20	Pretest	posttest	2.40*	.001
	Posttest	9.80	Pretest	follow up	2.30*	.001
	Follow up	9.90	Posttest	follow up	-.10	.523
planning	Pretest	21.15	Pretest	posttest	-1.60	.001
	Posttest	22.75	Pretest	follow up	-1.40*	.001
	Follow up	22.55	Posttest	follow up	.20	.321
Lack of outcome control	Pretest	7.85	Pretest	posttest	1.50*	.001
	Posttest	6.35	Pretest	follow up	1.35*	.001
	Follow up	6.50	Posttest	follow up	-.15	.266

Motivation	Pretest	20.60	Pretest	posttest	-2.25*	.001
	Posttest	22.85	Pretest	follow up	-2.15*	.001
	Follow up	22.75	Posttest	follow up	.10	.999
Total score of academic achievement	Pretest	78.30	Pretest	posttest	1.55*	.001
	Posttest	79.85	Pretest	follow up	1.35*	.012
	Follow up	79.65	Posttest	follow up	.20	.999

$*_a = .o5$

5.   Discussion

The main goal of this study was the evaluation of therapeutic effects of study skills training on students' qualitative academic achievement. Results showed that, study skills training is an effective intervention on students' qualitative academic achievement. The results are in the same line as prior studies that were conducted by various researchers (Chang, Lai, & Hwang, 2018; Iqbal & Parveen, 2018; Jackson, Duffy, Brady, & McCormick, 2018; von der Embse, Jester, Roy, & Post, 2018). It can be said that study skills training lead students to improve their cognitive processes such as planning, thinking, and thus leads to their qualitative academic achievement (Saif, 2013). Study skills training that includes study habits (motivation, goal setting, memory, study preferences, and so on) and test-taking skills (time management, strategies before, during, and after the test) are successfully linked to students' learning and academic achievement. Similarly, these skills or strategies are defined as any cognitive, affective, emotional, and behavioral activity that facilitates the process of storing, retrieving, and using knowledge or information (Derossis et al., 2004; Motevalli et al., 2013). Study skills training is a method for encoding, storing, retrieving, and using the information in a rational, effective, and adequate way in order to influence students' academic achievement such as self-efficacy, motivation, planning, emotional effect, and lack of outcome control. Moreover, these study skills can reduce fatigue, anxiety, and increase time savings and motivation for students, improve their learning and academic achievement, and can increase the efficiency of the study by employing and knowing them. Study skills training program by motivating students leads to energize, persist, and intense their behavior in order to improve their qualitative academic achievement. Study habits and test-taking skills improve students' academic performance by facilitating their learning processes (Motevalli, Sulaiman, et al., 2013; Singh, Uikey, & Ghodeshwar; Skaalvik, 2018). Likewise, in order to explain this result, it can be said that educational interventions based on study skills training will improve the students' qualitative academic achievement by determining their strengths and weaknesses of their study. Failure in the study and learning skills can affect all the benefits of an optimal learning environment, intelligence, personal, physical, and mental health, and having study and learning skills can modify or compensate many of the potential failures in the learning environment, and anything that can have an adverse effect on the student's performance (Brady, Hard, & Gross, 2018; Ismail, Sulaiman, & Roslan, 2020). Therefore, it is logical that the study habits and test-taking skills, and teaching them to students cause to improve the qualitative of their academic achievement.

In explaining the result, it can be stated that study skills (study habits and test-taking) in which concludes some activities related to motivation, goal setting, and study preferences could be directly affected students' learning success, intrinsic motivation, self-efficacy, and self-regulatory processes, and goal orientation on their academic achievement. These results are in line with various researches as students' self-efficacy refers to an individuals' beliefs of being capable of dealing with difficult tasks or life events (Bandura, 1992, Bandura, 1997) which in educational settings designates the conviction of being able to cope with school-related demands (Putwain, Sander, & Larkin, 2013; Schnell, Ringeisen, Raufelder, & Rohrmann, 2015; Khalaila, 2015), and could be affected by adequate study skills. Once students face an upcoming test or assignment, they enter the motivational phase, and begin to evaluate alternative performance goals, and lastly choose a goal that they want to achieve. Hence, goal setting is one essential skill that students learn how to apply through study skills training programs, plays a significant role in self-regulated learning, and allows students how to plan, initiate their learning process, and causes better academic performance (Zimmerman, 2008; Li, Xiong, Zang, Kornhaber, Lyu, Chung, & Suen, 2016). In the same results, research in the field of cognitive psychology has shown

that learning strategies facilitate the learning process and improve the decline in academic achievement among students (Noguera, Guerrero-Roldán, & Masó, 2018).

6.   Limitations of the Study

This study has limitations that could be resolved in future interventions. The first limitation was selecting the sample which presents a true sample of Iranian high school students from a very big population through the girl high school students of Tehran, Iran. Our sample was very small and also incorporated only 10th-grade girl high school students. Future studies should include larger sample size and students from other grades and consider boy high school students to determine whether the findings are generalizable across subject specialties. Second, the effect of the study skills training interventions was evaluated by conducting only quantitative measures. Prospective studies should apply a qualitative approach for data collection alike interviews and emphasis group discussion. Lastly, the mediating role of participant demographic variables on the intervention outcomes was not considered. We recommend that future studies should consider the mediating role of variables like age, gender, religion, family size, parental socioeconomic status, and achievement orientation.

7.   Implications of the Study

7.1   Theoretical implication

The finding of the current study proved the importance of study skills training intervention on students' qualitative academic achievement in promoting them to increase the level of self-efficacy, planning, emotional effects, lack of outcome control, and motivation. By looking at the results of the study, it could be found that in conditions, where study skills training program was conducted, the students showed a high level of self-efficacy, planning, and motivation and also a significant decreasing of emotional effects, and lack of outcome control at the post-test and follow-up rather than the control group. Hence, it can be implicated that deficit theory which emphasizes the important role of lack of knowledge and skills of cognitive and meta-cognitive skills on students' academic achievement are essential topics to investigate in psychology and educational psychology.

7.2   Practical implication

The findings of the current study have some important practical implications for those who plan to improve some essential study skills among students by using special programs such as study skills training. The first practical implication of the findings is that to increase the level of students' self-efficacy in a special psychoeducational intervention program, self-efficacy is essential to motivate students. It can be said that student with adequate self-efficacy has high confidence to confront educational assessments and attain educational goals and set new challenges with a low level of stress. The second practical implication of the findings is that to increase the level of students' planning in a special psychoeducational intervention program, educational planning, and goal setting can assist students to get up to speed and have a clear direction to accomplish. Planning can be considered an essential study tool in order to fulfill academic success. It also reflects the significant issues, restrictions, framework, conditions, and factors of education. The focus is on potential objectives, goals, and vision is essential to motivate students to study smarter. The third practical implication of the findings is that to increase the level of students' motivation and its three main components such as activation, persistence, and intensity due to assist students to approach academic tasks and got the adequate academic achievement. Motivation refers to activate a person to make the decision to initiate a behavior. Students are supposedly capable of instigating, modifying, and sustaining information. Motivation plays a significant role in learning because it greatly explains academic performance so the implication of some psychoeducational programs can assist students to enhance their academic achievement and performance. The fourth practical implication of the findings is that to decrease the level of students' emotional effects in a special psychoeducational intervention program. Emotional effects such as anger or anxiety can negatively influence students to perform poorly because these emotions decrease their motivation for learning and engaging in classroom activities (Valiente, Swanson, & Eisenberg, 2012;

Linnenbrink, 2007), which are important predictors of academic success (Wigfield, Byrnes, & Eccles, 2006). The last practical implication of the findings is that to decrease the level of students' lack of outcome control in a special psychoeducational intervention program, lack of outcome control is essential to motivate students for planning some goals for their study. It can be said that students with adequate goal setting with regards to attribution theory which concentrates on control especially internal control as an essential component can assist students to improve their academic achievement and performance.

8.   Recommendations

From this study, it is recommended that study skills training as an educational and psychological approach be made part of a curriculum so that teachers and school counsellors can use it for classroom teaching or counselling sessions in order to improve students' academic achievement and performance. However, since its implementation at the classroom level needs some form of specific skills on the part of the teachers and counsellors, in-service training should be given to instructors and school psychologists from time to time. It is recommended that the Ministry of Education gives an in-service course to all the instructors and school psychologists to be prepared with pedagogical skills particularly to teach study skills training. Providing students or learners with study skills training requires some form of preparation and effort on the part of the school psychologists and instructors. On the other hand, methods for increasing students' qualitative academic achievement is not always available in every market. Instructors or school psychologists who work alone may face loads of work that may hinder them from giving the best service. It is recommended that instructors and school psychologists work in groups to find the best solutions for improving their academic achievement so that they can exchange the traditional study skills and hence make the preparation for teaching and counselling less burdensome and unsuccessful. In this way, new school psychologists and instructors who faced a lack of knowledge and experience on qualitative academic achievement can be guided and helped.

9.   Conclusion

Totally, based on the findings of this study, the authors identified that the study skills training intervention has significant effects on increasing qualitative academic achievement components such as self-efficacy, planning, and motivation among students. Similarly, study skills training intervention could significantly decrease students' qualitative academic achievement such as emotional effects and lack of outcome control. The findings from this study could contribute to educational psychology and pedagogy. Although study skills training is a promising way of learning and study, especially in education, there are still relatively few studies related to higher education. The results of this study have the potential to influence students' academic achievement and psychological disorders related to low academic achievement. Besides, it is concluded that teaching of study skills training (study habits and test-taking skills) be emphasized as an important principle in educational systems, and alongside the main lessons, these skills are taught to students as taught in other countries. Also, considering that the results showed that teaching of study skills training on the basis of concentration on cognitive skills such as attention, memory, study styles or preferences, time management, and so on, will improve students' qualitative academic achievement (self-efficacy, emotional effect, planning, lack of outcome control, and motivation), therefore, these strategies can be developed and applied in the form of a school curriculum for students in order to improve their academic performance.

10.   References

Arana, F. G., & Furlan, L. (2016). Groups of perfectionists, test anxiety, and pre-exam coping in Argentine students. *Personality and Individual Differences*, *90*, 169-173.
Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. *Psychology of learning and motivation, 2*(4), 89-195.

Baba, J., & Affendi, F. R. (2020). Reading Habit and Students' Attitudes towards Reading: A Study of Students in the Faculty of Education UiTM Puncak Alam. *Asian Journal of University Education, 16*(1), 109-122.

Baddeley, A. D., Hitch, G., & Bower, G. H. (1974). *The psychology of learning and motivation.*

Bandura, A. (1992). Exercise of personal agency through the self-efficacy mechanism. In *This chapter includes revised and expanded material presented as an invited address at the annual meeting of the British Psychological Society, St. Andrews, Scotland, Apr 1989.* Hemisphere Publishing Corp.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York, NY.

Brady, S. T., Hard, B. M., & Gross, J. J. (2018). Reappraising test anxiety increases academic performance of first-year college students. *Journal of Educational Psychology, 110(3),* 395.

Chang, C.-Y., Lai, C.-L., & Hwang, G.-J. (2018). Trends and research issues of mobile learning studies in nursing education: A review of academic publications from 1971 to 2016. *Computers & Education, 116,* 28-48.

Derossis, A. M., Da Rosa, D., Schwartz, A., Hauge, L. S., & Bordage, G. (2004). Study habits of surgery residents and performance on American Board of Surgery In-Training examinations. *The American Journal of Surgery, 188*(3), 230-236.

Halif, M. M., Hassan, N., Sumardi, N. A., Omar, A. S., Ali, S., Aziz, R. A., ... & Salleh, N. F. (2020). Moderating Effects of Student Motivation on the Relationship between Learning Styles and Student Engagement. *Asian Journal of University Education, 16*(2), 94-103.

Hammersley, M., & Traianou, A. (2012). *Ethics and educational research*: British Educational Research Association London.

Iqbal, A., & Parveen, S. (2018). Impact of Test Anxiety on Paper Management and Students' Performance. *European Online Journal of Natural and Social Sciences: Proceedings, 7*(3 (s)), pp. 30-37.

Ismail, A. A., Sulaiman, T., & Roslan, S. (2020). Models of relationship between emotional, spiritual, physical and social intelligence, resilience and burnout among high school teachers. *Universal Journal of Educational Research, 8*(1).

Jackson, L. G., Duffy, M. L., Brady, M. P., & McCormick, J. (2018). Effects of learning strategy training on the writing performance of college students with asperger's syndrome. *Journal of autism and developmental disorders, 48*(3), 708-721.

Karami, B., Allah Karami, A., & Hashemi, N. (2013). Effectiveness of cognitive and metacognitive strategies training on creativity, achievement motive and academic self-concept. *Journal of Innovation and Creativity in Human Science, 2*(4), 121-140.

Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today, 35*(3), 432-438.

Li, H., Xiong, Y., Zang, X., L. Kornhaber, M., Lyu, Y., Chung, K. S., & K. Suen, H. (2016). Peer assessment in the digital age: A meta-analysis comparing peer and teacher ratings. *Assessment & Evaluation in Higher Education, 41*(2), 245-264.

Lim, B. C. Y., Liu, L. W. L., & Hou, C. C. (2020). Investigating the effects of interactive e-book towards academic achievement. *Asian Journal of University Education, 16*(3), 78-88.

Linnenbrink, E. A. (2007). The role of affect in student learning: A multi-dimensional approach to considering the interaction of affect, motivation, and engagement. In *Emotion in education* (pp. 107-124). Academic Press.

Lyons-Wagner, E. C. (2010). T*he effects of a self-regulation learning-strategies instructional program on middle-school students' use of learning strategies and study tools, self-efficacy, and history test performance.* University of San Francisco.

Motevalli, S., Roslan, S. B., Sulaiman, T., Hamzah, S. G., Hassan, N. C., & Garmjani, M. G. (2013). New study skills training intervention for students who suffer from test anxiety. *Asian Social Science, 9*(7), 85-96.

Motevalli, S., Sulaiman, T., Hamzah, M. S. G., Garmjani, M. G., Kamaliyeh, N. G., & Roslan, S. (2013). The effects of cognitive restructuring intervention on state and trait anxiety among Iranian high school students. *World Applied Sciences Journal, 26*(11), 1499-1504.

Noguera, I., Guerrero-Roldán, A.-E., & Masó, R. (2018). Collaborative agile learning in online environments: Strategies for improving team regulation and project management. *Computers & Education, 116*, 110-129.

Portaheri, F., Zandvanian Naeini, A., Rahimi, M. (2014). Relationship between transcendence and qualitative and quantitative academic performance of students. *Journal of Education and Learning Studies*. *6*(2). 137-157.

Putwain, D., Sander, P., & Larkin, D. (2013). Academic self-efficacy in study-related skills and behaviours: Relations with learning-related emotions and academic success. *British Journal of Educational Psychology*, *83*(4), 633-650.

Saif, A. A. (2013). *Modern Educational Psychology: Psychology of Learning and Teaching*. Tehran: Doran.

Schnell, K., Ringeisen, T., Raufelder, D., & Rohrmann, S. (2015). The impact of adolescents' self-efficacy and self-regulated goal attainment processes on school performance—Do gender and test anxiety matter?. *Learning and Individual Differences*, *38*, 90-98.

Shamooshaki, M., Hosseini, S. A., Cherkzai, A., Jafari, S. Y., & Bakhshi, F. (2013). Study skills and its relation with students' academic status. *Iranian Journal of Medical Education, 13*(1), 66-71.

Singh, R., Uikey, S. K., & Ghodeshwar, A. K. (2016). The Effectiveness of Imagery and Strategies in Sports Performance. *International Journal of Modern Engineering & Management Research, 4*(4), 56-60.

Skaalvik, E. M. (2018). Mathematics anxiety and coping strategies among middle school students: relations with students' achievement goal orientations and level of performance. *Social Psychology of Education, 21*(3), 709-723.

Slavin, R. E. (2019). *Educational psychology: Theory and practice*.

Sulaiman, T., Ibrahim, A., Motevalli, S., Wong, K. Y., & Hakim, M. N. (2021). Effect of e-evaluation on work motivation among teachers during the movement control order in COVID-19: the mediating role of stress. *Interactive Technology and Smart Education*.

Suskie, L. (2018). *Assessing studen learning: A common sense guide*: John Wiley & Sons.

von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review. *Journal of Affective Disorders, 227*, 483-493.

Valiente, C., Swanson, J., & Eisenberg, N. (2012). Linking students' emotions and academic achievement: When and why emotions matter. *Child development perspectives*, *6*(2), 129-135.

Wigfield, A., Byrnes, J. P., & Eccles, J. S. (2006). Development During Early and Middle Adolescence. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (pp. 87–113). Lawrence Erlbaum Associates Publishers.

Yarmohamadian, A., Qamarani, A., Seifi, Z., & Arfa, M. (2015). Effectiveness of teaching cognitive strategies on memory, reading performance and data processing speed of dyslexic students. *Journal of Learning Disabilities, 4*(4), 101-117.

York, T. T., Gibson, C., & Rankin, S. (2015). Defining and Measuring Academic Success. *Practical Assessment, Research & Evaluation, 20*.

Zimmerman, B. J. (2008). Goal Setting: A Key Proactive Source of. *Motivation and self-regulated learning: Theory, research, and applications*, *267*.