



The Use of Memory Strategies Among Adolescents in Saudi Arabian Middle Schools

Ibrahim Alyami*

School of Psychology, University of Lincoln,
Lincoln, England

Sana Alsharif

College of Education, Taif University,
Saudi Arabia

Susan Chipchase

School of Psychology, University of Lincoln,
Lincoln, England

Karen Pfeffer

School of Psychology, University of Lincoln,
Lincoln, England

Abstract: This study has been undertaken to investigate the memory strategies used by the students. Moreover, this study aims to analyze the relationship in memory strategies used by the students and their grades. A primary data is undertaken in this research that is gathered with the help of a survey questionnaire. The survey questionnaire is filled with a total of 175 adolescent students. The data collected through the survey questionnaire is analyzed with the help of statistical analysis technique with the help of the Statistical Package for Social Sciences (SPSS). Regression analysis is used to analyze the impact of memory strategies on the student's feeling of success. It is analyzed from the results of regression analysis that $F(1,173) = 12.779$, $p = .001$, $R^2 = .069$. The value of $R^2 = .069$, which means that memory strategies explain 6% variation in the English score of the students. It is identified in reference to the research aim that the use of memory strategy and students' grades are significantly correlated with each other. Further, it is also examined from the study findings that the majority of the students use memory strategies in the form of narratives, self-test, rehearsals, rhymes, and mental practice. The study outcomes also depicted that the majority of the students use self-test and practice as effective strategies for remembering and learning. The study findings would help the students to analyze the significance of memory strategy for increasing their scores. Future research should be focused on conducting their study at a wider level in order to analyze the impact of memory strategies for the student's primary schools and high schools.

Keywords: *Memory strategies, rehearsals, self-test, practice aloud, and mental practice*

Received: 2 February 2019; **Accepted:** 20 April 2019; **Published:** 21 June 2019

INTRODUCTION

Background

According to [Abdel-Khalek \(1989\)](#), the memory is the most important mental processes in human life and a number of other processes such as learning, thinking, and problem-solving in general. Due to this, importance of memory in the learning process is been observed, and the specialists in educational psychology have tried to explain the process of learning through learning theories like gestalt theory and memory trace theory. The gestalt theory is emphasizing that perception and experience of the learner significantly affect their learning. Further, memory trace theory presents a theoretical model to process to which memories are stored in brain ([Hamlyn, 2017](#); [Goldmeier, 2014](#)). [Goldmeier](#)

*Correspondence concerning this article should be addressed to Ibrahim Alyami, School of Psychology, University of Lincoln, Lincoln, England. E-mail: al.yami987@gmail.com

(2014) found that memory is not stored in a particular part of brain; however, it is generalized throughout the brain structure. Chang (2015) suggested that the impact of self-test is visible when a corrective feedback is offered to the students. On the other hand, Frank, Land, Popp, and Schack (2014) have argued that mental practice also enhances the cognitive processing of information within the brain. Mental practice exercise help students to create an image in their mind concerning the academic information provided by the teachers.

Problem Statement

Due to as significant impact of memory strategies for students on student learning. For this regard, this study aims to evaluate use of memory strategies for adolescents in Saudi Arabia.

Literature Gap

The previous researchers have analyzed the impact of particular memory behaviour on the student's performance, but they have not conducted a comparative study to identify the most appropriate memory strategy among a range of memory strategies that can be used by the students (Bergin & Bergin, 2014; Gutchess & Inneck, 2009; Hendelman, Humphreys, & Skinner, 2017; Keong, Yip, Swee, Toh, & Tai, 2017; Malroutu, 2017). Moreover, much of the previous researchers have utilized a theoretical approach to determine the importance of memory strategies. In this respect, this study would help to fulfil the gap in the previous literature regarding the effectiveness of four different types of memory strategies, namely self-test, practice aloud, written rehearsal, and mental practice.

Research Significance and Implications

There are very few studies of memory strategy use in Saudi Arabian schools, yet understanding how knowledge can be retained is of great benefit to both teachers and students. Use of memory strategies could allow students to increase their chances of passing their exams each year and progressing to a higher level. This would give them a greater sense of achievement, and would also help the teachers, as it could improve their success rates.

The study also contributes to knowledge about adolescent memory strategy use, as different contexts need to be studied, and Saudi adolescents may benefit from strategies that vary from the ones used by another ethnicity. It will contribute to Saudi Arabian educational psychology by providing further information on the most successful strategies used by young Saudis. Additionally, it will provide recommendations for adolescents on how to approach examination preparation which will increase their academic achievement rates and consequently benefit the knowledge community that Saudi Arabia is developing.

Research Aims

The research aims were to investigate:

1. Which type of memory strategy the students used?
2. Whether there is a relationship between students' grades and the type of strategies that students use.

Research Objectives

- To investigate how adolescents, memorize schoolwork and their opinions about which strategies they think are most effective
- To examine the most effective memory strategies for the students in terms of self-test, mental practice, written rehearsal, and practice aloud
- To analyze the relationship in the use of memory strategies and students' scores in different subjects

LITERATURE REVIEW

Long Term Memory

Memory strategies are considered as tools to which can be used to learn and recall new things and skills. Cognitive psychology theories identify three types of memory; long-term, short-term and working memory. Learning skills depend on memory retrievals such as through recall and recognition and these cannot be achieved without memory strategies, which allow information to be transferred from the working memory to the long-term memory (Abhakorn, 2008; Baddeley, Eysenck, & Anderson, 2009; Kihlstrom, 2013). According to research by Baddeley et al. (2009), long-term memory is the system that is assumed to support the capacity to store information over long periods of

time; in other words, it is where information is stored and retrieved to recall experiences and education. Long-term memory is divided into two types of memory, including explicit (declarative) memory, which is used to remember exact events in human life such as meeting friends, and implicit (non-declarative) memory, which focuses on human performance such as skills (Abhakorn, 2008; Kihlstrom, 2013). This study will focus on declarative (explicit) memory. Explicit (semantic) memory is important for adolescent learning in the Saudi Arabian school context. In education, the information that is significant and holds profound importance leads to robust recall; however, the information with lesser importance are weaker and require more reminded and prompts in order to bring them in focus (Hendelman et al., 2017).

During education, course content or stuff that are often rehearsed become stronger and such information, and details are easier to recall. Accessing the memories several times enhances the strength of neural networks among the students and the information is strongly encoded in these networks; hence, it becomes easy for the students to recall the information (Hendelman et al., 2017). On the other hand, the memories and education that are not recalled frequently become weak or lost, and it becomes difficult for the students to recall them.

Memory Strategies among School Students

The memory strategies are also highly beneficial for school students, as they help in improving the long-term memory of the students and enhancing their learning achievements. The active memory strategies for the student include self-testing, practicing, writing, chunking and rehearsing. These strategies are commonly utilized by the students in the KSA schools, as they are practical and easy to grasp (Bergin & Bergin, 2014). The strategy of self-test assists the students in remembering the study material as well as evaluating the knowledge gaps. Hence, it helps in identifying the tough areas that require attention and efforts required to remember them. Memory plays an indispensable role in the life of the student. It helps in developing thinking and problem-solving skills of the students. The role of memory strategies is crucial for the adolescents then undergraduate or master's level students as they have to learn different subjects at a time rather than focusing on a single subject. Thus, this study is undertaken to analyze the significance of memory strategies for the students (Karpicke, Butler, & Roediger III, 2009).

Education in Saudi Arabia

The education system in the KSA requires students to pass one stage before graduating to the next stage (Alghamdi, 2008): therefore, testing for school achievement is important. Also, there are some school subjects that need to be assessed at the end of the semester based on the student's skill at remembering. These are; Arabic poetry, new vocabulary in English and the Holy Qur'an. Therefore, there is a need to assess the use of memory strategies for school students, as well as assessing teachers' opinions about whether they should teach memory strategies. This study is considered important for investigating recent memory strategies that have been used, and those which should be used, for middle school students (aged 15) in Saudi Arabia. Also, the study aims to provide a constructive way for students to prepare for their examinations. The education system needs to provide strategies that help students to organize new information, and recall and recognize it easier, which will encourage students to adopt more proactive approach to learning (Alghamdi, 2011; Al Kholi, 2004). There is currently little research addressing the question of how to help students achieve and the role of memory strategies in school achievement in Saudi Arabia (Saudi, 1993).

It is stated by Gutchess and Indeck (2009) processing of memory is also different in different cultures. In regard to this, Americans and East Asian students differ in respect of free recall of the social interactions. Further, the authors have also stated that American can remember more information regarding the central character in terms of videos or narratives as compared to Taiwanese students. The authors have further emphasised that cultural differences in terms of social contexts also affect the emotional judgement and learning of the students.

It is explored that memory professionals face significant challenges in determining the most beneficial strategies for students and memory strategies that are most helpful in increasing efficacy of students. It is mentioned in the literary sources that memory plays an important role in improving learning; wherein memory strategies are widely discussed and utilized for improving learning among students.

The purpose of this study is to explore the type of memory strategies which students use to prepare for their final exams, based on the student's opinion. Also, the study explores whether there is a relationship between the type of memory strategies that the students use and the student's grades at the end of the school year, to determine the effectiveness of memory strategies for adolescents in Saudi Arabia.

METHODOLOGY

Participants

Two hundred and twenty students from the third graders of middle schools in Gizan, Saudi Arabia, were selected to complete the questionnaire. The sample for the study included boys and girls, and the researcher worked with the Ministry of Education to determine the number of schools there were in the city, and then selected the schools. Stratified random sampling was used to select the samples from those schools based on school numbers. A total of 175 students completed the questionnaire comprising 88 girls and 87 boys. Total two hundred twenty students were approached for survey, out of which only 175 students completed the questionnaire while 45 students did not complete the questionnaire. Therefore, incomplete questionnaire has been excluded from the study while analyzing and deriving results. The mean age for participants was 15.46 years old ($SD = 0.72$, $N = 175$, Range = 14-17 years).

Materials

In the current study, a questionnaire which contained 18 questions was used to collect data from students. The demographic questionnaire asked about student age and gender and other questions was related to the memory strategies used by the students and the techniques used by the students for remembering different subjects. The questionnaire is prepared for determining the type of memory techniques preferred by students and their opinion regarding use of specific memory techniques. Students were also asked to select from different memory strategies used by them in an exam such as practicing words or verses, self-test, book reading, using rhymes, using pictures, taking help of stories and repetition of words or verses. In addition, students were asked to rate learning techniques preferred by them, their usefulness along with effectiveness of different memory techniques in improving learning of different subjects. The questionnaire is designed for meeting aims of the study of understanding the way students use memory strategies along with examining the relationship between grades of students and types of strategies used by the students. Overall, the questionnaire is developed in alignment with the purpose of the study and investigating the usefulness of memory strategies among middle school students in Kingdom of Saudi Arabia.

This questionnaire was sent to specialists in developmental psychology at Gizan University and to some teachers who had extensive experience in teaching to ensure that the questions were suitable for the stage. The questionnaire has been designed for determining the most useful and effective memory strategies. Video teleconferencing was used to carry out a training workshop for both male and female teachers. Students' grades were used as the required instruments. The teachers prepared the room, questionnaires, and pens for the participants. All materials prepared in English were translated and back-translated into Arabic for use in Saudi Arabia by the researcher.

Procedure

The participants were selected from 10 middle schools' students, including 5 female schools and 5 male schools in Gizan. I had contacted the teachers using video teleconferencing so that they understood exactly how to explain the study's aims. A training workshop for both male and female teachers was then carried out so that they knew how to distribute and collect the questionnaires. The researcher spent the first week just explaining the aims of the study to principals, teachers, and students. Furthermore, the researcher explained the questionnaire instructions to teachers who were to apply these in schools. For the girls' schools, the researcher had a meeting with the principal and the teachers to explain all of the instructions. Different setting is used for receiving responses in the girl's school so that they can present their viewpoints clearly with ease and without any hesitation. Female students are more comfortable with presenting their views to someone they already know; therefore, teachers have been assigned and help of teachers are taken for conducting the survey. The questionnaire was administered in schools by teachers in a separate classroom. After receiving the consent sheet papers from parents, students, and principals during the second week, the researcher decided to determine that data collection would start on Sunday 14 May 2017 at 9:00 AM for the boy's schools and Sunday 21 May 2017 at 9:00 AM for the girls' schools. The questionnaire was prepared for finding memory strategies that are helpful for adolescents in improving their learning and study performance along with recognizing if effectiveness of memory strategies differ as per gender differences. At 11:00 am, all the participants completed the questionnaire and the data was collected the same day. For the girls' schools, the data was collected the next day and adequate time was given to participants in girls' school for completing the questionnaire. The researcher was directly involved with participants in boys' schools while teachers were involved in girls' school; therefore, the questionnaire is collected the next day after distribution in girls' school due to indirect involvement of the researcher. Due to cultural

issues, I was not able to administer the questionnaires to female students and adolescents may be more comfortable with their teachers than someone they do not know: therefore, I used gatekeepers, being the teachers themselves.

Ethical Issues

Safeguarding identities of participants, ensuring safety of participants and keeping the acquired data secure are some of the prominent ethical concerns of a researcher in the process of data collection in a research work. Ethical issues are commonly faced in protecting identities of participants, but anonymity of participants is ensured via data encryption and coding schemes. Other than this, the researcher encountered challenges in convincing participants to take part in the data collection process (more detail). Prior permission is obtained from participants through consent form to eliminate any sort of ethical violation in the research process.

RESULTS

Data were analyzed using descriptive statistics to provide information about the sample size, means, and standard deviation. A correlation test was used to answer the question: is there a relationship between students' grades and the type of strategies students use? SPSS software was used to calculate inferential statistics. In order to describe the distribution of these courses, descriptive statistics were used to compare means between these courses and memory strategies.

Frequency and Descriptive Analysis of Students Demographics

Gender of participants: 175 students were participated in the survey among which 49.7% are males and 50.3% are females. It has been analyzed that the survey.

Age-group and grades statistics: Table 1 shows the descriptive statistics for the students' age and grades in four subjects including; Quran, Arabic language, English language, and math and sciences. The average score in math was 35.4 ($SD = 9.26$), the Arabic language was 40.36 ($SD = 8.41$), the English language was 36.09 ($SD = 10.05$), and the Holy Quran was 22.47 ($SD = 2.51$). In the study, the dependent variables measured comprises the scores in mathematics, Arabic language, English language, and the Holy Quran. Achievement in these courses was measured using a standardized test with a continuous score. Independent variables were memory strategies (loci, organization, practice, narrative, rehearsal, visual and rhyme strategies).

Table 1 *Descriptive Statistics for the Students' Age and Grades in Four Subjects*

N (Sample size)	Avg.	Std. Dev.	Confidence intervals (95%)	
			Lower	Upper
Age	15.46	72	15.36	15.57
Score: Quran	22.4656	2.51	22.09	22.84
Score: English	36.0861	10.05	34.59	37.59
Score: Arabic	40.3621	8.41	39.11	41.62
Score: Math/science	35.4027	9.26	34.02	36.78

Analysis of the Memory Strategies used in Intermediate School Students in KSA and Associated benefits

Figure 1: The results indicate that the four most frequently used strategies were used by more than 50% of the sample. The most used strategies were self-test (86.8% of students), mental practice (82.3%), written rehearsal (76.6%) and practice aloud (60%).

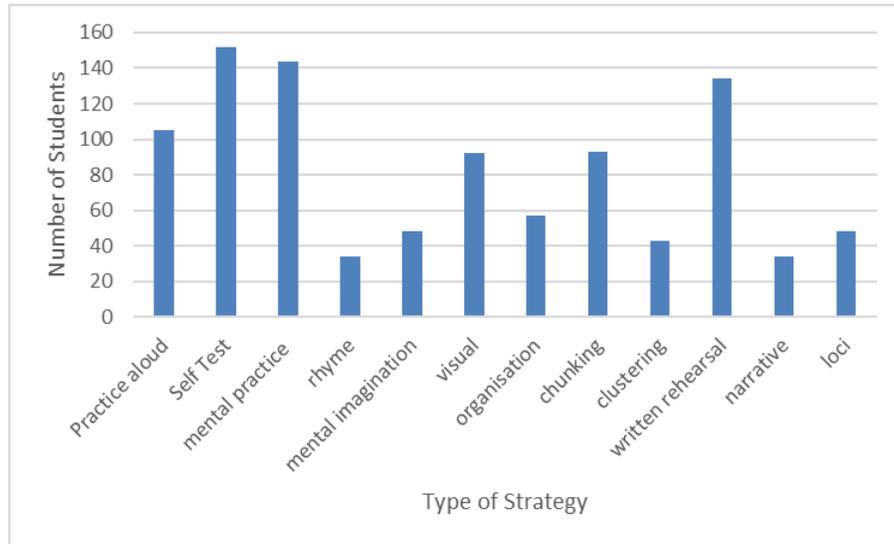


Figure 1 *Most Frequently used Strategies by the Students*

When considering the frequency of using a strategy across subjects, the results indicate that 68% of students used the same strategy with all subjects, including the Quran, English, Arabic poetry and Math, and 32% of students used more than one strategy with all subjects. When considering the number of strategies used by the students, 105 students (60%) used more than one strategy at the same time and 70 students (40%) used only one strategy at the same time. When considering the level of difficulty of the memory strategy, the results indicated that 118 participants (67.4%) believed that some memory strategies are easier than others and 57 of participants (33%) believed that there is no difference in challenge between these strategies.

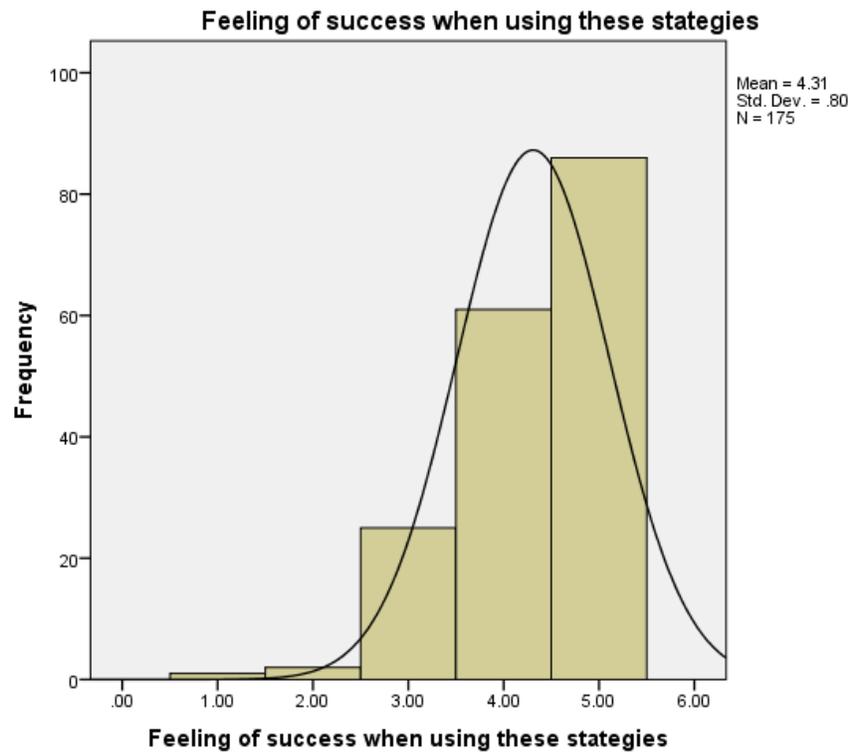


Figure 2 *Feeling of Success when Using Memory Strategies*

Figure 3 shows that the majority of students believe that using memory strategies is beneficial.

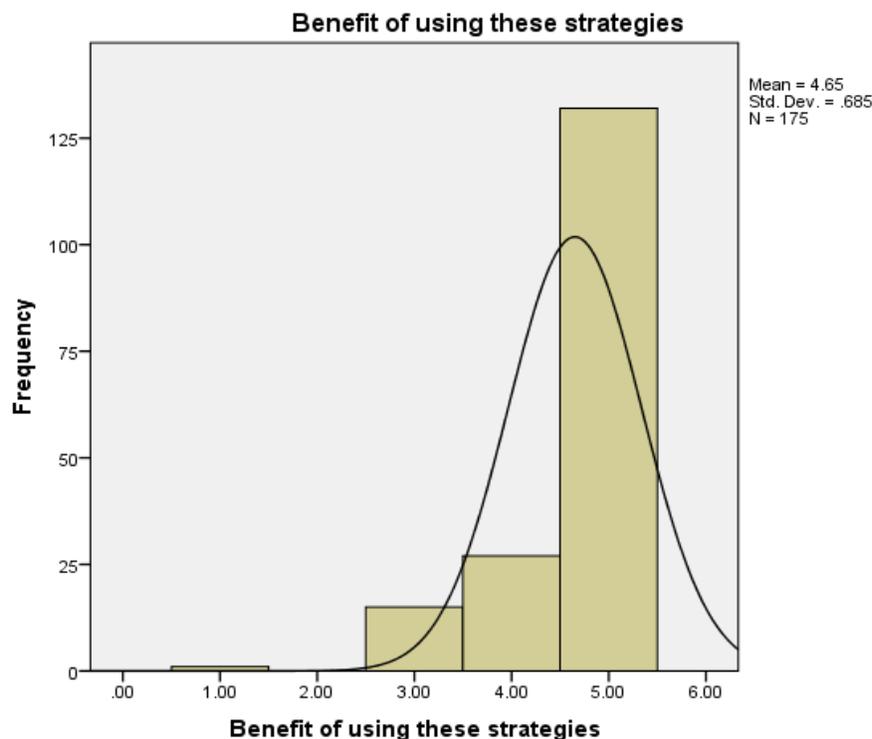


Figure 3 Benefit of using Memory Strategies

Correlation of Student Perceived Benefit from the Strategy and Formal Test Score

There was from Spearman's Rho correlations a significant relationship between students' perceived benefits from the strategies they used and formal test scores in English ($r(175) = 0.26, p < 0.01$) and math ($r(175) = 0.23, p < 0.01$).

Correlation of Student's Grades and the Number of Strategies used by the Student

There was a significant relationship between a student's grades and the number of strategies that the student used was assessed. Spearman's Rho correlation test showed significant relationship between the number of strategies always students used and the formal test scores in Arabic language ($r_s(175) = .179, p < 0.05$) and math ($r_s(175) = .210, p < 0.01$). Also, the results indicated to a negative significant relationship between the numbers of strategies sometime students used and the formal test scores in Quran ($r_s(175) = -.216, p < 0.01$) and Arabic ($r_s(175) = -.252, p < 0.01$), and Math ($r_s(175) = -.174, p < 0.05$).

Correlation in Type of Memory Strategy and Students Grade

The relationship between a student's grades and the types of memory strategies students used was assessed. Spearman's Rho correlation test showed a significant relationship between mental practice strategy and student's grades in Quran ($r(175) = .170, p < 0.05$), and in Arabic ($r(175) = .217, p < 0.01$). For the mental imagination strategy, the correlation test indicated that there is a negative significant relationship in Quran ($r(175) = -.232, p < 0.01$) and Arabic ($r(175) = -.154, p < 0.05$). It showed that a significant relationship between the visual strategy and the students grades in some courses such as Arabic language ($r(175) = .168, p < 0.05$), English Language ($r(175) = .216, p < 0.01$) and Math ($r(175) = .149, p < 0.05$). Chunking as a strategy for sorting information, the correlation test showed a significant relationship between using this strategy and students' grades in Arabic ($r(175) = .278, p < 0.01$), English language ($r(175) = .233, p < 0.01$) and Math and Science ($r(175) = .334, p < 0.01$). For the written rehearsal strategy, the correlation test indicated that there is a significant relationship between this strategy and the students grades in Arabic language ($r(175) = .157, p < 0.05$), English language ($r(175) = .172, p < 0.05$) and Math and Science ($r(175) = .171, p < 0.05$). Narrative as a strategy for sorting information, the correlation test showed negative significant relationship in Quran ($r(175) = -.277, p < 0.01$) and in Arabic language ($r(175) = -.197, p < 0.01$). Self-test strategy as a one of the popular strategies which used in Saudi schools, the results indicated that there

is a significant relationship between using this strategy and the students grades in Arabic language ($r = (175) = .310, p < 0.01$) and Math and Science ($r = (175) = .232, p < 0.01$).

Results of Regression Analysis: Students Score in English and Feeling Success when using Memory Strategy

Simple regression was used to predict a student’s feeling of success when using these memory strategies from student’s scores in all subjects including Quran, English, Arabic, and Science. The students’ scores in English only did explain a significant of the variance in feeling successes, $F (1, 173) = 3.91, p = .049, R = 0.149, R^2 = .022, R^2 \text{ adjusted} = .016$, Standard Error of the Estimate = 0.79330. The regression coefficient ($\beta = .012$) indicated that an increase in the students feeling successes corresponded, on average, to an increase in English score of .012 points.

Impact of Memory Strategy on the Feeling of Success

Figure 4 represents a scatter plot that shows the ratio of student feeling successful by using the memory strategies. High ratio of students felt successful while using the memory strategies.

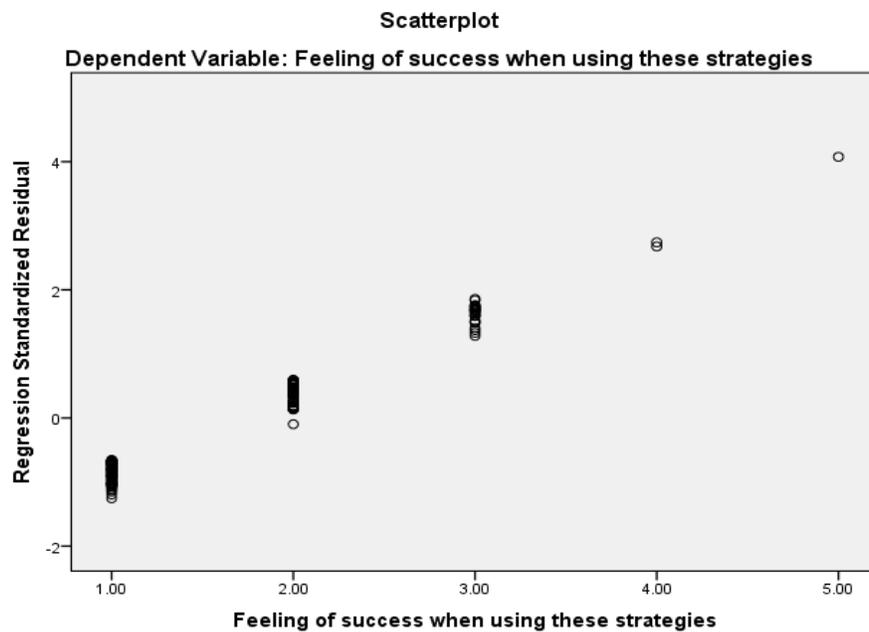


Figure 4 Scatterplot of Feeling of Success when using Memory Strategy

Regression Result Analysis: Students Score in English and Benefit of Using these Methods

Simple regression was used to predict students believe that using memory strategies is beneficial when using these memory strategies from student’s scores in all subjects including Quran, English, Arabic, and Science. The students’ scores in English only did explain a significant of the variance in feeling successes, $F (1,173) = 12.779, p = .001, R^2 = .069, R^2 \text{ adjusted} = .063$. The regression findings indicate that 6% variation in the regression scores are explained by the use of memory strategies. The regression coefficient ($\beta = .018$) indicated that an increase in the students believe that using memory strategies is beneficial corresponded, on average, to an increase in English score of .018 points.

Benefits of Using Memory Strategy and its Impact on English Scores

Figure 5 shows that the majority of students believed that using memory strategies was beneficial and they had a high score in English Language subject. The figure explains positive relations between memory strategies and score for students in English language. Along with this, the figure also depicts that the memory strategies explain 6% variation in the score of students in English language.

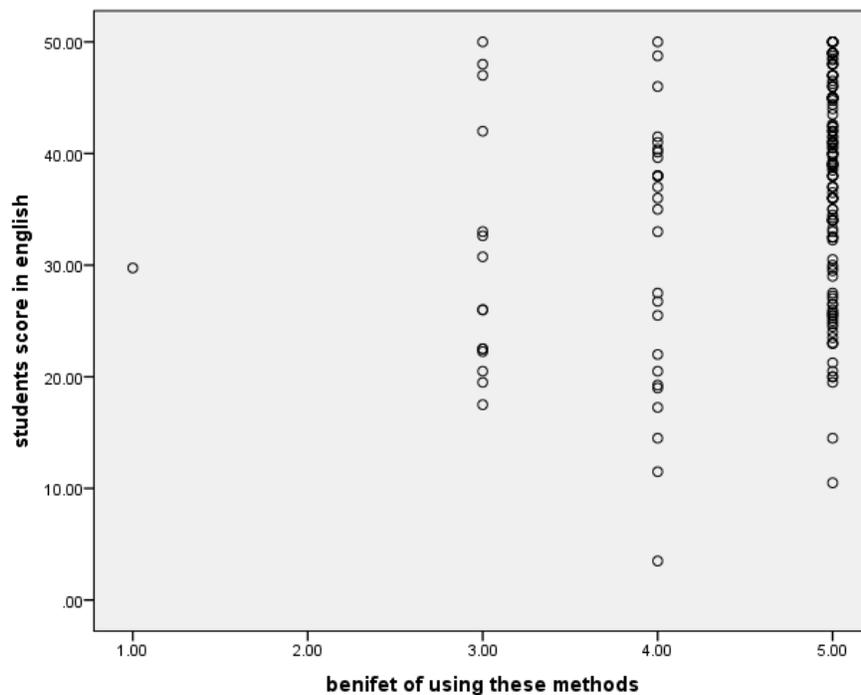


Figure 5 *Benefits of Using Memory Strategy and its Impact on English scores*

DISCUSSION

Summary of Main Findings

The aim of undertaken study was to examine the student's perspective regarding the type of memory strategies that are beneficial for the students to prepare for the final exams. For this regard, relationship between memory strategies and academic performance has been examined to determine the effectiveness of memory strategies for adolescents in Saudi Arabia.

It is found out from the findings of survey that students used self-test and mental practice as memory strategies for enhancing their learning. Students use memory strategies in form of written rehearsals, narratives, rhymes, self-test and mental practice as found out in context of first aim. It is inferred from the analysis in regard to second aim that students' grades and the type of strategies that students use are closely interrelated to each other.

Interpretation in Relation to Previous Research

In the education system of Saudi Arabia, testing is considered as an essential tool for school achievement certain subjects are assessed at the end of the semester on the basis of skills of students at remembering. Hence, it is essential to assess the memory strategies that are required for the students and opinions of the teachers toward these memory strategies and their effectiveness. The results that are obtained from the research study clearly show that the main differences in course achievements are explained by the type of memory strategies used. Even where the teachers had not encouraged the students to use memory strategies for remembering, these strategies play an important role in determining the adolescent's achievement or learning in these courses.

Returning to this paper's hypothesis, there is evidence to support the idea that the effect of using memory strategies would increase if the adolescent increased his or her approaches to learning (Alghamdi, 2011; Al Kholi, 2004). The memory strategies assist the students in enhancing their approaches towards learning and storing the information in their long-term memory. Moreover, the strategies enhance the grasping capability of the students for different subjects. It has been analyzed from the literature that the most effective strategies for the students include self-testing and practicing. The strategy of self-testing helps the students in analyzing their knowledge gaps and identifying the areas where they need to focus, which facilitates learning achievements in a better manner. Moreover, self-testing assists in relating the previous knowledge to the new knowledge and comprehending the old information in a better manner (Dehn, 2010; Irwin, 2019). The other memory strategy that is highly effective for the students is practicing. In order to move the concepts and information from temporary working memory among students to their long-term memory, it is essential to

repeat the concept and learning. The technique of practicing assists the students in strengthening the neural network. This helps the students in recalling the concepts and information easily in an effective manner (McPherson & Schapiro, 2010; Genuba & Abellanos, 2018).

The strategies of practicing and self-testing are profoundly effective for learning and remembering certain subjects that require continuous practice in order to store them in long term memory. Repetition of things, while practicing and self-testing, assists in assuring better learning achievements through adequate learning and remembering (Dehn, 2010; Muller, 2017).

The outcomes of the study also demonstrated that most of the students find self-testing and practicing as effective strategies for learning and remembering. It has been analyzed on the basis of result that almost 50% of the sample students frequently used four strategies namely, self-test, mental practice, rehearsal, and self-test. The outcomes of the study show that the majority of students preferred to use self-test and practice strategies to prepare for the final exam. Also, the students mentioned that practicing and self-testing strategies are the best for remembering and easy to use. Due to the easiness of use and understanding, most of the students preferred self-testing and practicing over other memory strategies.

Memory strategies are frequently used in middle schools in Saudi Arabia and students find them to be beneficial. Saudi students were more likely to use self-test and other memory strategies, including mental practice, practice aloud and written rehearsal, than students in other cultures, e.g., USA (Karpicke et al., 2009). Also, these strategies are good for learning especially to learn new vocabulary such as English language (Schneider, Healy, & Bourne, 2002). Self-testing helps in improving the long-term memory among individuals, and it is considered highly beneficial for language learning and storing core facts such as dates and events. Moreover, the rehearsal strategy is also effective for learning certain languages, and the same has been indicated in the results obtained from primary data. The results indicated a specific relationship between the grades of students in the Arabic language and the strategy of rehearsal. The results indicated that the strategy of rehearsal is profoundly beneficial in increasing the learning achievements of students in the Arabic language. Moreover, the results indicated a positive relationship between the self-testing strategy and subjects including Mathematics, Science and Arabic, as well as the English language.

The fact that memory strategies' effect on students' achievement increases as the approaches to learning increase could have importance in future education policies. This finding shows that it is possible that other factors decrease the memory strategies' effect. Moreover, teachers and parents may be able to work directly on improving children's approaches to learning.

Limitations and Ideas for Future Research

The ministry of the education was determined some of schools to apply this research while the research does not incorporated students from all type of the schools in Gizan district. In future research, the participants would be recruited from the students from different schools in order to represent the characteristic of entire population. The limitation of current study is that it is specifically conducted in Kingdom of Saudi Arabia; however, the study could also be conducted in different countries in order to analyze the cultural differences in educational settings and utilization of memory strategies. The future study should be conducted at global level by incorporating the opinion of the students from different countries in order to identify impact of culture on memory. Moreover, the other limitation of the study is that it is conducted in middle schools; hence it only included student belonging to age group of 14-17 years. The future research could be conducted at a wider level in high schools or primary in order to study utilization of memory strategies among the students in high schools as well as primary schools.

CONCLUSION

It can be concluded from the above discussion that the memory strategies are highly beneficial in enhancing the learning process among the students. Moreover, different type of memory strategies effects the course achievements among the students. The study findings reflect that increase in the student feeling of success correspondingly increase their English scores. Further, it is also identified from the study findings that use of memory strategies is beneficial to increase the score of students.

REFERENCES

Abdel-Khalek, A. (1989). *Fundamentals of psychology* (3rd ed.). Alexandria, Egypt: Dar Al-Maarifa Al-Jamiiyah.

- Abhakorn, J. (2008). The implications of learner strategies for second or foreign language teaching. *Annual Review of Education, Communication & Language Sciences*, 5, 186-204.
- Alghamdi, M. (2008). *Education in Saudi Arabia*. Riyadh, KSA: Alroshed.
- Alghamdi, M. (2011). *Development of the Saudi Arabia education system*. Riyadh, KSA: Al Rashed.
- Al Kholi, A. (2004). *The impact of the interaction between some memory aids and cognitive settlement method/protruding retention among a sample of students from the end of the stage of basic education* (Unpublished doctoral dissertation). University of Al-Azhar, Cairo, Egypt.
- Baddeley, A. D., Eysenck, M. W., & Anderson, M. (2009). *Memory*. Hove, UK: Psychology Press.
- Bergin, C. C., & Bergin, D. A. (2014). *Child and adolescent development in your classroom*. Boston, MA: Cengage Learning.
- Chang, S. H. (2015). Memory strategies used by teachers. *Ohio Journal of Teacher Education*, 29(1), 5-19.
- Dehn, M. J. (2010). *Long-term memory problems in children and adolescents*. Hoboken, NJ: John Wiley & Sons, Inc.
- Frank, C., Land, W. M., Popp, C., & Schack, T. (2014). Mental representation and mental practice: Experimental investigation on the functional links between motor memory and motor imagery. *PLoS ONE*, 9(4), 51–75. doi:<https://doi.org/10.1371/journal.pone.0095175>
- Genuba, R. L., & Abellanosa, G. G. (2018). Identity orientations, 21st century skills and classroom management strategies of teachers: A structural equation model on the student engagement. *Journal of Advances in Humanities and Social Sciences*, 4(3), 127-136. doi:<https://doi.org/10.20474/jahss-4.3.2>
- Goldmeier, E. (2014). *The memory trace (PLE: Memory)*. London: Psychology Press.
- Gutchess, A. H., & Inneck, A. (2009). Cultural influences on memory. In *Progress in brain research* (pp. 137–150). Elsevier.
- Hamlyn, D. W. (2017). *The psychology of perception*. Abingdon, UK: Routledge.
- Hendelman, W. J., Humphreys, P., & Skinner, C. R. (2017). *The integrated nervous system*. Boca Raton, FL: CRC Press.
- Irwin, J. (2019). Student critical thinking objectivism. *Journal Of Advanced Research In Social Sciences And Humanities*, 4(3), 80-89. doi:<https://doi.org/10.26500/jarssh-04-2019-0301>
- Karpicke, J. D., Butler, A. C., & Roediger III, H. L. (2009). Metacognitive strategies in student learning: Do students practice retrieval when they study on their own? *Memory*, 17(4), 471–479. doi:<https://doi.org/10.1080/09658210802647009>
- Keong, C. S., Yip, M. W., Swee, N. S. L., Toh, G. G., & Tai, S. C. (2017). A review of TRIZ and its benefits & challenges in stimulating creativity in problem solving of pre-university students: A TARUC case study. *Journal of Advances in Humanities and Social Sciences*, 3(5), 247-263. doi:<https://doi.org/10.20474/jahss-3.5.2>
- Kihlstrom, J. F. (2013). Memory research: The convergence of theory and practice. In D. J. Herrmann, C. Hertzog, C. McEvoy, P. Hertel, & M. K. Johnson (Eds.), *Basic and applied memory research: Practical applications* (Vol. 2, pp. 5–26). New York, NY: Psychology Press.
- Malroux, Y. L. (2017). Enhancing student learning experience in blended classroom teaching. *Journal of Advances in Humanities and Social Sciences*, 3(6). doi:<https://doi.org/10.20474/jahss-3.6.4>
- McPherson, M. S., & Schapiro, M. O. (2010). *Keeping college affordable: Government and educational opportunity*. Washington, DC, WA: Brookings Institution Press.
- Muller, J. R. (2017). Capturing student learning with thematic analysis. *Journal of Advanced Research in Social Sciences and Humanities*, 2(6), 342–347. doi:<https://doi.org/10.26500/jarssh-02-2017-0601>
- Saudi, M. M. (1993). *The impact of the interaction between some mental visualization and material properties educated strategies to remember* (Unpublished doctoral dissertation). King Saud University, Riyadh, KSA.
- Schneider, V. I., Healy, A. F., & Bourne, L. E. (2002). What is learned under difficult conditions is hard to forget: Contextual interference effects in foreign vocabulary acquisition, retention, and transfer. *Journal of Memory and Language*, 46(2), 419–440. doi:<https://doi.org/10.1006/jmla.2001.2813>