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Effect of Reading on Academic Scores of University Undergraduates

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ABSTRACT

Reading is an essential skill for gaining deeper insights and concept related to any topic. This experimental study aims at investigating the effect of reading on academic scores of the undergraduate students of a Pakistani university. Due to increasing digital dependency and artificial intelligence, the research is intended to explore whether a structured reading intervention can enhance the academic scores. A quasi-experimental one group pretest post test design 30 students of social sciences were selected as sample that underwent four weeks of reading based intervention. Pre and post test scores were collected through a teacher made validated assessment .Paired sample t-test was used. Findings reveal a significant improvement in the post test scores suggesting that reading has a positive effect on the learning outcomes. The results reinforce the theoretical perspective of the Information Processing Theory and Constructivist Learning Theory. Despite limitations like small sample size and absence of control group the study proposed implications for the educators, curriculum developers and policy makers to integrate reading intervention to boost comprehension and critical thinking. Recommendations include incorporation of reading programs in undergraduate orientation, promoting literary clubs, and opting longitudinal and random design for future research.

Introduction

Reading was once considered just a hobby or free time activity, but the fact is it nurtures your cognition and emotion in a way that helps you not only relax but also exceed academically (Mar et al., 2006). In higher education student need to have comprehension skills along with analytical and creative ability and reading helps to achieve it reading has an enormous effect on student academic scores (Mihret & Joshi, 2025). Due to rapid digitalization and especially with the onset of artificial intelligence there is a rap id decrease in reading habits of the learners (Twenge, 2017; Wolf, 2018). Now the learners are more interested to find the shortcuts and find ways to access the direct content in minimum possible time. Reading not only helps to develop cognition related to a particular concept but it gives us insights and critical thinking about many new things. A perception varies from person to person but factually the perceptions bloom from conception which is attained by reading multiple literatures on a single concept. Increasing reliance on the artificial intelligence has raised the question that does reading literature has an impact on academic scores?

This problem is both theoretical and applied in nature. On the theoretical side, relationship of literature reading with cognitive performance is topic of debate Literature reading enhances the critical thinking, vocabulary, analysis and synthesis skills (all of which are important for academic scores. If we see the practical perspective, literature reading supports academic performance and its extraction from the academic culture can be damaging. With the change in global trends the educational institutions are shifting towards STEM and skill based curriculum often compromising the reading based programmes (Twegne, 2017).

Regular reading habit not only enhances the vocabulary and language but also impacts significantly on inferential reasoning (Oatley, 2016). Despite all these researches literature that establishes a link between academic scores and reading among undergraduates remains under investigated. Further empirical research is required to bridge this gap and find the strength and direction of relationship. It is important to note here the reading in this study means academic study not literature or fiction.

Rationale of the Study

This study seeks to build on previous work by narrowing the focus to undergraduate students and examining whether the frequency and depth of literature reading positively correlate with their academic scores. The rationale behind this investigation is rooted in the assumption that students who frequently read literature may develop better language and cognitive skills that generalize to broader academic contexts. Additionally, the study contributes to educational debates on whether literature reading should be integrated more explicitly into non-literary curricula to foster holistic academic development.

Problem Statement

In today's digital world reading has become detrimental due to increased reliance on the technology. This shift has raised a serious concern about impact of reading on academic scores which is linked to comprehension and critical thinking. Despite a common narrative that reading habit is a contributor to academic scores, empirical evidence supporting this fact at undergraduate level is still lacking. While some student performs better while others put on more efforts raises a question does reading influences the academic scores?

The gap therefore lies in the assumed benefits of the reading and measurable academic scores without research based data educators and institutes cannot make decisions about encouraging

reading as an intervention for better performance of the learners. This study aims to address this gap by measuring effect of reading on academic scores of undergraduate students.

Significance of the Study

This research is significant in the current educational landscape where the students do not give much importance to the academic reading due artificial intelligence shortcuts and hence only attain only surface level information. Investigating the effect of reading on academic scores of undergraduate students will help to bridge the gap between reading practices and measurable academic scores. By focusing on how continuous reading impacts cognition and comprehension skills this research will inform the educators, curriculum developers and policy makers in designing curriculum based on research through reading. to the learners and educators as it is investigating the effect of reading on academic scores. It will reinforce the learning engagement as tool for academic scores .It aligns with the global agenda for lifelong learning which view learning as a critical skill for gaining the academic resilience.

Delimitation of the Study

The study is delimited to undergraduate students of social sciences, thereby excluding other disciplines where practical skills are more emphasized. Furthermore it explores only the role of academic reading on scores rather than fiction or literature. Data was collected from a class at single point of time. It does not incorporate the personal habit or attitudes of the learners towards reading.

Research Objective

1. To assess the academic scores of the students before and after the reading intervention.
2. To measure the effect of reading intervention on academic scores of the students.

Research Hypothesis

Following are the hypothesis of the study:

H01: There is no significant difference in academic scores of the student before and after the reading intervention.

H02: There is no significant effect of the reading intervention on academic scores of the students.

Literature Review

Most of the recent research finds out a positive relationship between undergraduates reading habits and their academic study .It is a quantitative study with undergraduates as sample. Sarfraz et al. (2023) reported that reading habits significantly predicted academic success .another study was Firnas (2021) finds out the strong positive correlation between reading and academic performance with students learning the role or effect of reading in learning new skill or retaining new knowledge. It was that continuous and purposive reading rather than mere a compliance of the course helps to improve the comprehension, retention of the concept and academic outcome across discipline.

Another interesting study delves into the fact that whether medium of reading also has an influence on learning effectiveness or not meta-analysis at university of Valencia (2023) by a group of researchers finds out that printed text has more strong correlation with the comprehension then digital device reading as through AI or internet search engines on screen. Breso-Grancha et al.

(2022) found out the scores for word recognition and comprehension of a concept were higher for learners using printed text as compared to those using digital devices for reading. These results suggested that despite wide spread of digital tools and dependence on paper free information the printed material is more effective for engagement and deeper comprehension which are essential for academic success.

Digital distractions like smartphones, tablets and social media and surface level engagement deter continuous reading habits. A research based survey (IJISRT, 2024) highlighted the fact that excessive screen usage by the students and instant answer tools like meta AI and chat GPT has disrupted the student reading habits and particularly the critical thinking among the learners. Too much reliance on artificial intelligence has made them passive. Now the learner is so much reliant on the automated tools that he doesn't bother to use his cognitive skills for synthesis. Further to validate this point a study is carried out by Mahnaz & Kiran (2024a) that points to the fact that digital text reliance and consumption by the learner is negatively correlated with comprehension. Here the important thing is the frequency of the usage is very important the screen text leads to shallow comprehension as it gives limited information based on the prompt. These researches reinforce that though the digital text is more convenient or probably the need of time yet the level of depth with which a learner is engaged in comprehending varies and more academic success it becomes more crucial.

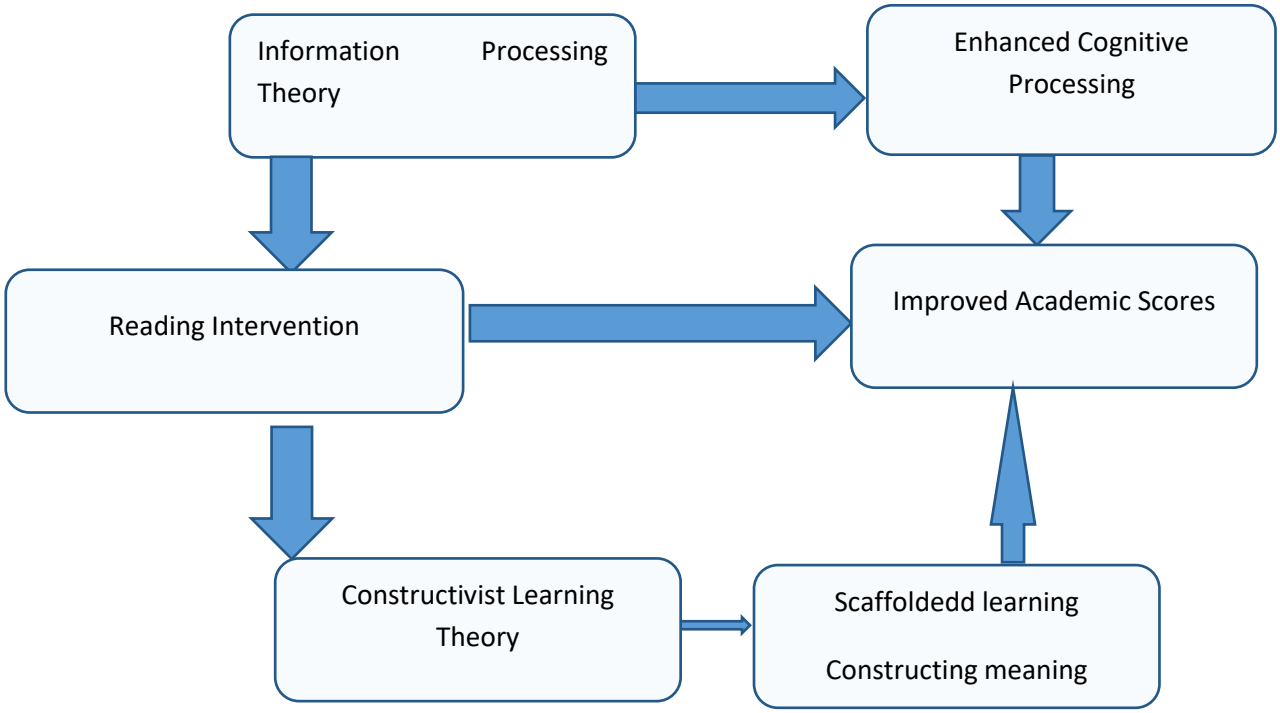
In order to achieve the desired result the reading must be focused and targeted. A research study by Mahnaz and Kiran, (2024b) finds out that the undergraduates that have better reading habits can attain better learning outcomes, so they recommend such activities that are crafted around reading habits. Mahnaz and Kiran, (2024c) lay stress on engaging the learners through reading. The same researchers emphasized to engage the learner in literary circles, book reading clubs, and guided discussions. It will not only make the learner curious to read but will also increase their academic performance.

Theoretical Framework

The conceptual framework for this study is built upon two theories. Information processing theory and constructivist theory of learning. First one is information processing theory which was given by Atkinson & Shiffrin (1968) Anderson (1980). The information Processing Theory see mind as computer. According to this theory the mind work much like the computer that it encodes the incoming information, stores the data and the stored data can be retrieved upon requirement. Reading helps in increasing the concentration span and enhances the comprehension. When students engage in reading their ability to store and absorb the information along with organization and retrieval of knowledge increase which directly affects their academic scores. It forms a foundation for measuring the academic gain attained as a result of reading intervention.

In parallel to this constructivist learning theory as given by Vgotsky says that knowledge constructed by the learner is a result of both the experience and environment. The zone of proximal development is of special interest in this regard. Reading intervention helps the learner scaffolding that allows them to construct new knowledge based on what they already understood. Together these two theories support this assumption that reading intervention can effects the academic scores of the students by increasing their cognition and helping them to construct knowledge based on the previous knowledge. The theoretical framework has provided a rationale for conducting this experimental study and assumes that reading is positively correlated with the academic scores.

Figure 1: ***Theoretical Framework of the Study Based on Information Processing and Constructivist theory.***



Methodology

Research Design

The research is quantitative in approach and has opted Quasi- experimental one group pretest-post test design. It was meant to check the effect of reading intervention on academic scores. This design means that academic scores can be measured within the same group before and after the intervention.

Population and Sample

The population of the study is undergraduate students enrolled in a public sector university in Pakistan, especially those programmes which need academic reading as an essential part of the course. From this population a sample of 30 students was selected from one intact classroom as experimental group. All the students belonged to same class and were available during the experiment as they were pre informed. Informed consent was taken from all the participants and the ethical considerations were also addressed.

Sampling Technique

A convenience non -probability sampling was chosen as sampling technique to select the participants.

Intervention

The reading intervention was carried out for four weeks. Reading sessions was conducted twice a week. Intervention was given four times and before each intervention pre test was taken and after each intervention post was taken. Students were given academic text related to the topic and were

tested for their critical reading skills vocabulary and understanding of the text. Intervention was given personally by the researcher in a structured manner throughout the period of four weeks.

Research Instrument

The research instrument was developed by the teacher. Academic test was made by the teacher relevant to the topic and readings .The test was administered every time before and after the intervention four times. The test included multiple choice questions that checked the vocabulary along with retention and critical thinking skills. The instrument was checked for its validity and reliability. Pretest was taken and it ensured the baseline scores and post test was taken to check the effect of intervention on academic scores. Score of both pre and post test was out of 10, Average was taken for both tests to generate the cumulative score of each student.

Reliability and Validity of the Instrument

Data was obtained through the administered teacher made test. All the test made demonstrated excellent reliability that was measured through Cronbach Alpha. The values are given in table 1 for each test all the values indicate that internal consistency of the items across the test is very high.

Data Analysis

Data was analyzed using SPSS (Statistical Package for the Social Sciences). A paired sample t-test was conducted to compare the mean score of pre and post test. The t-test compared pre and post test scores and cumulative pre tests scores with the post tests.

Ethical Considerations

Keeping in view the research ethics given in ethical guide lines (APA, 2020) the research ensured the safety of all the participants prior to the research, an informed consent was obtained from all the students who were participating in the study. The purpose of the research along with the benefits and risks were clearly communicated and participation was voluntary. Confidentiality and anonymity were not only ensured to the participants but also maintained by assigning specific ids to each student. The participants were ensured that the intervention introduced and scores obtained are just for the research purpose it will help them to improve them academically.

The participants were given the right to withdraw from the study anytime without any consequence.

Results

The reliability of the instrument to be used was checked through the use of cronbach alpha .There were four interventions on separate topics.

Table 1: ***Cronbach Alpha Reliability for the Test.***

Topic	Items	Cronbach's α
Artificial Intelligence	10	0.927
Vitamins	10	0.890
Pollution	10	0.880
Physical Fitness	10	0.910

Table 1 represents the reliability of each of the four topics tests for which intervention was given. All instruments have shown an excellent reliability as measured by the Cronbach Alpha the value above 0.90 is considered as excellent for measuring the internal consistency suggesting that the instruments are reliable enough.

Table 2: ***Descriptive Statistics for the Pre and Post Test Scores***

Test Pair	M(Pre)	SD(Pre)	M (Post)	SD (Post)
Average	5.52	0.50	7.02	1.19
Test 1	5.53	1.17	7.10	1.52
Test 2	5.67	1.03	7.17	1.66
Test 3	5.30	1.26	6.70	1.78
Test 4	5.57	1.01	7.10	1.52

Table 1 present's descriptive statistics for pre and post test scores. There is a marked improvement in scores following the intervention. The average score for pre test was 5.52 (SD=0.50) which shows improvement to 7.02 (SD=1.19) after reading intervention. The table clearly shows that similar improvement in scores in all the test 1-4 after intervention in post test .Post test scores show an increase compared to pre-test. So the null hypothesis "There is no significant difference in academic scores of the student before and after the reading intervention" is rejected confirming a statistically significant difference in academic scores pre and post intervention (reading).

Table 3: ***Paired Sample t-test for Assessing the Effectiveness Reading Intervention***

Test Pair	Mean Difference	SD	t	df	Sig
Pre_ Average Post_ Average	-1.50	1.01	-8.10	29	.000
Pre_1-Post_1	-1.57	0.97	-8.83	29	.000
Pre_2-Post_2	-1.50	1.28	-6.42	29	. 000
Pre_3-Post_3	-1.40	1.19	-6.43	29	.000
Pre_4-Post_4	-1.53	0.94	-8.96	29	.000

Table 3 shows the results of Paired t-test for assessing the effectiveness of reading intervention. As it can be seen from the table that there is significant improvement in post test scores. Cumulative average scores shows significant increase .$t(29) = -8.10$, $p<.001$ with a mean difference of - 1.50. Each individual test also showed significant difference, such as pre_1-post_1 with $t(29) = -8.83$, $p < .001$, and pre_4 vs post_4 with $t(29) = -8.96$, $p <.001$.The intervention of reading had a positive and statistically significant effect on academic scores. Therefore the null hypothesis "There is no significant effect of the reading intervention on academic scores of the students'' is rejected indicating that reading significantly affects the academic scores of the students.

Findings

The results of the study clearly indicate the effect of reading intervention on academic scores of the students. A detailed analysis is under:

Significant improvement across all test pairs can be seen in table 3.A mean increase of 1.50 is seen after the intervention. All test pair's shows significant improvement. The consistent significant results in all the pairs show that reading intervention had a measurable effect on students' academic scores. The entire test shows fair internal consistency with cronbach alpha ranging from .880 to 0.927. (Table 1).According to George & Mallery (2003) 0.90 shows excellent reliability while 0.880 is also good. It shows that tool used was reliable. Table 2 shows mean cumulative pre test scores was $M = 5.52$, $SD = 0.50$, while mean of post test scores was $M = 7.02$, $SD = 1.19$, which shows that the scores have improved markedly after the intervention. All four test show an increase in mean score from pre to post test.

Test 1: Pre = 5.53, Post = 7.10

Test 2: Pre = 5.67, Post = 7.17

Test 3: Pre = 5.30, Post = 6.70

Test 4: Pre = 5.57, Post = 7.10

Discussions

The purpose or aim of the study was to evaluate the effect of reading intervention on academic scores of the undergraduates using a quasi-experimental one group pretest-post-test design. The results of the paired t-test provide the strong evidence to supporting the common narrative that scores will increase after the reading intervention. The significant increase in average scores from M = 5.52 9sd = 0.50) before intervention to M = 7.02 (SD = 1.19) after confirms the effectiveness of reading based instructional methodology. Thus the null hypothesis was rejected.

The hypothesis of each of the individual pre and post test covering various topics also show improvement. All pre and post test pairs produced significant results. It reinforces the idea that the consistent reading produces gain in academic cores across various areas.

These findings align with the previous researches .As role of active reading in enhancing cognitive processing, comprehension and academic scores have been worked out. (Ahmed et al., 2022; Mihret & Joshi, 2025; Chen et al., 2023; Zimmerman, 2021). The results also support the information processing theory ,which views ;earning as active engagement and cognitive influence of information , both of which were targeted through reading (Atkinson & Shiffrin, 1968; Cowan, 2022).

However, there were several methodological considerations that may affect the interpretation of these results. Firstly, although four distinct pre- and post-tests were used to increase internal validity, the use of a single intact classroom (N = 30) and the lack of a control group limits causal inference. The design is susceptible to threats like maturation and test sensitization, which may have contributed to score improvements independently of the intervention.

An improvement was observed across all pre and posttest pairs highlight the strength of the intervention. The results are consistent with the existing research that highlights the influence of consistent reading and meta cognition strategies on academic scores (Mihret & Joshi, 2025; Chen, Liu & Tang, 2023).

These results also reflect the recent concern about a sharp decline in reading habits due to digital distractions. Studies have suggested that a well-focused reading can help to antagonize the effect of fragmented digital information (Gernsbacher, 2020; Rajan, Noor, & Malik, 2024). Therefore, the intervention not only helped to improve the academic scores but also discusses a major challenge faced today.

In summary, the findings suggest that if a short term reading can produce significant academic scores improvement then it high time for the educator and institutions to devise programs for student learning based on reading.

Conclusion

This study concludes that a well-designed reading intervention can significantly enhance the academic scores of the students as shown by improved post test scores of various assessments. This study concluded that a structured reading intervention significantly enhances academic

performance among undergraduate students, as evidenced by the improved post-test scores across multiple assessment points. While research provides a promising results, its limitations like sence of control group and relatively a small and intact sample highlights the need for better deigned future study. Expanding the research to include diverse programmes and adopting a true experimental design can further validate the results and practical application of the findings.

Limitations

The current research study has certain limitations.

The research was performed on a small, homogeneous group of a single university limiting the results generalization for a wider population. The research design was quasi- experimental one group pre-test posttest design. In the absence of the control group it cannot be inferred that whether the results of the study are solely due to intervention or extraneous variables. Potential confounding variables, like prior knowledge of the students about the topic, individual learning habits and digital literacy were not controlled. These factors can results and can produce biasness.

Recommendations

The following recommendations are proposed to guide and improve the future practice:

1. Student may engage in structured reading programmes for improving the academic scores .It may strengthen their comprehension which is critical skill for success.

2. Educators may incorporate reading interventions and digital tools for instructional delivery in the initial semesters. By emphasizing active reading, critical thinking with in the course work student may be able to help bridge gaps and foster independent learning habits.

3. Reading training may be incorporated into orientation training of the undergraduates. Literary clubs workshops and co-curricular activities based on reading may be planned to gain student learning outcomes.

4. Curriculum developers may develop the curriculum in a way that integrate the reading skill as a [part of course skill building to develop comprehension and critical thinking.

5. Policy may integrate digital learning support and formulate the approaches to improve learning outcomes.

Implications for the Future Research

This study performs insights for practice, policy, and future research for higher education. The structured reading interventions can provide measurable improvement in academic scores .Educator should consider integrating structured reading at the start of semester to strengthen the academic foundation. Further instructional strategies should be responsive to students learning needs and must devise ways to use digital platforms for creativity. Now the assessment need to be very carefully planned and must be based on creativity and critical thinking and depict the unique understanding gained as a result of reading. Policymaker within the higher education institutes should prioritize and fund the programs for initial semesters to build strong foundation of curriculum. Reading focused interventions may be embedded in institutional basic framework to ensure quality assurance and equity. Further studies may adopt true experimental design with the randomized control trials to establish relationship between intervention and outcome. Inclusion of control group may help to segregate the effect of intervention more reliably.

To make the results of the study more generalizable more diverse samples may be selected from multiple institutions and programmes.

Confounding variables like student prior knowledge, digital literacy and study habits may be controlled to make sure that outcome is the product of intervention. To determine the effect of intervention is sustainable or not longitudinal study may be conducted through the follow up assessments.

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