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Explore Relationship Between Reading Speed-Visual Perception And Academic Achievement Among Primary School Students: Empirical Study

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Abstract
This experiment investigates the relationship between reading speed and academic achievement in English subject among primary school students of Gujarati medium. Primary school students from different cultural backgrounds participated in the experiment, undergoing reading speed assessments and academic evaluations. The findings suggest a positive relation between reading speed: and academic achievement, emphasizing the importance of efficient reading skills in fostering academic success among non-English speaking primary school students.
Keywords: *Visual Perception, Reading speed, academic performance, academic achievement, primary education.*

INTRODUCTION

Reading is a fundamental skill of any learning process that significantly influences academic success across various educational levels. The ability to read efficiently, encompassing speed, is crucial for students to comprehend and analyze complex texts, engage with course materials, and perform well in examinations. The essential skill in language learning is reading. Taylor et al. (1990) state that reading processes to get information from the source of reading whereas the brain and eye must concentrate. It means that reading becomes the primary skill that can influence another skill in language learning. At the same thing, Treiman (2017) believes that reading is considered by many teachers, textbook writers, and language test constructors to be made up of different skills and components. Reading skills can help improve other language skills like writing, speaking, and listening. In the aspect of the benefits, Sulaiman and Harpiansi (2018) states that reading is helpful for language acquisition to provide that students more or less understand what they read. So reading is one of the skills that the learner in English should master (Afiyah, 2022).

Furthermore, Garner (2001) has said that "reading is the process of constructing meaning through the dynamic interaction among: (1) the reader's existing knowledge, (2) the information suggested by the text being read, and (3) the context (purpose) of the reading situation". In summary, reading is an activity that does to know the information to add knowledge from sources in reading.

Reading process of student includes visual perception, audio perception, memory, attention and language skills (Çayır and Balcı, 2017). Visual perception skills are directly related to differentiating written letters, words, and punctuation marks (Duru, 2008). There are also spatial associations and figure-ground relations in visual perception affecting reading speed. Therefore visual perception should be considered as a strong link to successful reading speed. They involve the skill to organize and interpret the information that is seen and give meaning to it. Many researchers support the importance of visual perception skills in academic success; state that reading would not be possible without adequate visual perception (LaBerge & Samuels, 1974; McCandliss, Cohen & Dehaene, 2013).

Concept of Reading Speed

Reading speed is the rate at which a student's get recognize words and understand words (Oh et al., 2012). If someone wants to read quickly, the eye and brain must focus on the text (Rayner et. al., 2016). Wainwright et al. (2007) said that reading speed is usually used to describe how fast a reader reads a text that the number has known of words per minute (W.P.M.). Konstant (2010) stated that reading speed is

not reading words faster than what you did before. Reading speed is reading a text with speed time and reading without forgetting comprehension in reading. Reading speed focuses on understanding a text quickly and precisely in a relatively short time. Moreover, Humaira et al. (2017) said that speed reading is a more priority reading speed, and reading comprehension should not be ignored. When they learn reading speed, people finish what they read with reading time and understand the text. Fitria et al. (2019) said that standard effective reading speed must be adapted at different level of education. Reading speed is not same thing for everyone. It depends on the age, prior knowledge and cognitive level. Widiatmoko et al. (2020) said that the standard reading speed that is adequate for all levels are elementary level is 140 wpm, junior high school level is 140 to 175 wpm, senior high school level is 175 to 245 wpm, college-level 245 to 280 W.P.M and for professionals, the speed of reading can reach 500 wpm. It concludes that every level of education has a different reading speed capacity. Moreover, different people may have different reading speeds. Their reading speed test can see it. Reading speed was classified based on different researches as follows in Table 1.

Table 1 Classification reading speed

No	Reader	Speed W. P. M.
1	Slow	Less than 100
2	average	100-150
3	Excellent	150 +

Research supports the importance of reading speed is very crucial factor for academic achievement and language proficiency. Studies have consistently demonstrated a positive relation between reading speed and comprehension, indicating that students who read faster tend to understand and retain information more effectively and quickly (Hannon & Daneman, 2001; Ackerman & Goldsmith, 2011). Additionally, faster readers demonstrate better performance on standardized tests and academic assessments across various subjects (Lee et al., 2017; Hagtvet & Lyster, 1998). Moreover, reading speed is closely linked to reading enjoyment of subject and motivation for learner, as fluent readers are more likely to engage with texts and develop a lifelong reading ability (McKeown et al., 2015; Guthrie et al., 2006). Therefore, enhancing reading speed through targeted interventions and practice can lead to improved academic outcomes and contribute to overall language proficiency among students.

Many researches has been conducted on reading speed and comprehension in English language, but comparatively less attention has been given to the role of reading speed in academic achievement at primary school level. This paper tries to exploring the relationship between reading speed and academic achievement at primary school level.

Problem of the study

The relationship between Reading speed-visual perception and Academic Achievement among Primary School Students

Objectives of the Study

- To examine the reader type and academic achievement of primary school students.

Hypotheses of the Study

Following null hypothesis was formulated for objectives of the present study.

Ho1 There will be no significant difference between the mean scores obtained from reading speed-visual perception test and achievement on reading Speed in English subject.

Ho2 There will be no significant difference between the mean scores obtained from reading speed-visual perception test score by boys and girls having achievements in English subject.

Ho3 There will be no significant relation between types of readers and mean scores of reading speed-visual perception.

Variables of the Study

The following variables are included in the present study.

Table 2 Types and Level of Variables of the Study

Types of Variables	Variables	Levels of Variable
Independent Variables	Gender	Boys
		Girls

	Academic Achievement	Higher
		Lower
Dependent Variables	Scores on Reading Speed	-
Controlled Variable	Standard VIII Gujarati Medium	-

Population and Sampling

The population of the present study consisted of all the standard VIII students of Gujarati medium primary schools of Gujarat Secondary and higher secondary education board (GSHEB) school students. Convenient sampling technique was used in order to select the sample for the present study. The list of students studying in standard VIII was prepared.

Divide the students as per their academic achievement, researcher obtained their last semester scores of English subject, then median was found out the students who have scored equal two or more than the value of median considered as higher academic achiever and the students whose score less than the value of the median were considered as lower academic achiever. Students was selected as the sample in this study is as shown in Table 3

Table 3 No. of the Students selected in the sample according to variables

No.	Variable	Levels	No. of Students	Total
1	Gender	Boys	29	50
		Girls	21	
2	Academic Achievement	Higher	24	50
		Lower	26	

Delimitation of the Study:

The present study was delimited to standard VIII students of Gujarati medium primary schools of Kadi city only.

Limitations of the study:

In the present study, the Reading Speed test was used to collect data. So, the limitations of the tool were the limitations of the study.

Tools of the study

- **Reading Speed Assessment:** Participants were individually assessed for their reading speed in English language using standardized reading passages appropriate for their grade level. The assessment measured the number of words read per minute (WPM). Text from standard VIII English subject self-learning book of GCERT, activity no. 6, part-1 consisted of 194 letters and part-2 consisted of 187 letters (GCERT, 2020-21).
- **Reading speed-Visual perception test:** Participants' academic performance was evaluated based on their achievement in subject English. Teachers provided teacher made test paper based on Visual Perception test. The test includes identifying and reading alphabet included word, correcting spelling, and different symbols included. Test papers' face validity and content validity sent to export, and for reliability was administered test except sample school students and followed by items analysis, consider df/dv values between 0.2 to 0.8 values for finalized 40 marks achievement test.

Research Method

The descriptive method was used as a method in this research. The descriptive method describes the result of the reading speed and achievement from standard VIII students. The research design in this research is correlational research. Concerning Creswell (2012), correlation is a statistical test to determine the tendency or pattern for two (or more) variables or two sets of data to very consistently. So the purpose of this descriptive research was to create a systematic explanation of factual information on the nature of the facts and area of interest.

Data Collection

The permission was sought from the principal of the selected Gujarati medium primary schools of Kadi city for data collection. Researcher made data sheet of each students with their previous standards' English subjects' marks. Also mention lower achiever and higher achiever. After that two main data were collected in the study: i) Reading speed of the students. Reading speeds of the students were measured by the words they read in a minute of the text and their visual perception in English with visual perception test.

Data analysis and interpretation of data

Statistical analyses, including correlation coefficients and regression models, were conducted to examine the relationship between reading speed and academic performance in English subjects, controlling for relevant demographic variables.

Reading speed of the students with minute unit (60 second), academic achievement levels with the percentage of English subject marks (%), evaluation of reading speed-academic achievement level relationship was analysed with point unit. Difference between the test scores of students' was analysed with dependent groups t-test, difference according to gender was analysed with independent group's t-test. Level of significance was taken as 0.05 in the statistics.

In the present study, the data of the obtained scores of students on the academic achievement test and the study of speed test was entered into the Excel Programme of M. S. Office at the first. Then all the numerical calculations were done with the Excel Programme. Reading speeds and mean scores of achievement levels, evaluation score average and independent groups t-test results of the students' according to gender variable are indicated in Table 2.

Table 4: Comparison according to gender

	N	Mean	S.E.	S^2	SD	t-value	p-value
Boys	21	25	0.97	19.79	4.44	0.27063	0.787178
Girls	29	24	0.85	20.72	4.55		

**Note: Level of Significant is 0.05.

From Table 2 shows the mean score of boys students was (25) with a standard deviation (4.44). The mean score of the girls from the experimental group was (24) with a standard deviation (4.55). The t-value is 0.27063. The p-value is 0.787839 ($p<0.05$). The result is not significant at $p < .05$. So, the data shows there is no significant difference between boys and girls with reading speed.

Table 5: Comparison according to achievement

	N	Mean	S.S.	S^2	SD	t-value	p-value
lower achievement	23	24.39	471.48	21.43	4.63	-8.32055	0.00001
higher achievement	27	33.41	228.52	8.79	2.97		

**Note: Level of Significant is 0.05.

From Table 3 shows the mean score of lower achievement students was (24.39) with a standard deviation (4.63). The mean score of the higher achievement students was (33.41) with a standard deviation (2.97). The t-value is -8.32055. The p-value is 0.00001 ($p>0.05$). The result is significant at $p > 0.05$. So, the data shows there is significant difference between lower achiever and higher achiever with reading speed.

Table 6: Comparison according to types of reader

No	Reader	N	Mean scores
1	Slow	12	15
2	Average	27	22
3	Excellent	11	33

From Table 3 shows the mean score of different types of reader were different. Slow readers' visual perceptions were low as compare to average readers. And also excellent readers show high performance in visual perception test scores. It means visual perceptions good then reading speed also good at a moment. The graphical presentation is given in figure 1.

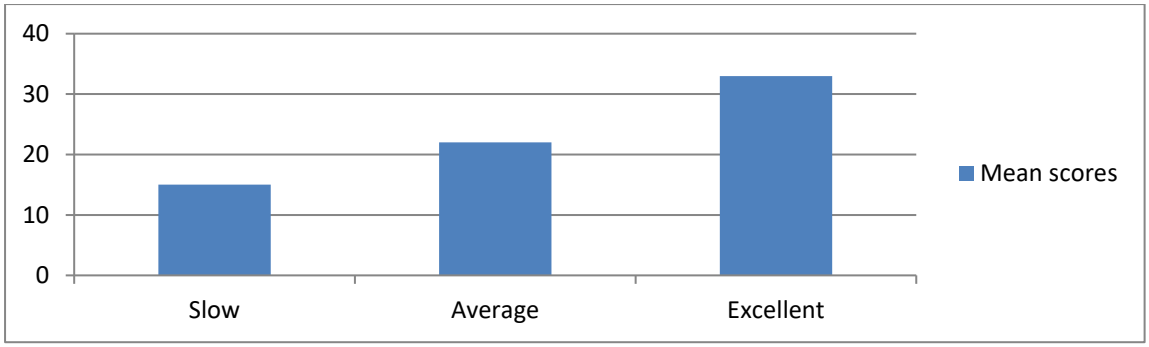

Figure 1

Findings

Following are the major findings of the present study.

- There was no significant difference between the mean scores obtained by boys & girls on the reading speed test. So, it can be said that. There is no effect of gender on the reading speed ability of the students.
- There was a significant difference between the mean scores obtained by the students having higher academic achievements & lower academic achievements on reading speed ability test, which was in favor of the students having higher academic achievements. So, it can be said that the students having higher academic achievements read faster than the students having lower academic achievements.
- There was a significant difference between the mean scores obtained by the students having reading speed - visual perception test score and reader types, slow readers achieve low scores and fast reader achieve high scores.

DISCUSSION

The findings suggest a clear positive relationship between reading speed - visual perception and achievement, indicating that students who read faster tend to perform better academically and visual perception also high. However, it is essential to see that reading speed - visual perception is not the sole determinant of academic success, as factors such as domain-specific knowledge, and critical thinking skills also play significant roles. While strategies to improve reading speed exist, individual differences in visual perception and learning styles necessitate taking care of approaches, methods and learning techniques to instruction.

Implications of the study

Different areas can be exploring through language, here many points highlighted for implications as bellows:

- **Curriculum Design Enhancements:** The study highlights the importance of integrating reading speed and visual perception training into the primary school syllabus. Educational policymakers and National Curriculum framework makers should incorporate reading exercises and visual perception activities, which followed by enhancing their overall academic performance.
- **Personalized Learning Approaches:** There was a significant difference in reading speed and visual perception among students call for personalized learning strategies. Teachers need tools to assess individual student capabilities and incorporate reading evaluations accordingly. Slower readers should receive additional support, while faster readers should be challenged with more complex texts to maintain their attentions and progress.
- **Professional Development for Teachers:** Teachers' Training to enhance reading speeds and visual perception is crucial. Professional development programs should include workshops on effective reading instruction techniques, reading speed strategy, and exercises to improve visual perception. Empowering teachers with these skills enables them to better support diverse learning needs in the classroom.
- **Specialized Instructional Materials:** Develop instructional materials is essential. Educational publishers should create resources catering to various reading speeds and visual perception levels. Include Interactive digital platforms and adaptive learning software for learning.
- **Multisensory Learning Approaches:** Incorporating activities that engage multiple senses can enhance reading comprehension and reading speed. Schools should invest in resources that

support multisensory learning, ensuring a comprehensive educational experience.

- **Policy Implications:** Policy makers should set benchmarks for reading speed and visual perception at various school levels. Policies mandating regular assessments can ensure students receive necessary support. Additionally, teachers should consider individual differences in students' reading abilities and incorporate instruction accordingly to maximize effectiveness.

CONCLUSION

In conclusion, this research paper has highlighted the importance of reading speed especially visual perceptions for academic achievement. The findings underscore the need for teachers to prioritize the development of efficient reading speed and reading speed among students to increase their academic achievement. This suggest that need to develop strategies and acknowledging individual differences in different reading abilities, teachers can empower students to become proficient readers, and fulfilled a demands of academic performance effectively.

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