Study of Spelling Errors in Hindi Among Secondary School Students in Relation to Their Intelligence

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Abstract

The study aims to explore the spelling errors written in Hindi among Grade 9 secondary school students, with a focus on the relationship between these errors and the students' intelligence levels. Specifically, the research seeks to identify common spelling errors, compare these errors across genders and examine the prevalence of errors among students with varying intelligence levels. The study also aims to propose remedial measures to improve spelling accuracy in Hindi. The research was conducted using a descriptive methodology with a sample of 200 students (both boys and girls) from government and private schools in the Amritsar District. Intelligence was assessed using the Standard Progressive Matrices developed by J.C. Raven (1960), while spelling errors were measured through an achievement test specifically designed by the investigator. The tools used were validated for reliability and accuracy. The findings reveal significant differences in spelling errors based on gender, as well as between students with high and low intelligence. These results suggest that gender and intelligence are influential factors in the occurrence of spelling errors in written Hindi. In conclusion, the study highlights the need for targeted interventions to address the specific spelling challenges faced by students, particularly those with lower intelligence levels, and provides practical suggestions for improving spelling proficiency in Hindi among secondary school students.

Keywords

Spelling errors, secondary school students, intelligence levels, gender differences

Introduction

Language is a fundamental aspect of human society, enabling the expression of emotions, feelings and emotions. It is essential for communication and learning, as it serves as the primary means through which human thoughts are conveyed to others. Language plays a crucial role in the development of a person's personality, and a strong command of language can significantly influence others. A teacher with proficient language skills can effectively impact students. Language is the inherent ability of native speakers to understand and form grammatical sentences. Learning multiple languages has become increasingly important for communicating ideas, perspectives and feelings. Studies have shown that language acquisition enhances the growth of the hippocampal and cerebral cortical regions of the brain, which are involved in memory. Strong multilingual communication skills are advantageous in various aspects of life, including the workforce, where employers seek candidates with critical thinking, logical reasoning, communication and teamwork abilities. Learning multiple languages not only improves cognitive skills but also provides protection against dementia in old age. Being multilingual is widely recognised as a significant benefit in today's workforce. Language learning also forges invaluable connections and cross-cultural friendships, establishing a solid foundation for children's growth and development into impartial global citizens. Gaining linguistic proficiency helps minimise intercultural intolerance by fostering intercultural awareness at an early age. Swami Vivekananda believed that education is a manifestation of perfection and divinity, emphasising the importance of language in conveying ideas, culture, personality, knowledge, and intelligence. Mahatma Gandhi emphasised the importance of native language education in India, a country that was dominated by English for 200 years. With over 19,500 languages spoken across the nation, political divides persist, and English will never truly become the language of the country. Language plays a crucial role in education, both as an instrument and a resource. Teaching children between the ages of 4-7 a language is most effective through storytelling, drama, skits, reading comics, text books, storybooks and literary works. Schools provide a setting where children can interact and improve their language abilities, allowing them to learn new terminology and ideas. Teachers must work hard to teach the essence of a language that transmits knowledge, creating a stimulating language environment and

providing students with the tools necessary to develop their spoken and written language skills.

Importance of Hindi Language

Hindi, the second most spoken language globally, is spoken by almost 500 million people. India's official language is Hindi-Urdu or Hindustani, with the Khariboli dialect being the most widely spoken. Hindi originates from the Indo-European language family and is written from left to right. India's tourism sector has grown at a 10% annual growth rate, generating hundreds of billions of US dollars annually. The country's diverse geography, including the Waterfalls in the Western Ghats, attracts tourists. India was the fourth-largest economy globally in 2025. Despite facing social issues, India's expansion is unstoppable, making it a significant global market segment for businesses. Despite these challenges, Hindi's significance as a global language is undeniable. India is a multilingual country with 1652 dialects spoken, with Hindi being the most spoken language by 47% of its population. It is not a language of scholars or rulers like Sanskrit or English, but a language of common people. Hindi was recognized as the official language of India on 14 September 1949, and the Education Commission (1966-66) recommended strengthening its study. Hindi has become dominant in national media, radio, TV, and print media. It serves as a unifying force in the diverse nation, preserving India's cultural and linguistic heritage. As an official language, Hindi is used in government communications, parliamentary proceedings, and official documents, contributing to efficient functioning of administrative and governance systems. Hindi's significance extends internationally, contributing to India's influence in international relations, trade, and cultural exchanges. In media and entertainment, Hindi dominates the Indian industry, particularly in Bollywood. It is an integral part of the Indian education system, contributing to intellectual and academic development, and a platform for artistic expression.

Definition of the Terms

- Spelling*:* It is the way a word is spelled. Spelling is the ability to write words correctly: it is study of orthography.
- Error: An error is an action which is inaccurate or incorrect: in short, a mistake. This is usually done by ignorance.

Review of Related Literature

Das (2023) investigates the challenges faced by Hindi-medium students in higher learning institutions, specifically in three Central Universities in Delhi: University of Delhi, Jawaharlal Nehru University and Jamia Millia Islamia. The research findings revealed several challenges, including the lack of academic resources and reading material available in Hindi, the English-dominated syllabus, course curriculum and teaching-learning process in the classroom, the disparity in academic performance caused by students' limited English proficiency and the general English-dominated environment among students on campuses and in universities. Verma (2022) investigates the causes of bad handwriting and spelling mistakes in Hindi subjects among an 8th-class student using a case study method. The findings reveal that the issues stem from the teacher's non-cooperation, pedagogical approach, parental support and a lack of focus on the subject. Singh (2021) used action research to address Hindi spelling errors among secondary level History students. The main goal was to increase awareness of these errors. Results showed that 70% of the 40 students in the class had language-related spelling mistakes. Pal and Mustafi (2020) uses BERT transformer and Edit Distance algorithm for Hindi text spelling correction. It uses a lookup dictionary and context-based named entity recognition to detect spelling errors. Tested on Tesseract OCR on Ramayana, the technique achieved an accuracy of 81%, demonstrating significant improvement over existing context-sensitive error correction mechanisms. Vartani Spellcheck can also be used for on-the-fly autocorrect suggestions in text editors. Bose (2019) involved observation, video recording, and behavioural studies of 5 dyslexic children aged 8-12 years. The authors analysed the Hindi language and created an interactive touch-based digital application to help children recognise and form Hindi alphabets efficiently. Testing with 12 dyslexic children showed that the average time to learn a new Hindi alphabet reduced from 2-3 weeks to one week. Kadam (2019) analysed the writing errors in Hindi language learning for Class 10 Marathi secondary school students. Questionnaire tool is used to solving the selected problem. One hundred students were taken as a sample. Results showed that 50% students committed syntactic errors and 30% committed grammatical errors in Hindi language. Chaudhuri et al (2017) investigates challenges in OCR systems for Hindi language, including preprocessing activities like binarisation, noise removal, skew

detection, character segmentation and thinning. It uses fuzzy Hough transform for feature extraction and uses soft computing techniques like RFMLP, FSVM, FRSVM, and FMRF for feature-based classification. The study demonstrates the superiority of these techniques. Balwaria (2013) examines grammatical mistakes in writing Hindi among Class 8 students at Kendriya Vidyalaya School in Vadodora city. Using questionnaires and information schedule tools, the study found that nearly 50% of students made errors in correct spelling. The findings suggest that teachers should provide more practice on writing Hindi and emphasise teaching spelling rules, as nearly 50% of students made these errors. Vimaljeet (2008) studied the spelling errors in Hindi among secondary school students. She found the activity based language teaching with the use of audio visual aids, actions, games, drills, etc. better than traditional method in teaching/learning of spellings of Hindi language. Kaur (2006) studied the errors in written Hindi of high school students in relation to intelligence and revealed that intelligence is significantly related with the written language Hindi. Her study shows grammatical errors are committed by many of high school students.

- छोटी इ (ि) की मात्रा बड़ी ई (ी) की मात्रा सम्बन्धी गलतिया
- समान ध्वनि वाले शब्दो सम्बन्धी गलतिया
- छोटे उ (ु) और बड़े ऊ (ू) मात्रा सम्बन्धी गलतिया

Objectives of the Study

- To identify the common spelling errors committed by secondary school students of Class 9.
- To compare the spelling errors committed by secondary school students in written Hindi with respect to gender.
- To compare the spelling errors committed by the secondary school students in written Hindi having low intelligence.
- To suggest various remedial measure for the improvement of spelling in written Hindi.

Hypotheses of the Study

1. There will be no significant difference in spelling errors committed by secondary school students in written Hindi with respect to gender.

2. There will be significant difference in the spelling errors committed by secondary school students having high and low intelligence in written Hindi.

Method

- **Design of the Study**

  The present investigation comes under the domain of descriptive research.

- **Sample**

  A sample consisting of 200 students of Class 9—both boys and girls—studying various government and private secondary schools of Amritsar District will be taken for the present study.

- **Tools used**

  ***Standard Progressive Matrices** developed by J. C. Raven (1960). The scale consists of 60 problems divided into five sets of 12. The reliability of the test was found to be 0.79, using the test-retest method, and the validity of the test was found by correlating the test scores with class test scores at 0.81.

  ***Achievement Test** for measuring spelling mistakes in Hindi by Investigator. The test consisted of 60 items, and the investigator counted correct responses using an answer key. Each correct answer earned one mark for the subject, and the total number of correct answers was used to calculate the total score, without negative marking for wrong answers, the focus was on the computation of errors in the following three areas:

- **Statistical Techniques**

  The statistical techniques used for analysis and interpretation included mean, standard deviation and t-test.

Results

Hypothesis 1: "There will be no significant difference in spelling errors committed by secondary school students in written Hindi with respect to gender."

Table 1: *Showing Different Types of Errors Among Both Genders*

Group Statistics					
	Gender	***N***	***Mean***	***Std. Deviation***	***Std. Error Mean***
ERROR_I	Male	100	3.610	2.7076	.2708
	Female	100	2.750	1.8223	.1822
ERROR_II	Male	100	3.300	2.5446	.2545
	Female	100	3.460	2.2760	.2276
ERROR_III	Male	100	4.870	3.7027	.3703
	Female	100	3.800	2.7229	.2723
TOTAL_ ERROR	Male	100	11.780	7.3863	.7386
	Female	100	10.010	4.9513	.4951

Table 1 shows that different types of errors scores of the mean, standard deviation, standard error mean that occurs during the writing of Hindi among students. In ERROR I, the standard deviation is 2.27076 for males and 1.8223 for females. In ERROR II, the standard deviation is 2.5446 for males and 2.2760 for females. In ERROR III, the standard deviation is 3.7027 for males and 2.7229 for females. The total error that occurred during the writing of the Hindi for males is 7.3863 and for females is 4.9513. Hence, the null hypothesis No.1 stating that "There will be no significant difference in spelling errors committed by secondary school students in written Hindi with respect to gender" stands rejected. A significant difference in different types of errors occurred in writing Hindi.

Table 2 shows that different types of errors scores of the total mean, standard deviation, standard error mean that occurs during the writing of Hindi among students. The Levene's test for Equality of Variances have been applied to find out the mean value. In ERROR I, the t-value is 2.635. In ERROR II, t-value is -.469. In ERROR III the t-value is 2.328. For the total error occurred during the writing of the Hindi, the t-value is 1.990. Hence, the null hypothesis no.1 stating that "There will be no significant difference in spelling errors committed by secondary school students in written Hindi with respect to gender" stands rejected as there is a significant difference in different types of errors occurred in writing Hindi.

Table 2: *Showing Different Types of Errors Among Both Genders in Different Types of Tests: Levene's Test for Equality of Variances and t-test for Equality of Means*

Independent Samples Test									
	Levene's Test for Equality of Variances		*t-test for Equality of Means*						
	F	*Sig.*	*t*	*df*	*Sig. (2-tailed)*	*Mean Difference*	*Std. Error Difference*	*95% Confidence Interval of the Difference*	
								Lower	*Upper*
ERROR_I	23.404	.000	2.635	198	.009	.8600	.3264	.2164	1.5036
ERROR_II	1.659	.199	-.469	198	.640	-.1600	.3414	-.8332	.5132
ERROR_III	13.088	.000	2.328	198	.021	1.0700	.4596	.1636	1.9764
TOTAL_ ERROR	18.791	.000	1.990	198	.048	1.7700	.8892	.0164	3.5236

Figure 1: *Bar Diagram Showing Comparison of Errors that Occurred While Spelling Hindi Among Both Genders of Secondary School Students*



Hypothesis 2: "There will be significant difference in the spelling errors committed by secondary school students having high and low intelligence in written Hindi."

Table 3: *Showing Mean, Standard Deviation and Standard Error Mean Score of Level of Intelligence Among Both the Groups*

Group Statistics					
	Level of Intelligence	*N*	*Mean*	*Std. Deviatation*	*Std. Error Mean*
ERROR_I	High Intelligence	54	2.593	1.8379	.2501
	Low Intelligence	54	3.889	2.4928	.3392
ERROR_II	High Intelligence	54	2.778	2.2875	.3113
	Low Intelligence	54	4.241	2.6274	.3575
ERROR_III	High Intelligence	54	3.463	2.7726	.3773
	Low Intelligence	54	5.519	3.7353	.5083
TOTAL_ ERROR	High Intelligence	54	8.833	4.8321	.6576
	Low Intelligence	54	13.648	6.7744	.9219

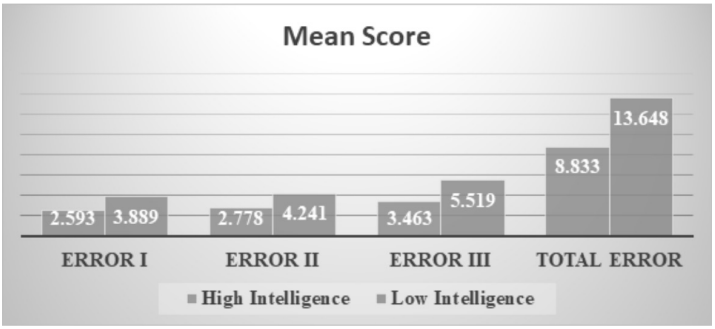
Table 3 shows that mean scores of the level of intelligence define during the errors occurred while writing Hindi among students. In ERROR I, the standard deviation is 1.8379 and 2.4928. In ERROR II, standard deviation is 2.2875 for high intelligence and 2.6274 for low intelligence. In ERROR III, standard deviation is 2.7726 for high intelligence and 3.7353 for low intelligence. The total error occurred while writing Hindi is 8.833 for high intelligence and 13.648 for low intelligence. Hence, the null hypothesis no.2 stating that "There will be significant difference in the spelling errors committed by secondary school students having high and low intelligence in written Hindi" was accepted. A significant difference in different types of errors occurred in writing Hindi.

Table 4 shows that different types of errors scores of the total mean, standard deviation and standard error mean that occurs during the writing of Hindi among students considering their level of intelligence. The Levene's test for Equality of Variances have been applied to find out the mean value and the t-test for Equality of means. In ERROR I, the t-value is –3.076. In ERROR II, t-value is –3.086. In ERROR III, the t-value is –3.247. For the total errors that occurred during the writing of the Hindi, the t-value is –4.252. Hence, the null hypothesis no. 2 stating that there will be significant difference in the spelling errors committed by secondary school students having high and low intelligence in written Hindi was accepted. A significant difference in different types of errors occurred in writing Hindi.

Table 4: *Showing Different Types of Errors among Different Levels of Intelligence in Different Types of Test: Levene's Test for Equality of Variances and t-test for Equality of Means*

Independent Samples Test									
	Levene's Test for Equality of Variances		*t-test for Equality of Means*						
	F	*Sig.*	*t*	*df*	*Sig. (2-tailed)*	*Mean Difference*	*Std. Error Difference*	*95% Confidence Interval of the Difference*	
								Lower	*Upper*
ERROR_I	5.548	.020	-3.076	106	.003	-1.2963	.4215	-2.1319	-.4607
ERROR_ II	.525	.470	-3.086	106	.003	-1.4630	.4741	-2.4028	-.5231
ERROR_ III	5.541	.020	-3.247	106	.002	-2.0556	.6330	-3.3106	-.8005
TOTAL_ ERROR	5.707	.019	-4.252	106	.000	-4.8148	1.1324	-7.0598	-2.5698

Figure 2: *Bar Diagram Showing the Comparison of Mean Scores of Errors Occurred Among Students Corresponding to Their Level of Intelligence*



Findings

- There is a significant difference in spelling errors committed by secondary school students in written Hindi with respect to gender.
- There is a significant difference in the spelling errors committed by secondary school students having high and low intelligence in written Hindi.

Discussion

The study reveals significant differences in spelling errors committed by secondary school students in written Hindi, based on gender and intelligence levels. The results show a significant disparity between male and female students in the types of errors they make. Male students tend to commit more spelling errors compared to female students across all error types (ERROR_I, ERROR_II, and ERROR_III). The mean total error score for male students was 11.780, while for female students it was 10.010, with standard deviations of 7.3863 and 4.9513, respectively. The t-test results support these observations, with t-values for ERROR_I, ERROR_III, and TOTAL_ERROR being 2.635, 2.328, and 1.990, respectively. This indicates that gender plays a role in the frequency and type of spelling errors, with male students showing a higher propensity for errors. The results of the studies are in consonance with Balwaria (2013) which found that nearly 50% of students made errors in spelling, while 75% struggled to identify correct spelling. The study also found no significant difference in Hindi grammar achievement between boys and girls, which indirectly supports the idea that there may be gender differences in spelling errors. However, the specific finding of this study on spelling errors could still align with the first point about significant differences in spelling errors committed by secondary school students in written Hindi with respect to gender.

The study also explores the relationship between the level of intelligence and the occurrence of spelling errors. Students with high intelligence exhibited higher mean error scores across all error types, with the mean total error score for students with low intelligence being 13.648, compared to 8.833 for students with high intelligence. These results underscore the impact of intelligence on students' writing accuracy, with higher intelligence correlating with fewer spelling errors. The findings of the present study are not supported by Rajnath and Patel (2015) who concluded that students whose mother tongue is Gujarati commit mistakes in writing Hindi grammar and are poor in vocabulary. This suggests that linguistic background, rather than intelligence or gender, might play a more significant role in spelling errors, which is against the idea of intelligence or gender being the primary factors. Verma (2022) attributes poor handwriting and spelling in Hindi to external factors like the teacher's non-cooperativeness, pedagogical incompetence, lack of parental support, and reduced focus, rather than gender or intelligence.

This also challenges the findings that there is a significant difference in spelling errors based on intelligence or gender.

Conclusion

It can be concluded that both gender and intelligence levels significantly influence the occurrence of spelling errors in written Hindi among secondary school students. The data indicates that male and female students exhibit different patterns of spelling errors, suggesting that gender plays a critical role in language acquisition and spelling proficiency. Additionally, the significant difference in spelling errors between students with high and low intelligence highlights the impact of cognitive abilities on language skills. These findings underscore the need for tailored educational strategies that address the specific challenges faced by different student groups, particularly in relation to their gender and cognitive abilities, to enhance spelling accuracy and overall language proficiency in Hindi.

Educational Implications

- To teach Hindi vowels effectively, teachers should make use of language laboratory for the correct form of phonetic pronunciation of vowels and should give writing exercise of similar and different vowels from time to time for the improvement for writing vowels.
- In order to teach coalescence and compounds, teachers should use indo-deductive method which means that teachers should come to a common rule of coalescence and compounds by asking questions and further they can stabilise the understanding of coalescence and compounds by giving examples from their side.
- To teach the synonymous and anonymous words teachers should give the list of both type of words together and should ask to students to separate the same. This is how students' vocabulary will develop.
- Teachers should explain that in language, change of vowels will change the meaning of words. To teach it more effectively, firsts teachers should give some examples and then ask to the students to collect the same by giving them the name of reference books.
- To give practice of missing letter words, teachers should give exercises of a word wherein letters are missing horizontally and vertically.

- Teachers should keep in mind the objectives of language learning while doing curriculum planning for teaching every year, based on their own experience and observation of students' performance.
- To give a practice of correct spelling, correct sentences and punctuation marks teachers should give a dictation test at the end of each chapter.
- To give a practice of phrasal words, teachers should explain the importance of a phrase in a language and further they should stress the phrasal word wherever these are so as to teach its meaning in an interesting way.
- Teachers should emphasise correctness of usage in language expression by enough drilling, giving relevant exercises, by adopting gaming techniques and providing interesting illustrations or quizzes.
- Teachers should encourage listening and reading skills in the classroom interaction which may influence their speech and later on reflect in written form as well.
- Teachers should help in developing the habit of referring to Hindi dictionaries or such other sources for vocabulary development and correctness of spelling, etc.
- Teachers should encourage the students to write in a simple way about their own experience or observed events (creative writing) rather than monotonous topics for composition work.
- Teachers should help the students to reduce by developing proper understanding about possibilities of errors and their avoidance in writing expression/oral expression.
- Teachers should insist on the habit of studying the correct form of language and love for the same rather than mechanical repetition or punishments.
- For achieving all the guidlines mentioned the teachers teaching Hindi also need to be fully equipped and efficient in all language aspects and related pedagogical requirements.

References

Balwaria, R. R. (2013). A study of grammatical mistakes in writing Hindi of class VIII students of Kendriya Vidyalaya schools of Vadodara city. *International*

Educational E-Journal, 2(4), 97-107

Bose, A. (2019). Design of a digital application to aid Hindi alphabet recognition/formation for children with learning disability. In *The Asian Conference on Education.* https://gyti.techpedia.in/project-detail/design-of-a-digital-application-to-aid-hindi-alphabet-recognition/14309

Chaudhuri, A., Mandaviya, K., Badelia, P., K Ghosh, S., Chaudhuri, A., Mandaviya, K., ... & Ghosh, S. K. (2017). Optical character recognition systems for different languages with soft computing, *Researchgate,* 193-216. DOI:10.1007/978-3-319-50252-6

Das, S. K. (2023). Challenges faced by Hindi-medium students in higher education in arts and social sciences stream: A qualitative case study of central universities in Delhi. *Researchgate.* DOI:10.13140/RG.2.2.28739.78886

Kadam, P. S. (2019). Analysing the writing errors in Hindi language for Class 10 Marathi secondary school students. *Aabhyantar*, https://lgandlt.blogspot.com/2019 /01/blogpost _51 .html

Kaur, M. (2006). *A study of errors in written Hindi of high school students in relation to intelligence* (M.Ed Dissertation Guru Nanak Dev University). https:// shodhganga. inflibnet. ac.in/handle/10603/365612

Pal, A., & Mustafi, A. (2020). Vartani spellcheck--Automatic context-sensitive spelling correction of OCR-generated Hindi text using BERT and levenshtein distance. *Researchgate* .https: //www. Researchgate .net/ publication/347125121_Vartani_Spellcheck_--_Automatic _Context-Sensitive _ Spelling_ Correction _ of_OCR-generated_Hindi _Text_Using _BERT_ and_ Levenshtein_Distance

Rajnath, N. A. & Patel, H. (2015). A survey of errors committed by students of std. IX of secondary schools in writing of Hindi. *The International Journal of Indian Psychology, 2*(3), 30-33.

Raven, J. C. (1960). *Standard progressive matrices*. H. K. Lewis.

Singh, A. (2021). Study of experiments scheme of action research to remove Hindi spelling errors of history students of secondary level. *Anusandhaan-Vigyaan Shodh Patrika, 9*(1), 62-65. https:// anushandhan. com/index.php/ ANSDHN/article/view/1716

Verma, S. (2022). Bad handwriting and spelling mistakes in Hindi subject: A case study. *Rajasthali Journal, 1*(3), 71-73.

Vimaljeet (2008). Identification of spelling errors in Hindi among secondary school students. (M.Ed. Dissertation Guru Nanak Dev University Amritsar).

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