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Can One be More Proficient in L2 than in L1: The Effect of Orthography on the Literacy Skills of Children

Research Article

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Abstract

The purpose of this study is to assess and compare the reading and writing proficiency in English (L2) and Urdu (L1), and to examine the correlation between these literacy skills in grade 4 students. The findings show that students experience more difficulties with Urdu, their native language, as opposed to English. A significant correlation was identified across key literacy skills, including reading and spelling in both languages. The study emphasizes the need for personalized educational strategies to support children learning languages with unique and complex orthographies. It reinforces the concept of shared cognitive mechanisms that facilitate both L1 and L2 acquisition. The results have important implications for language teachers and educators, suggesting the adoption of specialized strategies to enhance literacy skills. Specifically, there is a call for the development and implementation of effective teaching methodologies to better support students struggling with the complexities of the Urdu orthography.

Keywords: Orthography, reading accuracy, Urdu orthography, orthographic depth, literacy, cursive orthography, multimapping

1. Introduction

Research indicates that learning both a first language (L1) and a second language (L2) depends on similar fundamental mechanisms, with studies showing that the same neural networks facilitate the acquisition of both L1 and L2. However, L2 acquisition demands additional resources influenced by factors such as the learner's level of competence, age of learning, and the extent of exposure to each language (Ganschow, Sparks & Javorsky, 1998; Fernandez, Xheladini & Allen, 2023; Perani & Abutalebi, 2005; Havas et al., 2015).

Achievements in L2 can also be affected by the cross-language transfer of skills such as L1 phonological awareness, knowledge of literary genres, syntactic awareness, and strategies for constructing meaning. If children demonstrate sufficient competence in their L1, it can often predict their success in acquiring L2, provided they receive adequate instruction and exposure to the second language. Conversely, if children exhibit proficiency in L1 but not in L2, this disparity is likely not due to a learning disability but rather a lack of sufficient practice and exposure to L2. Children who are aware of statistical patterns in their first language tend to apply the same learning strategies when acquiring a second language (Gottardo, Yan, Siegel, & Wade-Woolley, 2001; Durgunoğlu, 2002). Vulchanova, Foyn, Nilsen, and Sigmundsson (2014) emphasize a correlation between overall competence in L1 (Norwegian) and proficiency in L2 (English) among young Norwegian learners, suggesting that proficiency in a first language supports second language learning (Treffers-Daller & Calude, 2015; Treffers-Daller & Xu, 2015).

L2 learners encounter different orthographic systems from those of their L1. The techniques used to process L1 orthography are not necessarily applicable to L2 due to differences in the fundamental units of each orthography. Koda (1994) identified three factors that differentiate L2 reading from L1 reading: the influence of prior literacy experiences, restricted language knowledge in L2, and cross-linguistic influences or transfer.

Furthermore, the orthographic distance between L1 and L2 can significantly impact L2 decoding success. Learners with alphabetic L1 backgrounds, such as Spanish, Indonesian, and Korean, often have an advantage when learning to read English due to their prior experience with intra-word analysis (Wang & Koda, 2005; Koda, 2007). Durgunoglu, Nagy, and Hancin-Bhatt (1993) demonstrated that single-word reading skills and phonological processing in Spanish significantly predicted English reading performance among Spanish-English bilinguals.

Wade-Woolley (1999) also investigated the orthographic and phonological impacts of L1 on the reading of a second language, noting that similar orthographic systems between L1 and L2 facilitate the transfer of reading skills. Conversely, if the orthographic systems are different, such facilitation

may lessen or disappear (Bialystok, Luk, & Kwan, 2005). This study observed that bilinguals who use a similar alphabetic system in both their L1 and L2, such as Hebrew, Spanish, and English, have a greater advantage than those who use distinct systems, like Chinese and English. Additionally, bilinguals with different writing systems, such as Chinese and English, tend to read more proficiently than monolinguals, likely due to phonological skills acquired through L1 literacy.

The study of Luk and Bialystok (2008) did not find a connection between the ability to read in Chinese and English; however, significant transfer of phonological awareness between the two languages persisted even after controlling for working memory and non-verbal reasoning abilities. Moreover, Bialystok, Luk, and Kwan (2005) found that bilingual children who excelled in phonological awareness tasks also performed best in word decoding tasks, underscoring that phonological skills are positively transferred across languages.

Different orthographies necessitate various reading approaches. In languages like Spanish and Dutch, reading often involves grapheme-to-phoneme conversions, whether through direct lexical access or systematic decoding (Sebastian-Galles, 1991; Bosman & de Groot, 1996). In contrast, in logographic systems like Chinese, word recognition is less dependent on phonology than in alphabetic systems (Perfetti & Zhang, 1991; Perfetti, Zhang & Berent, 1992).

The findings of a study by Farukh and Vulchanova suggest that positive transfer of reading skills and decoding strategies from Urdu to English is possible, even if the orthographies are not similar but share some features, such as being deep and alphabetic. This supports the Linguistic Coding Differences Hypothesis, which posits that native phonological, syntactic, and semantic skills significantly impact the ability to learn a second or foreign language (Sparks & Ganschow, 1995; Sparks et al., 2009). Kahn-Howirtz, Shimron and Sparks (2005) found a significant correlation between various L1 literacy skills and L2 reading variables, further highlighting the interconnectedness of L1 and L2 language-related skills and competencies.

1.1 Urdu and English Orthography

Both English and Urdu share a common heritage within the expansive Indo-European language family. Urdu originates from the Indo-Aryan group, while English is part of the Germanic subgroup. The English language comprises 26 letters, yet it represents nearly 40 phonemes, requiring over 500 graphemes to accurately denote them (Helland, 2008). Consequently, English orthography is considered deep due to its inconsistent grapheme-phoneme and phoneme-grapheme correspondences. In contrast, Urdu orthography is inherently complex. It has adopted an alphabetic script from Arabic and Persian, and it includes additional letters that do not exist in these languages. The multilayered and cursive form of Urdu, known as Nastaliq, contains 36 letters corresponding to 60 phonemes (McGregor, 1992; Naim, 1975; Schmidt, 2003). Compared to English, Urdu includes a richer sound system with 44 consonants, 8 long oral vowels, 7 long nasal vowels, 3 short vowels, and numerous diphthongs (Saleem et al., 2002; Hussain, 2004). Most vowel sounds in Urdu are represented by diacritics, which also denote additional sounds. This aspect becomes particularly

challenging when many diacritics are omitted in printed texts, leaving only consonants visible and leading to homographs; thus, readers must rely on context to determine the correct word (Rao et al., 2010). For example, اِ س and أ س (from right to left) can mean "that" and "this," respectively, but readers must infer the correct word as diacritics that would aid differentiation are missing.

The graphemic nature of Urdu poses three significant challenges for readers. First, Urdu letters can be written differently depending on their position within words. For instance, the letter چ varies in form when placed in different positions (refer to Example No. 1 in Appendix D). This positional variation adds a layer of complexity for readers. Second, many Urdu letters share identical visual graphemes when written in cursive, creating initial confusion for readers who must then rely on factors such as the presence, number, or placement of dots to distinguish them (Mirdehghan, 2010). Examples include groups of graphemes like ب, پ, ت, ٹ, ث and د, ڈ, ذ. Third, the Urdu orthography features multiple graphemic symbols and sounds where a single sound can be represented by various letters, such as the sound /s/ which is depicted by ث, ص, س.

Farukh and Vulchanova (2015) explored the similarities between Urdu and English, noting that both languages utilize in-depth orthography and rely on alphabetic scripts characterized by numerous connections between graphemes and sounds. However, they recognized that learners initially face complexities. Since both languages employ complex writing systems, mastering reading in Urdu can enhance proficiency in learning English due to similar orthographic challenges.

In this study, we examine the relationship between L1 and L2 reading and spelling (dictation) skills, emphasizing the importance of orthographic processing in understanding the reading process.

1.2 Objectives of the Study

- To compare the reading and spelling accuracy of grade 4 children.

- To investigate the correlation between L1 and L2 literacy skills.

1.3 Hypothesis

Given the shared orthographic features between English and Urdu and drawing on findings from other languages, we anticipate a strong correlation between L1 and L2 literacy skills. Additionally, the complexity of Urdu's orthography may pose challenges in reading and writing, yet simultaneously facilitate the acquisition of English literacy skills due to shared orthographic depth.

2. Methodology

A test-based study was conducted using a sample of 121 grade 4 students aged 8 to 9 from two private English-medium schools located in a southern city of Punjab. The cohort comprised an almost equal number of boys and girls. Urdu, being the national language and a primary language of instruction, serves as the first language (L1) for many students, whereas English is considered a second language (L2) and is predominantly used in higher education. In these schools, both Urdu and English are

taught as compulsory subjects, and students use both languages for daily communication within and outside the classroom, with a greater emphasis on English within the school environment.

For the study, children were given short, previously unread texts in both English and Urdu to read. Their readings were recorded for later analysis, and following the reading session, they were asked to write down 10 words in both languages (dictation). The selection of students was random, without any controls for their pre-existing literacy skills or intelligence levels. The analysis involved checking both their recorded readings and the words written during the dictation task. Errors were quantified as the percentage of words that were not read or written correctly, providing a measure of reading and writing accuracy.

2.1 Data Analysis

The results of the study are presented in two tables:

Table 1. Mean Scores and Skewness for Errors in English and Urdu Dictation and Reading

Types of Errors	Means Score	Skewness
Errors Eng Dictation	3.84	0.32
Errors Urdu Dictation	5.91	-0.35
Errors Eng Dictation	3.37	0.31
Errors Urdu Dictation	4.36	0.10

The skewness measures indicate a symmetrical distribution of the data. The mean error values reveal that errors were more frequent in Urdu than in English, both in dictation and reading tasks.

Table 2. Pearson Correlation Values Among Errors in English and Urdu Dictation and Reading

Variables	1	2	3	4
ErrorsEngDic		.50**	.77**	.48**
ErrorsUrduDic			.53**	.72**
ErrorsEngRead				.65**
ErrorsUrduRead				

**. Correlation is significant at the 0.01 level (2-tailed).

The correlations among the four literacy skills indicate significant relationships, with the highest correlations observed between English dictation and English reading errors, and between Urdu dictation and Urdu reading errors. Moderate correlations were noted between errors across different languages, suggesting significant interconnections between the reading and spelling skills in both English and Urdu.

These tables elucidate the relationships between error rates and literacy skills, highlighting the challenges and interdependencies in bilingual literacy development.

3. Results and Discussion

This study demonstrates a positive correlation among the literacy skills of both English and Urdu, reinforcing the findings of previous research (Ganschow, Sparks & Javorsky, 1998; Fernandez, Xheladini & Allen, 2023) which identified common neural networks utilized in acquiring different languages. The influence of orthographic knowledge appears to be a significant factor in this correlation. Given the numerous exceptions and rules within the complex orthographic systems of both Urdu and English, students who experience difficulties with pronunciation and accurate spelling in one language often face similar challenges in the other language.

Another contributing factor is phonology. Due to the distinctions in the phonological systems of English and Urdu, students who struggle to differentiate similar sounds in one language may encounter parallel difficulties in the other language, potentially leading to dictation errors in both. It is critical to note, however, that the relationship between errors in Urdu and English dictation can be influenced by various factors; thus, correlation should not be interpreted as causation. For example, students who generally struggle with reading and writing are likely to exhibit more errors in both languages. Furthermore, the more complex orthographic nature of Urdu (Farukh & Vulchanova, 2014) may explain why there are more errors in L2 spelling compared to L1, despite the comparative ease of learning the alphabetic English orthography for students accustomed to the alphabetic L1 orthography of Urdu.

These findings have significant implications for educators and language instructors, suggesting that students facing difficulties with Urdu and English dictation require additional support and training. This may involve specialized interventions focused on specific linguistic traits or techniques to enhance dictation skills. By addressing the root causes of errors in both languages, teachers can help students improve their overall language proficiency and academic performance.

Furthermore, the results align with those of earlier studies, such as the one conducted by Graham et al. (2000), which found that students with poor orthographic knowledge are more likely to make mistakes, regardless of the language being dictated. This insight is vital for the pedagogical approach to teaching complex orthographic systems. Teachers should be aware that dictation poses unique challenges for students learning multiple languages with diverse orthographic systems. Providing opportunities for dictation practice and explicit instruction on the orthographic characteristics of each language can help students navigate these challenges more effectively.

It is important to remember that correlation does not imply causality. Therefore, we must carefully interpret the results of this study, considering other factors that could influence learning to read and spell in both languages (Farukh & Vulchanova, 2014). A detailed analysis of the types of errors and the specific linguistic features causing difficulties is crucial. This study underscores the need for a hybrid model of language acquisition (Mirza, Gottardo & Chen, 2017) that integrates language-general and language-specific components to effectively teach different languages.

4. Conclusion

This study substantiates a significant correlation between literacy skills in both English and Urdu among grade 4 students, affirming the intertwined nature of bilingual literacy development. The pronounced correlations between dictation and reading errors within each language, and moderate correlations across the languages, underscore the shared challenges and skills involved in bilingual literacy. These findings resonate with existing research, suggesting that common neural networks underlie language acquisition, and highlight the impactful roles of orthographic complexity and phonological differences on literacy skills.

The orthographic systems of English and Urdu, each with its unique complexities, contribute significantly to the literacy challenges students face. In Urdu, the deep orthographic nature and the intricate phonological system exacerbate difficulties in spelling and reading, which often mirror challenges encountered in English. This bidirectional influence emphasizes the need for tailored educational strategies that address specific linguistic traits, enhancing both dictation skills and broader language proficiency.

The study's implications for educational practice are profound. Educators and language instructors are encouraged to implement specialized interventions that focus on orthographic and phonological aspects of both languages. Such targeted support can significantly aid students struggling with the dual demands of English and Urdu literacy, potentially improving academic outcomes across the board.

Additionally, the findings caution against a simplistic interpretation of correlation as causation. It is essential to consider various external and contextual factors that might influence literacy development in bilingual settings. This study advocates for a hybrid model of language acquisition that combines language-general and language-specific teaching approaches, aiming to optimize learning in complex linguistic environments.

Ultimately, this research contributes to a deeper understanding of the complexities involved in bilingual education and provides a basis for further studies aimed at enhancing literacy instruction for multilingual populations.

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Bio-Note:

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