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Research Paper

Relationship between L1 Reading Comprehension, L1 Spelling, and Second Language Improvement in Iranian EFL Learners

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Abstract

This study aimed at exploring the relationship between L1 Reading Comprehension, L1 Spelling, and Second Language Improvement in Iranian EFL Learners. A total of 97 students, who were enrolled in pre-intermediate and intermediate classes at various schools, were invited to participate in this research endeavor. Furthermore, they were instructed to partake in two L1 assessments, specifically one for reading comprehension and another for spelling. Regression and correlation were used to identify which of the two subcomponents of L1 literacy is more effective in predicting L2 progress. The correlation was employed to ascertain the presence of a credible association between L1 literacy and L2 development. The results suggest a strong correlation between the acquisition of second language proficiency and the level of literacy in the first language. The acquisition of the second language can be facilitated by both strong reading comprehension skills and a solid foundation in spelling in the first language. Statistical data indicates that both of these factors play a crucial role in the development of the second language and the attainment of literacy in that language. Reading comprehension has been identified as the primary factor influencing second language acquisition, as per this research.

Keywords: English language learning, L1 language reading, Spelling literacy

تأثیر مهارت در زبان مادری و الگوهای خواندن بر فراگیری زبان دوم

این تحقیق با هدف بررسی تأثیر مهارت در زبان مادری و الگوهای خواندن بر فراگیری زبان دوم انجام شده است. در مجموع ۹۷ دانش آموز که در کلاس های پیش متوسطه و متوسطه مدارس مختلف ثبت نام کرده بودند، برای شرکت در این پژوهش دعوت شدند. علاوه بر این، به آنها آموزش داده شد که در دو ارزیابی L1 شرکت کنند، به ویژه یکی برای درک مطلب و دیگری برای املا. از رگرسیون و همبستگی برای شناسایی اینکه کدام یک از دو جزء فرعی سواد L1 در پیش بینی پیشرفت L2 موثرتر است استفاده شد. همبستگی برای تعیین وجود یک ارتباط معتبر بین سواد L1 و توسعه L2 به کار گرفته شد. نتایج حاکی از همبستگی قوی بین کسب مهارت زبان دوم و سطح سواد در زبان اول است. فراگیری زبان دوم را می توان با مهارت های قوی درک مطلب و پایه ای محکم در املا در زبان اول تسهیل کرد. داده های آماری نشان می دهد که هر دوی این عوامل در توسعه زبان دوم و دستیابی به سواد در آن زبان نقش اساسی دارند. طبق این تحقیق، درک مطلب به عنوان عامل اصلی مؤثر بر فراگیری زبان دوم شناسایی شده است.

واژگان کلیدی: خواندن، سواد املایی، یادگیری زبان انگلیسی



Introduction

Being literate not only simplifies life but also plays a pivotal role in all facets of life, providing more opportunities for personal and career advancement. Proficiency in the native language (L1) is a prerequisite for all types of learning, including the acquisition of a second language (L2). A strong foundation in L1 literacy skills is crucial, as it underpins the cognitive and linguistic processes essential for second language acquisition.

Proficiency in L1 has a significant correlation with L2 development (Genesee, Lindholm-Leary, Saunders, & Christian, 2005; August & Shanahan, 2006; Ardasheva, 2016). In the recent decade, researchers have called for more studies in the realm of second language acquisition (SLA) focusing on learners with low levels of literacy (Bigelow & Schwarz, 2010; Bigelow & Tarone, 2004; Condelli & Wrigley, 2008). Low-educated learners, in contrast to high-educated learners, have been understudied (Park, 2015), leaving a gap in the literature with potential implications for developing more effective EFL teaching strategies.

Numerous studies suggest that the volume and quality of reading are supplements to language development (Gemma Artieda, 2017; Sparks, Patton, Ganschow, & Humbach, 2012). For this study, the role of reading literacy in the development of certain aspects of second language acquisition (e.g., vocabulary acquisition, grammatical understanding, etc.) among Iranian EFL learners is looked at. This fills in a gap in the research by looking at the role of reading literacy in the development of second language acquisition. This is particularly important as it sheds light on the relationship between L1 literacy and L2 achievement at two levels of L2 proficiency. Populations of adult L2 learners have understudied these two criteria together (Gemma Artieda, 2017). A recent study by Yeon and Choi (2021) found that L1 literacy significantly predicted L2 reading and spelling abilities among Korean EFL learners, further emphasizing the need for such research.

Literature Review

L1 Literacy and Second Language Development

What sort of people can better acquire a second language—children or adults? Depending on the perspective, some scholars believe that children are better L2 learners. For a long time, there was a passion for researchers to investigate and examine the role of the critical period in SLA. The critical period debates the issue that beyond a specific age, L2 learners cannot successfully develop in their L2 acquisition due to some psychological changes in the mind (Kim, H. S., N. R. Relkin, K. M. Lee, & J. Hirsch, 1997). Another type of critical period hypothesis is the sensitive period hypothesis proposed by Slobin (1982). He argued that there is a particular age and period in everyone's life when language acquisition happens, and this is the universal period of onset production. He postulated that learners will experience a retardation in language acquisition by the age of thirteen, marking the end of the critical period. Building on that, Long (1990) claimed that by turning fifteen, language learners have difficulty learning a specific language's native-like accent. However, a study by Hartshorne, Tenenbaum, and Pinker (2018) found that the critical period for learning a new language extends until around 17.4 years, much later than previously thought.

Long (1990) proposed that young children, when they turn 15 or older, will have some difficulty with L2 development and, more specifically, acquiring the L2 native accent. However, Saville-Troike (2006) started debating the definition of "success." She claimed that some researchers consider "success" as an initial step for learning and some other scholars assume it is the ultimate achievement. And many researchers express the term "success" as having a native-like accent, while others consider it a grammatical improvement. This debate on the definition of



“success” is crucial, as different definitions might impact the interpretation of research findings in second language acquisition.

In addition to these hypotheses, Cummins (1979) proposed the threshold hypothesis, which posits that a high level of L2 acquisition requires an L1 threshold level of proficiency. Being literate in the first language is a fundamental and facilitatory factor for L2 development. The other facet of his theory is the developmental hypothesis and age-appropriateness. So, second language learners should pass a specific age for their first language competence, and then, through frequent exposure to L2, they can gain L2 competence and L2 proficiency. Both the developmental hypothesis and the threshold hypothesis show the interdependency between L1 and L2 acquisition. To achieve a high level of proficiency in L2 acquisition, one must first attain a high level of proficiency in L1 (Dornyei, 2005; McLaughlin, 1990). Therefore, they believed that a higher level of proficiency in L1 would lead to a higher level of proficiency in L2 acquisition. However, a study by Alderson (2007) found that while L1 reading ability is a strong predictor of L2 reading ability, it is not a sufficient condition for high levels of L2 reading proficiency.

A learner with any range of difficulties in first language acquisition might face difficulties in second language acquisition. So, Sparks and Ganschow (1995) theorized the Linguistic Coding Difference Hypothesis (LCDH). According to LCDH, a learner's understanding of native language components or linguistic codes (phonological codes, syntactic codes, and semantic codes) shapes successful second language development. In the case of phonological codes, the ability to distinguish and identify between processing the sounds, speech sounds, and symbol connections is vital. The most problematic issue is the ability to isolate and manipulate language sounds and relate them to the appropriate symbols, also known as phonemic awareness. In the case of syntactic codes, the major issue is having knowledge of grammatical and structural concepts. These difficulties pertain to the decoding and encoding of morphological and sentence structure. The other type of code is semantic code, i.e., the ability to understand meanings. The most noticeable difficulties in the semantic code include comprehending semantic information such as words, phrases with multiple meanings, word associations, and difficulties in using adjectives. To sum up, LCDH declares that knowledge of the native language builds second language competence. And the competence of these three codes in the first language provides a foundation for SLA. It is also believed that challenges in a single language skill have detrimental impacts on both the first and second language systems. So, poor second language learners face difficulties with the L2 phonological/orthographic rule system.

Numerous studies in the field of Language and Communication Handling (LCDH) have substantiated the notion that learners who possess a higher level of proficiency in their first language will also attain a higher level of proficiency in their second language. In the areas of spelling (Kahn-Horwitz, Shimron, & Sparks, 2005), word decoding (Meschyan & Hernandez, 2002), reading comprehension and word decoding and spelling (Sparks, Patton, Ganschow, Humbach, & Javorsky, 2008), and grammar, listening, and spelling (Munoz, 2000), numerous studies have supported this notion. Other researchers (Sparks, Patton, Ganschow, & Humbach, 2009; Artieda & Munoz, 2013) have thus demonstrated a strong relationship between L1 literacy and L2 development. For instance, a 2021 study by Yeon and Choi found that L1 literacy significantly predicted L2 reading and spelling abilities among Korean EFL learners. This study aims to investigate the relationship between L1 reading literacy and second language development among Iranian EFL learners. To this end, in the first phase, the learners' L1 literacy will be measured, and in the second phase, its relationship with L2 development will be investigated.



Reading Habits

Numerous studies have examined the role of reading activities in facilitating first language acquisition and the relationship between L1 literacy and L2 development. However, to the best of researchers' knowledge, these issues have not received as much attention in the Iranian context, and Iranian researchers could potentially contribute more to this field of Second Language Acquisition. For instance, a study by Mirzaei Jegarlooei (2011) investigated the transfer of reading attitude from L1 to L2 among Iranian EFL learners with reference to gender and language proficiency. Some L1 researchers worked on word and spelling knowledge among children (Cunningham & Stanovich, 1991), while others focused on adults (Stanovich & Cunningham, 1993). Some studies have demonstrated a positive correlation between caretakers' involvement and joint reading in literacy practices and the successful acquisition of language skills (Senechal & Lefevre, 2002; Senechal, 2006). Additionally, studies have shown that opportunities for early reading experimentation lead to reading accomplishments in adulthood (Gest, Freeman, Domitrovich, & Welsh, 2004). Stanovich (2000), on the other hand, conducted a comparison between written and oral language. He conjectured that syntactic complexity, particularly in written language, is significantly higher, and asserted that a significant portion of a person's vocabulary proficiency typically develops in an informal setting instead of a formal classroom setting. These practices tend to support the hypothesis that there are environmental opportunities. This hypothesis could be further elaborated by discussing how different environmental factors (such as access to reading materials, exposure to the language, etc.) can influence L1 and L2 literacy development.

Researchers hypothesize that the number of opportunities for vocabulary acquisition and frequent exposure to language are the only factors contributing to the discrepancies in words and language skills. Numerous studies have conclusively demonstrated that L1 reading achievement accurately predicts L2 development in adult populations. The results of Sparks et al. (2012) showed that after learning basic reading skills, continuing to read and being exposed to new things in the environment will help with second language development. For instance, a study by Grabe and Yamashita (2022) found that L2 reading development emerges out of a combination of L1 transfer and L2 language skills as a dual-language processing system. This study will address the gap by measuring the impact of L1 reading literacy on L2 development in Iran. To this end, in the first phase, the learners' L1 literacy will be measured, and in the second phase, its relationship with L2 development will be investigated. A recent study by Yeon and Choi (2021) found that L1 literacy significantly predicted L2 reading and spelling abilities among Korean EFL learners, further emphasizing the need for such research.

Research Questions

The main purpose of this practice is to measure the relationship between L1 literacy and SLA development and whether activities that enhance L1 literacy, such as reading, facilitate SLA in the context of Iran. So, the following research question was addressed:

RQ1. What is the relationship between L1 reading comprehension, L1 spelling, and second language improvement?

RQ2. Which of these L1 skills is a stronger predictor of second language development?

Method

Design of the Study

This study employed a comparative analysis approach to examine the relationship between L1 reading and spelling literacy and English language acquisition among Iranian EFL learners. The

study was conducted in two phases: 1) Phase 1: Collection of participants' personal information, and 2) Phase 2: Administration of L1 literacy tests (reading comprehension and spelling)

Participants

A group of 97 students from different high schools in Estahban, Fars Province, were chosen to take part in this study. There wasn't any requirement for sample selection, so the opportunity to have different participants with different levels of L1 literacy increased. They were studying English at various institutes, with their proficiency level ranging from pre-intermediate to intermediate. To ensure the continuity of the classes, the researcher created a profile that included the following information: They provided their full name, age, and their current study level at the institutes. The pre-intermediate group consisted of 52 individuals (27 males and 25 females), and the mean age in this group was 17.5 years' old. In the intermediate group, there were 45 individuals (21 males and 24 females) with a mean age of 17.3 years old. The second phase required participants to participate in the L1 literacy test, which included both the L1 reading comprehension and L1 spelling tests.

Instruments

Instruments for measuring second language development

In this research, the final official language test was used, in which students received their final scores in the English course. The researchers requested that English teachers make their final scores available for this study. We measured the reliability coefficient for each group using Cronbach Alpha; the pre-intermediate group's reliability coefficient was 0.83, while the intermediate levels were 0.87. Due to ethical concerns and the principals' desires, the test is not available for publication.

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The first language reading comprehension test (4.3.2.1) The literature teacher adjusted the reading comprehension test to measure the level of reading comprehension, vocabulary knowledge, and writing. The test consisted of 26 lines, taken directly from a book. Students were required to respond to numerous questions in the form of brief essays. Another type of question was about synonyms and antonyms. We then added five multiple-choice questions and four grammar-related questions. In the final section, they were required to condense the text into a 60- to 90-word essay, adhering to the provided structure.

First language spelling tests.

There were three different types of spelling tests in order to investigate the spelling. The tests included a dictation test (Sparks et al., 2008, 2009), a meaning-related test, the third part of MLAT, and a discrimination test (Abu-Rabia, 2001; Landi, 2010). In this study, the chosen format for measuring spelling knowledge is a 20-word orthography (dictation). To choose the dictation vocabulary, high school literature books were used. The dictation test focused on various graphemes with one phoneme, soundless graphemes, and homophonic words with different meanings.



Procedure

This study operationalized two constructs. First, in order to investigate L2 development, an achievement test was administered (a test that students took at the end of their second semester, that is, at the end of a school year). We used two variables to measure L1 literacy: L1 spelling knowledge, an L1 reading comprehension test, and a dictation test with twenty vocabulary items.

Results

Table 1

Descriptive statistics

Proficiency Level		N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Pre-intermediate	Comprehension Test	52	14.00	20.00	18.23	.22	1.60225	-.818	.33	.208	.65
	Spelling Test	52	14.00	20.00	17.70	.22	1.64275	-.273	.33	-.794	.65
	L2development	52	14.00	20.00	18.43	.20	1.46622	-.781	.33	.301	.65
	Valid N (listwise)	52									
Intermediate	Comprehension Test	45	13.00	20.00	18.15	.22	1.53305	-.986	.35	.844	.69
	Spelling Test	45	14.00	20.00	17.75	.26	1.78575	-.190	.35	1.156	.69
	L2development	45	15.25	20.00	18.72	.18	1.25592	1.143	.35	.829	.69
	Valid N (listwise)	45									

Table 1 in the study provides a comprehensive statistical analysis of the “Comprehension Test” and the “Spelling Test” for two different proficiency levels: “Pre-Intermediate” and “Intermediate.” The table presents key statistical measures such as sample size (N), minimum and maximum scores, mean, standard deviation, skewness, and kurtosis for each test and proficiency level. Each statistic's standard error provides an estimate of the uncertainty surrounding the calculated statistic. This table is critical because it summarizes test scores' distribution and characteristics, allowing for a quick assessment of the central tendency, variability, and shape of the score distributions. These table insights contribute significantly to understanding the patterns in English language learning and teaching for different proficiency levels.

Table 1 categorizes the scores into two different groups: 1. the pre-intermediate group (n = 52); and 2. the intermediate group (n = 45). In the pre-intermediate group, the mean score for L2 development is 18.72 (max = 20 and min = 14), whereas the mean score for L2 development at the intermediate level is 18.43 (max = 20 and min = 15.25). Regarding L1 literacy, two variables were defined in this study: first, the reading comprehension test and second, the spelling test. Table 1 presents the obtained scores separately for the intermediate and pre-intermediate groups. On one hand, the mean score for reading comprehension in the pre-intermediate group is 18.23 (max = 20 and min = 14); on the other hand, the mean score for reading comprehension in the intermediate group is 18.15 (max = 20 and min = 13). Regarding the spelling test, in the pre-intermediate group, the mean score is 17.70 (maximum = 20 and minimum = 14), and in the intermediate group, the statistics show a value of 17.75 for the mean score (maximum = 20 and minimum = 14).



Table 2*Correlations Among L2 Development, Comprehension Test, and Spelling Test*

		L2development	Comprehension Test	Spelling Test
Pearson Correlation	L2development	1.000	.758	.600
	Comprehension Test	.758	1.000	.616
	Spelling Test	.600	.616	1.000
Sig. (1-tailed)	L2development	.000	.000	.000
	Comprehension Test	.000	.000	.000
	Spelling Test	.000	.000	.000
N	L2development	97	97	97
	Comprehension Test	97	97	97
	Spelling Test	97	97	97

Table 2 provides a correlation between the variables. There was a significant positive correlation between L2 development and both the spelling and reading comprehension tests. The correlation coefficient between L2 development and reading comprehension is .758, indicating a significant correlation. The spelling test and L2 development show a partial correlation. Therefore, as shown in Table 2, there are significant correlations among L2 development, comprehension tests, and spelling tests. All correlations are significant at the $p < .001$ level, indicating strong relationships among these variables.

Table 3*Collinearity Diagnostics for L2 Development, Comprehension Test, and Spelling Test*

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Comprehension Test	Spelling Test
1	1	2.992	1.000	.00	.00	.00
	2	.005	25.570	.83	.02	.48
	3	.003	31.753	.17	.98	.52

As shown in Table 3, the collinearity diagnostics indicate that there is a degree of multicollinearity between the variables L2 Development, Comprehension Test, and Spelling Test. However, the Condition Index values are below the commonly used threshold of 30, suggesting that the degree of multicollinearity is not severe.

Table 4*Standardized and Unstandardized Coefficients for L2 Development, Comprehension Test, and Spelling Test*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	5.491	1.106		4.966	.000	3.296	7.687					
1 Comprehension Test	.550	.072	.626	7.595	.000	.407	.694	.758	.617	.494	.621	1.611
Spelling Test	.173	.067	.214	2.592	.011	.040	.305	.600	.258	.168	.621	1.611

Table 4 presents both standardized and unstandardized coefficients for the variables: L2 development, comprehension test, and spelling test. The coefficients are reported for each model

along with their standard errors, t-values, significance levels, confidence intervals, zero-order, partial and part correlations, and collinearity statistics, including the tolerance and variance inflation factor (VIF). As shown in Table 4, the standardized and unstandardized coefficients indicate that there is a significant relationship between the comprehension test scores and L2 development. The Comprehension Test scores significantly predict L2 development ($\beta = .626$, $t(95) = 7.59$, $p = .01$).

Table 5

Correlations Among L2 Development, Comprehension Test, and Spelling Test

	L2development	Comprehension Test	Spelling Test
Pearson Correlation	1.000	.758	.600
Sig. (1-tailed)		.000	.000
N	97	97	97

The table above presents Pearson correlation coefficients for three variables: L2 development, comprehension test, and spelling test. The coefficients are reported for each variable along with their significance levels (Sig.) and the sample size (N). As shown in Table 5, there are significant correlations among L2 development, comprehension tests, and spelling tests. All correlations are significant at the $p < .001$ level, indicating strong relationships among these variables.

Therefore, the statistics for the first research question show that collinearity diagnostics is part of a multiple regression procedure. In order to compute collinearity statistics, two values are presented: 1. tolerance and 2. VIF. The tolerance shows the multiple correlation between reading comprehension and spelling tests, and as the table shows, the tolerance number between independent variables is .621. This indicates that the multiple correlation between statistics is significant, as it exceeds 0.10 and does not violate the multicollinearity assumption. The variance inflation factor indicates a significant multiple correlation of 1.61. The cut-off point for VIF is 10, and the lower number suggests a significant correlation. To determine which variable can perfectly predict L2 development, in this case, when we check and compare the beta results in standardized coefficients, we find that the reading comprehension variable has a greater value (the beta value is .626 with a sig. .000), while the spelling test has the smallest value (the sig. .214 with a sig. .011). The significance values indicate that both can accurately predict L2 development. Table 5 demonstrates a significant Pearson correlation of .758 between L2 development and the reading comprehension test, as well as a partial, non-significant correlation of .6 between L2 development and the spelling test.

To sum up, by reviewing the tables and statistics, it can be indicated that there is a meaningful correlation between the improvement of L1 literacy and L2 development. In order to predict the better correlation between subcomponents of L1 literacy, which are reading comprehension and spelling, regarding the statistics, reading comprehension can perfectly facilitate L2 development, while the spelling test has no significant correlation with L2 development.

Table 6

Descriptive Statistics for L2 Development, Comprehension Test, and Spelling Test

	Mean	Std. Deviation	N
L2development	18.5670	1.37335	97
Comprehension Test	18.1985	1.56289	97
Spelling Test	17.7268	1.70175	97

To answer the second research question, standard multiple regression was used, as table 3 indicates descriptive statistics for the variables in this study. The mean score for the dependent variable, L2 development, is 18.56 and the standard deviation is 1.37. It also indicates the mean score and the standard deviation for the independent variables, where it shows 18.19 as the mean score regarding the reading comprehension test with a standard deviation of 1.59, and for the second independent variable, the spelling test, the statistics show 17.72 as the mean score and 1.70 as the standard deviation.

Thus, as shown in Table 6, the mean scores for L2 development, comprehension test, and spelling test were 18.57, 18.20, and 17.73, respectively. The standard deviations were 1.37, 1.56, and 1.70, respectively, indicating the spread of scores around the mean. The sample size for each test was 97.

Table 7

Model Summary for L2 Development

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777 ^a	.603	.595	.87439

As shown in Table 7, the predictors (Spelling Test, Comprehension Test) explain approximately 59.5% of the variance in L2 Development, as indicated by the Adjusted R Square value of .595. The R value of .777 indicates a strong correlation between the predictors and L2 Development.

The R square value, which is shown in the model summary, indicates the variance of L2 development in this model. In this case, R square is .603, and by multiplying it by 100, the percentage rate of perceived stress in L2 development is 60.3, which is a respectable result. Adjusted R square corrects the true value of population. To assess the significant result, it is necessary to review the ANOVA table. According to Table 8, The results show that multiple regression in the population is 0. The significance is .000, which is under $P < .0005$.

Table 8

ANOVA for L2 Development, Comprehension Test, and Spelling Test

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	109.196	2	54.598	71.411	.000 ^b
Residual	71.868	94	.765		
Total	181.064	96			

ANOVA tests differences between two or more means. It's used to determine if the comprehension and spelling tests explain L2 development variance.

The model shows variation according to predictors (comprehension and spelling tests). The model sum of squares is 109.196, which explains its variation. Two predictors equal two degrees of freedom (df). Our mean square is 54.598, which is the sum of squares divided by the degrees of freedom. The F statistic is 71.411, which is the model mean square divided by the residual mean square. At Sig.000, the predictors explain the L2 development variance.

The term "residual" refers to variation that the model cannot explain. The residual sum of squares is 71.868, the model-unaccounted-for variation. 94 degrees of freedom equals the number of observations minus the number of predictors minus 1. In this situation, the mean square is .765, the sum of squares divided by degrees of freedom.

The total reflects data variation. The sum of squares for the total L2 development variation is 181.064. The degrees of freedom are 96, or the number of observations minus 1. The model is statistically significant, with an F statistic of 71.411 and a p-value of .000. The comprehension and spelling tests largely account for the variance in L2 development. The R square score of .603 shows that predictors explain 60.3% of L2 development variation. Model predictors have adjusted the R square, yielding an adjusted R square value of .595. Always somewhat lower than R Square. Therefore, the comprehension test and spelling test predict L2 development, accounting for 59.5% of the variance. This much variance suggests a successful prediction model. Factors not included in this model may explain the remaining variance. The estimator's standard error (.87439) measures the error term's standard deviation and forecast accuracy. Smaller standard errors mean more accurate forecasts. In this situation, the estimated standard error is modest, indicating accurate predictions.

Discussion

This study seeks to measure the relationship between L1 reading and spelling literacy in L2 development. The statistics indicate a strong and significant relationship between L1 literacy and L2 development. Cummins (1979) confirms this relationship through the interdependence hypothesis and the threshold hypothesis.

According to this study, Iranian learners with varying levels of development in their second language often use L1 literacy as a threshold. They cannot learn and improve their second language until they achieve the minimum literacy rate in their first language (Artieda, G. 2017). The results indicate that any challenges in L1 literacy, particularly in reading comprehension, can contribute to difficulties in L2. The statistics consistently confirm that both reading comprehension and spelling knowledge in their first language can facilitate the development of a second language. It is important to note that first language spelling knowledge has the least impact on L2 development, while reading comprehension can better facilitate L2 development. These findings are in line with the prior research, which reports the positive relation between L1 literacy and L2 development (Sparks, 2012).

However, it's important to note that recent studies have nuanced these findings. According to Vettori et al. (2023), reading comprehension in English was better for people from all language groups when they had certain cognitive skills (like working memory) and high-order factors (like metacognitive knowledge). These skills and factors occurred in both the first and second languages. This suggests that other factors beyond L1 literacy may also play a significant role in L2 development.

In contrast to this study, results in Artieda, G. (2017) showed that L1 reading comprehension cannot perfectly affect L2 achievement. This study proved that learners can achieve the same level of threshold for both L1 spelling and L1 reading comprehension. The current study's findings align with previous research on the impact of L1 literacy on L2 achievement and development (Sparks, 1995; Sparks & Ganschow, 1995; Munoz, 2000; Meschyan & Hernandez, 2002; Kahn-Horwitz et al., 2005). Therefore, difficulty and lack of knowledge in L1 literacy can lead to various issues and challenges in the field of L2 acquisition. Artieda and Munoz (2013) reported that L1 literacy can significantly support L2 achievement at beginner levels.

Regarding the effect of L1 literacy on L2 literacy, many studies have proven the meaningful effect of L1 literacy on L2 development in learners' continuous stages of life (Sparks et al., 2008, 2009). There are many findings that have proved that L1 reading literacy can lead to different language skills like vocabulary, semantic memory, phonological awareness, verbal memory, and verbal fluency (Stanovich, 2000). Reviewing previous studies suggests that general knowledge influences L2 proficiency.



However, it's crucial to consider the complexity of the relationship between L1 and L2 literacies. As pointed out by Bell (1995), not all aspects of the L1 will necessarily aid the development of the L2. Furthermore, a recent study has shown that both L1 skills and L2 proficiency were significant independent predictors of L2 reading and writing performance across tasks with different levels of cognitive complexity. Task type and L2 proficiency, which the current study did not consider, may influence the relationship between L1 literacy and L2 development. In conclusion, while this study provides valuable insights into the relationship between L1 literacy and L2 development, future research should consider a broader range of factors, including cognitive skills, metacognitive knowledge, task type, and L2 proficiency, to gain a more comprehensive understanding of L2 development.

Conclusion

In conclusion, the analysis of the data presented in this study provides compelling evidence for the significant correlation between L1 literacy improvement and L2 development. The statistical analysis reveals that reading comprehension, a subcomponent of L1 literacy, can significantly facilitate L2 development. However, the spelling test, another subcomponent of L1 literacy, does not show a significant correlation with L2 development. This finding emphasizes the significance of reading comprehension in the L2 development process. In light of these findings, it is evident that L1 literacy, particularly reading comprehension, plays a crucial role in L2 development. However, it is important to note that other factors beyond L1 literacy may also play a significant role in L2 development. To provide a more comprehensive understanding of L2 development, future research should consider these factors. Furthermore, we should consider the complexity of the relationship between L1 and L2 literacies, as not all aspects of L1 will necessarily aid in the development of L2. This study contributes to the ongoing discourse on the relationship between L1 reading and spelling literacy and L2 development, providing valuable insights for educators and researchers in the field.

Limitations and Suggestions for Further Research

In order to determine the exact impact of L1 literacy on L2, all aspects of literacy should be considered in further studies. However, because of some limitations, such as time and gathering the required data, the researchers couldn't focus on all of the literacy criteria in this study. By considering all aspects of literacy, researchers can not only observe how these criteria affect L2 development, but they can also investigate and measure the impact of each subcomponent. Researchers can preferably replicate such studies with all facets of L1 literacy and based on their convenience, they can do this research with some participants who study more than two languages as their second and third languages. Another limitation was the restricted rules of principals for data collection. The researchers are allowed to use teacher-made questions and the researcher can only attain the scores, so they couldn't attach the tests due to the expectations of the school principals. To obtain a better result, researchers can provide their own tests.

References

1. Alderson, J. C. (2007). *Assessing reading*. Cambridge University Press.
2. Ardasheva, Y. (2016). A structural equation modeling investigation of relationships among second language learning strategies, motivation, and proficiency. *Journal of Language, Identity & Education*, 15(2), 86-103.
3. Artieda, G. (2017). The role of reading literacy in the development of second language acquisition. *Language Learning Journal*, 45(1), 45-58.

4. Artieda, G., & Muñoz, C. (2013). L1 literacy and L2 development: The role of age and literacy level. *Applied Linguistics*, 34(3), 392-407.
5. August, D., & Shanahan, T. (Eds.). (2006). *Developing literacy in second-language learners: Report of the National Literacy Panel on Language-Minority Children and Youth*. Lawrence Erlbaum Associates.
6. Bigelow, M., & Schwarz, R. L. (2010). *Adult English language learners with limited literacy*. National Institute for Literacy.
7. Bigelow, M., & Tarone, E. (2004). The role of literacy level in second language acquisition: Doesn't who we study determine what we know? *TESOL Quarterly*, 38(4), 689-700.
8. Condelli, L., & Wrigley, H. S. (2008). Real-world research: Combining qualitative and quantitative research for adult ESL. *TESOL Quarterly*, 42(3), 620-635.
9. Cummins, J. (1979). Cognitive/academic language proficiency, linguistic interdependence, the optimum age question, and some other matters. *Working Papers on Bilingualism*, 19, 121-129.
10. Cunningham, A. E., & Stanovich, K. E. (1991). Tracking the unique effects of print exposure in children: Associations with vocabulary, general knowledge, and spelling. *Journal of Educational Psychology*, 83(2), 264-274.
11. Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Lawrence Erlbaum Associates.
12. Genesee, F., Lindholm-Leary, K., Saunders, W., & Christian, D. (2005). *English language learners in US schools: An overview of research findings*. *Journal of Education for Students Placed at Risk*, 10(4), 363-385.
13. Gest, S. D., Freeman, N. R., Domitrovich, C. E., & Welsh, J. A. (2004). Shared book reading and children's language comprehension skills: The moderating role of parental discipline practices. *Early Childhood Research Quarterly*, 19(2), 319-336.
14. Grabe, W., & Yamashita, J. (2022). The role of reading fluency in second language reading development. *Language Teaching Research*, 26(3), 1-21.
15. Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018). A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition*, 177, 263-277.
16. Kahn-Horwitz, J., Shimron, J., & Sparks, R. L. (2005). Predicting foreign language reading achievement in elementary school students. *Reading and Writing*, 18(6), 527-558.
17. Kim, H. S., Relkin, N. R., Lee, K. M., & Hirsch, J. (1997). Distinct cortical areas associated with native and second languages. *Nature*, 388(6638), 171-174.
18. Landi, N. (2010). An examination of the relationship between reading comprehension, vocabulary, and word knowledge in adults. *Reading and Writing*, 23(4), 465-493.
19. Long, M. H. (1990). Maturation constraints on language development. *Studies in Second Language Acquisition*, 12(3), 251-285.
20. McLaughlin, B. (1990). The relationship between first and second languages: Language proficiency and language aptitude. In B. Harley, P. Allen, J. Cummins, & M. Swain (Eds.), *The Development of Second Language Proficiency* (pp. 158-174). Cambridge University Press.
21. Meschyan, G., & Hernandez, A. E. (2002). Is native-language decoding skill related to second-language learning? *Journal of Educational Psychology*, 94(1), 14-22.
22. Mirzaei Jegarlooie, A. (2011). Reading attitude transfer from L1 to L2 among Iranian EFL learners: The role of gender and language proficiency. *Journal of English Language Teaching and Learning*, 53(1), 95-113.



23. Munoz, C. (2000). Bilingualism and the linguistic interdependence hypothesis: A longitudinal study of Spanish-speaking ESL learners. *Applied Linguistics*, 21(1), 29-56.
24. Park, G. (2015). Critical perspectives on language and education: Ideological issues in the relationship between L1 literacy and L2 development. *Journal of Second Language Writing*, 30, 1-13.
25. Saville-Troike, M. (2006). *Introducing second language acquisition*. Cambridge University Press.
26. Senechal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific Studies of Reading*, 10(1), 59-87.
27. Senechal, M., & Lefevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development*, 73(2), 445-460.
28. Slobin, D. I. (1982). Universal and particular in the acquisition of language. In E. Wanner & L. R. Gleitman (Eds.), *Language acquisition: The state of the art* (pp. 128-172). Cambridge University Press.
29. Sparks, R. L., & Ganschow, L. (1995). A strong inference approach to causal factors in bilingual development: L1 and L2 factors in language processing. *Language Learning*, 45(4), 737-773.
30. Sparks, R. L., Patton, J., Ganschow, L., & Humbach, N. (2009). Subcomponents of second-language aptitude and second-language proficiency. *Modern Language Journal*, 93(3), 371-391.
31. Sparks, R. L., Patton, J., Ganschow, L., & Humbach, N. (2012). Long-term cross-linguistic transfer of skills from L1 to L2. *Language Learning*, 62(4), 1242-1271.
32. Sparks, R. L., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2008). Early first-language reading and spelling skills predict later second-language reading and spelling skills. *Journal of Educational Psychology*, 100(1), 162-174.
33. Stanovich, K. E. (2000). *Progress in understanding reading: Scientific foundations and new frontiers*. Guilford Press.
34. Stanovich, K. E., & Cunningham, A. E. (1993). Where does knowledge come from? Specific associations between print exposure and information acquisition. *Journal of Educational Psychology*, 85(2), 211-229.
35. Yeon, J., & Choi, S. (2021). Predicting L2 reading and spelling abilities through L1 literacy skills: A study of Korean EFL learners. *Applied Linguistics*, 42(3), 554-576.

Biodata

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