Time of Memorization and English Spelling Difficulties Among Iranian EFL Students in Malaysia

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Abstract

In this study, phonological, morphological, and orthographical spelling difficulties were identified to examine the correlation between spelling difficulties and the time taken to memorize the spelling of words (time of memorization) among Iranian EFL students in Malaysia. The participants were 41 Iranian EFL students (20 male and 21 female) who were selected purposefully from an Iranian secondary school in Kuala Lumpur Malaysia. A pre-test and post-test design adapting Tabrizi, Tabrizi, and Tabrizi (2013) approach was used. Forty words from the second-year English textbook of Iranian EFL students were selected for use in both pre-test and post-test. After the identification of the most frequent type of spelling errors, a significant negative correlation was found between time of memorization and English spelling errors (r = - 0.765), indicating that when the time of response was short, English spelling errors increased. The findings may contribute to identification, classification, and treatment of spelling, and reducing spelling difficulties among EFL learners to mitigate spelling difficulties among young learners, particularly among Iranian EFL students.

Keywords: Time of Memorization, Spelling Difficulties, EFL, Persian, Malaysia

Introduction

Iranian EFL learners face different challenges in learning English, which requires formulated tests and strategies to be designed to suit their linguistic and cultural background. Several factors cause spelling difficulties, such as the irregularity of the English language and the lack of mastery over spelling rules (Bahloul, 2007). These challenges must be dealt with because spelling difficulties negatively affect writing proficiency and reading ability (Al- Karaki, 2005). Considering the influence of the learners' L1 on L2 acquisition (Al-Karaki, 2005) spelling proficiency should be developed through specially designed activities that cater to the different backgrounds of learners, as well as to target specific spelling problems faced by them. Pacton et al., (2014) showed that by exposing learners to various kinds of associated spellings, the learners' memory of that item is affected.

Despite the possible advantages of readers in terms of spelling difficulty of less common combination of letters, spellers are less benefitted from this in recalling the infrequent, less seen or unusual chunks of letters. In other words, learners have more difficulty with less common combination of letters, such as *psy* in *psychology* or *tsu* in *tsunami* when it comes to spelling words. In addition, spelling variation according to British or American conventions complicates English spelling even more for foreign language learners, such as in *s* and *z* (as in *analyse/analyse*), and the inclusion or omission of *u* in the */ou/* sound (e.g., *colour* and *flavour* as opposed to *color* and *flavor*) (Baugh, 1993). L2 learners have to be able to distinguish nouns from verbs by replacing them with either *-ce* with *-se*, depending on which spelling conventions they are following (Modiano, 1999). Besides that, stresses in English spelling also add to the English spelling difficulties L2 learners face. For example, the differences in the pronunciation of courage and courageous, despite sharing the same beginning (Fagerberg, 2006), is particularly tasking to L2 learners and contributes to the irregularity of the English language.

However, despite these difficulties and irregularities, the English alphabet remains easier to learn than many other writing systems of other languages (Fagerberg, 2006). Quasi-experimental studies focusing on error analysis (Anderson & Mendiones, 1985; Figueredo, 2006) indicate that patterns of L2 spelling acquisition reflect the differences between L1 and L2 phonology. Research has shown that the phonological differences between the L1 and L2 either support or obstruct the learner in his or her acquisition of particular patterns in English spelling (Anderson & Mendiones, 1985; Figueredo, 2006). This could be even more obvious for the words that are spelled differently from their pronunciation, or the words that pronounced similarly but spelled differently, such as *here* and *hear*. Individual's short-term memory helps them to recall the word's written form.

Research on Iranian EFL learners' spelling difficulties have shown that Iranian learners have difficulties in learning spelling. Most of university-level Iranian

students lack the competence in English spelling (Miremadi & CSU, 1990; Yarmohammadi, 2005). Yarmohammadi (2005) reported that while new university students studied English for years prior to their enrolment, they nonetheless continued to suffer from their inability to form well-constructed English sentences. Moghaddam (2011) investigated the relationship between spelling and writing fluency, and found that a relationship exists between the two variables. Karimi et al., (2006) found that L1 transfer exerts a positive influence on L2 learning by offering learners a guide to organize their thoughts. Similarly, Torrijos and del Mar (2009) concluded that L1 transfer plays a significant role in acquiring an L2, in their study of L1 to L2 writing and the linguistic rules transferred in that process.

A way of investigating spelling ability among EFL learners is to study the types of spelling errors committed and spelling strategies used by learners; Al-zuoud & Kabilan (2013), Baleghizadeh & Dargahi, (2011), Kahn-Horwitz, Sparks, & Goldstein (2011), and Solati (2013) introduced several methods based on phonology, morphology, and orthography of Persian spelling. These methods are Visual Memory (14 methods), Visual Accuracy (16 methods), Listening Accuracy (16 methods), Revers Coding (4 methods), Mirror Writing (4 methods), Training Error (2 methods), Dysgraphia (13 methods), and Visual Sequential Memory (5 methods).

The morphology of words could affect learning how to spell. For example, there is a tendency for young English learners who are beginning to learn the language's morphology to spell words in the past tense rather than the present tense (Nunes, Bryant, & Bindman, 2006), e.g. *came* instead of *come*. The Persian language contains many Arabic lexical loanwords (Azma, 2017), but so many of these have been so Persianized that their meanings are different from the original Arabic words. The nominal system of Persian morphology is quite simple, as unlike Arabic, it does not have a case system and is gender-blind. However, there are singular and plural forms. The singular form does not accept suffixes (coda); but the plural form does, e.g., the suffix *-ĥa* [ها] (which can be used for all nouns that are countable) (Qasemizadeh & Rahimi, 2006). In Persian morphology, there is one verbal stem for past tense forms and another for present tense forms. The former is used for the formation of past tenses, infinitives, the participle of obligation or possibility, as well as the past participle, from which the passive voice and compound tenses are derived from. The latter is used to form present tenses as well as the gerund, present participle and imperative forms. All verbal paradigms in the Persian language are composed of given stems combined with a set of prefixes and suffixes (Qasemizadeh & Rahimi, 2006).

Orthography, or how different spelling patterns as well as letters are merged to correspond to sounds and create certain words (e.g., *bird → birds*) is also closely related to spelling. This is due to the fact that orthography can also be described as the typical spelling system in one language. Hearing a particular speech, the listeners

reconstruct and position the different phonetic, phonological, and orthographic symbols that are saved in their mental glossary (Escudero, Simon, & Mulak, 2014).

Phonology, or the study of how sounds are organized in a language to identify sound organization patterns shared by native speakers (Bird, Bishop, & Freeman, 1995) plays a role in spelling. Poor spellers have weak phonological and lexical competence (Miele (1998).

Tabrizi, Tabrizi, and Tabrizi's (2013) approach

Tabrizi, Tabrizi, and Tabrizi's (2013) approach (known as Tabrizi's approach) is illustrated in a book which contains a set of approaches and tests which administers creative ways for improving Persian spelling among Iranian students. Mostafa Tabrizi had been investigating the diagnosis of Persian spelling among Iranian students in Tehran since 1991. He started his research with elementary students in Tehran who failed Persian spelling that year. His aim was to provide transitional practices and treatments for spelling instead of using the traditional method. Despite Tabrizi's approach, in traditional methods of teaching spelling teachers provided information based on lesson instruction without teaching spelling strategies to their students. Also, phonetics was taught formally, and new words were taught in very ineffective ways in each subject. Generally, in traditional spelling method, the teacher does not give any direct instruction on spelling to students. Students practice the given information of lesson provided by the teacher and then students involve in their own learning. Student's ability to spell words was tested at the end of each Persian lesson without any formal teaching of how to spell. After 16 years of investigation, Tabrizi proposed several methods within his approach in his *book of diagnosis and treatment for Persian dictation* in order to overcome the Persian spelling difficulties.

Tabrizi's approach for teaching and learning Persian spelling are recommended by the Ministry of Education of Iran and has been used in Iranian schools since 2007 (Ministry of Education of Iran). Furthermore, Tabrizi's approach contains spelling methods designed for teachers to identify the strengths of learning spelling and areas in spelling that need to be worked on. The book provides creative and new methods of learning how to spell instead of using the traditional methods to improve the Persian spelling. Tabrizi's approach is not only designed for ordinary children but also for children with language disorder. They also suggested that rehearsing with the words, encouraging students to slow down on the instructions to allow them to keep pace with the other students, piling information to reduce the number of items to remember, mnemonic strategies, and creating profound connections, for example in something do with logical sequence, could improve time of memorization. The study is anticipated to have research novelty in developing new teaching materials for students, particularly for those with spelling difficulties, by adopting the most useful and significant approaches adapted from Tabrizi, Tabrizi, and Tabrizi (2013).

Methodology

The correlations between Phonological, morphological, and orthographical difficulties and time of memorization were explored among Iranian EFL students in Malaysia. The tests and exercises were adapted from Tabrizi, Tabrizi, and Tabrizi (2013). The participants of this study were 41 EFL students from an Iranian secondary school in Kuala Lumpur. English spelling error tests were conducted as pre-test and post-test, whereas the time of memorization tests were conducted using Tabrizi's approach.

The minimum answering time for memorization was 60 milliseconds, while the maximum time was 510 milliseconds per word. In terms of proficiency of the participants, they were considered as at the same level, as all participants were from the second grade at the same school, i.e. the first year they were taking English at school, and none of them had taken any extra English courses at the time of conducting this study.

The main objective of the study was to examine the effect of time of memorization on English spelling difficulties among Iranian EFL students in Malaysia in the three linguistic aspects, specifically on

a. the phonological difficulties.
b. the morphological difficulties.
c. the orthographical difficulties

Therefore, the following research questions were formulated:

Is there any significant correlation between English spelling difficulties and time of memorization faced by Iranian EFL students in Malaysia in terms of

a. phonological difficulties
b. morphological difficulties
c. orthographical difficulties

H1: English spelling difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.

H1.1 Phonological difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.

H1.2 Morphological difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.

H1.3 Orthographical difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.

The pre-test was conducted in order to identify the spelling errors from a list of 40 words selected from their second-year English textbook. Once their performance in the spelling pre-test was analyzed in terms of the accuracy of the words, the misspelled words were placed in a table and correct spellings were written above the

words. Then the relation between spelling errors and suggested categories was identified. Once the errors were categorized, the methods to be applied for the present study were identified. Figure 1 is a sample of a pre-test of Participant 7, a female student with multiple spelling errors and the possible methods to be applied.
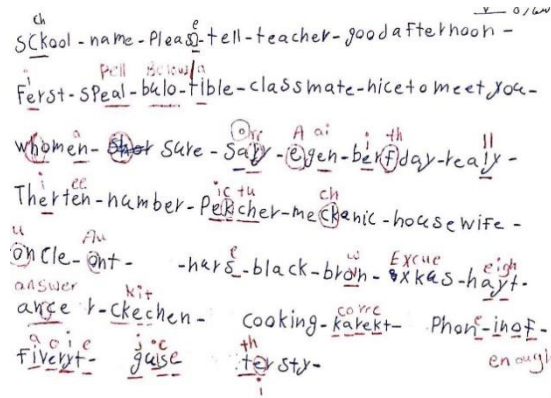

Figure 1. A Sample of Pre-Test

Data collection and analysis

Time of memorization included the time of memorization for phonology, morphology, and orthography tests. Time of memorization refers to the time taken to memorize. Tabrizi, Tabrizi, and Tabrizi's (2013) tests were utilized for investigating the correlation between spelling difficulties and time of memorization. Among Iranian EFL students in Malaysia, seven tests were related to the time of phonology tests, while six tests examined the time of morphology. The time of orthography was examined by five tests as illustrated in Table 1. All tests and the number of tests were adopted from Tabrizi, Tabrizi, and Tabrizi (2013).

Table 1. Data Information from Time of Memorization

Test No.	Phonology	Question No.	Morphology	Question No.	Orthography	Question No.
1	Flash Card	10	Flash Card	10	Flash Card	10
2	Spell complement	10	Spell complement	10	Classification of word	10
3	Improving memory	10	Classification of word	10	Improving memory	10
4	Auditory dictation	10	Improving memory	10	Multiple word flash card	10
5	Finding word	10	Multiple word flash card	10	Spell check	10
6	Adding word or sentence	10	Spell check	10		
7	Spell check	10				
	Total	70		60		50

The normality conditions

The normality condition of time of memorization was estimated by its skewness and kurtosis. Separate measures were obtained for time of phonology, morphology, and orthography.

Table 2. The Normality Condition of Time of Memorization

Variables	Time of memorization	Phonology	Morphology	orthographic
Skewness	-.102	-.214	-.008	-.047
Kurtosis	-.629	-.250	-.715	-.809

The Skewness and kurtosis of time of memorization were between -2 and +2. Therefore, all variables in time of memorization were normal.

Reliability of time of memorization

The times of memorization were measured using E-prime software, a behavioral experiment software. The reliability of time of memorization, the time of phonology with seven tests, time of morphology with six tests, and time of orthography with five tests were measured using Cronbach's Alpha.

Table 3. Reliability of Time of Memorization

Variables	Time of Memorization	Time of phonology	Time of morphology	Time of orthographic
Cronbach's Alpha	.819	.759	.754	.714

Validity

The construct validity was measured by estimating the convergent and discriminant validity, which are the subtypes of construct validity. If both convergent and discriminant validity can be obtained, then it could be claimed that there is evidence for construct validity (Cresswell, 2018).

Convergent validity

Convergent validity was estimated for time of memorization according (Luoma, O'Hair, Kohlenberg, Hayes, & Fletcher, 2010).

Table 4. Convergent Validity of Time of Memorization

Variables	Time-Phonology	Time-Morphology	Time-Orthography
Time-Phonology	1.00		
Time-Morphology	.943	1.00	
Time-Orthography	.924	.992	1.00

Discriminant validity

Discriminant validity was estimated for time of memorization and English spelling errors.

Table 5. Discriminant Validity

	Time of Memorization	English Spelling Error
Time of Memorization	1.00	
English Spelling Errors	-.765	1.00

Based on Luoma et al.'s (2010) criteria for measuring construct validity through convergent validity and discriminant validity, for the reliability and validity tests the research instruments are both reliable and valid. Following this, all data were keyed in SPSS for further statistical analyses to process descriptive statistics, t-tests, correlations analysis, and regression analysis.

Descriptive statistics

In this section the descriptive statistics of time of memorization and English spelling difficulties are provided.

Table 6. Descriptive Statistics of Time of Memorization (N = 41)

Variables	Mean	SD
Flash Card Time	10.73	3.63
Spell Complement Time	5.90	1.55
Classification Word Time	2.51	1.82
Improving Memory Time	7.29	2.48
Auditory Dictation Time	4.07	1.08
Finding Words Time	6.85	1.88
Adding Words/Sentences Time	7.00	1.66
Multiple Word Flash Card Time	7.27	3.20
Spell Check Time	3.49	1.36

Table 7. Descriptive Statistics for Time of memorization Variables (N = 41)

Variables	Mean	SD
Time -phonology	6.48	1.35
Time -morphology	6.20	1.66
Time -orthography	6.26	1.80
Time of memorization	6.31	1.58

As for the spelling errors, the participants were asked to answer 40 questions once in pretest and once in posttest, and their responses were recorded as English spelling errors.

Table 8. Descriptive Statistics for English Spelling Errors (N = 41)

Variables	Mean	SD
Pre-test	2.03	.76
Post-test	2.76	.77

The words that were incorrectly spelled in both the pre-test and post-test were identified and presented through descriptive statistics. The first six words that the participants had difficulty in spelling with were identified and ranked in post-test and pre-test:

Table 9. The Ranking Six False Words in Pre-Test and Post-Test

Ranks	Pre-test's words	F	Post-test's Word	F
1	Juice	36	Favorite	29
2	Favorite	34	Thirsty	27
3	Enough, Height	33	Nurse, Mechanic	22
4	Thirsty	31	Aunt	21
5	Excuse, Really	30	Excuse	18
6	Friend	29		

**F: Frequency of incorrect responses

The following section presents the t-test and one way-ANOVA to compare pre-test and post-test.

Comparing analysis

This section provides a comparison of the pre-test and post-test. Phonology, morphology, and orthography as well as errors of time of memorization are compared using ANOVA test and t-tests.

Comparing pre-test and post-test

The differences between pre-test and post-test were investigated across the group (N = 41) through independent sample t-test. The mean for the pre-test score was 1.98 with standard deviation of 0.76, whereas the mean for the post-test score was 3.10 with standard deviation of 0.66. In addition, there was a significant relationship between pre-test and post-test results ($r = 0.8$). The results of paired tests showed that the mean difference between the two tests was M = -1.12 with standard deviation of 0.45. Also, the result for the relationship between pre-test and post-test indicated t (40) = -15.68, p = .000 (< .05). Therefore, there was a significant difference between the two tests which suggests that the time of memorization was different for the two groups.

Correlation analysis

The relationships between time of memorization and English spelling difficulties were investigated using Pearson Correlation method. The correlation analysis was performed across those variables for participants (N = 41).

Table 10. Correlation Analysis for Main Variables

	Time of Memorization	English Spelling Errors
Time of Memorization	1.00	
English Spelling Errors	-.765**	1.00

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

Also, there was a significant negative correlation between time of memorization and English spelling errors (r = - 0.765). The relationship between time of memorization and English spelling errors showed that when the time of response was short, English spelling errors increased, and vice versa. This suggests that when students did not take enough time to spell the words, they made more spelling errors.

Convergent validity

Regression analysis for time of memorization were conducted to obtain the convergent validity. AMOS 21.0 was used for representing the effect of coefficients.

The effect of time of memorization was estimated on time of phonology, time of morphology, and time of orthography.
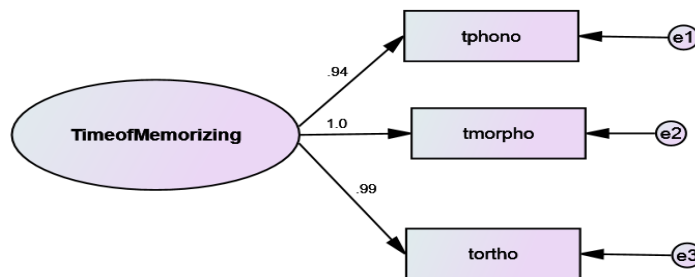

Figure 2. Regression Analysis for Time of Memorization

Table 11. The Unstandardized Coefficients for Time of Memorization

Regressions			Estimate	P
Time phonology	<---	Time of Memorization	1.000	
Time morphology	<---	Time of Memorization	1.328	***
Time orthography	<---	Time of Memorization	1.406	***

***: significant (p<.05)

All regression coefficients for time of phonology, morphology and orthography were significant. In addition, the effects of time of memorization on time of phonology, time of morphology, and time of orthography were positive. This means that the relationship between time of memorization and spelling difficulties is significant and time of memorization had an effect on the spelling difficulties.

Table 12. Standardized Regression Weights

Regressions			Estimate
Time phonology	<---	Time of Memorization	.937
Time morphology	<---	Time of Memorization	1.00
Time orthography	<---	Time of Memorization	.986

Correlation analysis revealed that there is a significant correlation between the two variables. Regression analysis showed that the effect of time of memorization on phonological, morphological, and orthographical difficulties is significant and positive. Therefore, the hypothesis of "English spelling difficulties are positively related to time of memorization among Iranian EFL students in Malaysia" was accepted.

H1		English spelling difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.	**Accepted**
	H1.1	Phonological difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.	**Accepted**
	H1.2	Morphological difficulties are positively related to time of memorization among Iranian EFL students in Malaysia.	**Accepted**
	H1.3	Orthographical difficulties are positively related to the time of memorization among Iranian EFL students in Malaysia.	**Accepted**

Conclusion and discussion

The correlation between time of memorization and spelling difficulties among Iranian EFL students in Malaysia was examined. The data analysis revealed that there is a significant positive correlation between time of memorization and phonological, morphological, and orthographical difficulties.

The findings from the significant positive correlation between orthographical difficulties and linguistic awareness, as well as the orthographical difficulties and time of memorization could help learners to overcome this correspondence regularity issues. The significant correlation between morphological difficulties and time of memorization indicates the importance of morphology as a valuable aspect of linguistics that learners should possess in the process of foreign language learning. This could imply that equipping learners with grammar knowledge as well as the organization of the words in spelling may be useful in teaching spelling. The spelling knowledge could be used for various words when phonics does not correspond, such as those which contains or share a morpheme with other morphemes in different words.

The study could have theoretical and practical contributions for students who learn English as a second or foreign language, especially Iranian EFL students. Although generalizing the findings of this study to speakers other than Persian who learn English as a second or foreign language needs validation of the results and findings in different contexts through replicating or conducting a similar study

examining spelling difficulties, the theoretical and practical contributions of this study in mitigating spelling difficulties are mainly for Iranian EFL students and teachers. The study is anticipated to be beneficial for the students, teachers, and readers (i.e., out of classroom context). New recommendations in overcoming spelling difficulties that EFL students have and feasible teaching style and strategies that are aligned with the students' needs and capability could be gained through the findings of this study.

The present study may contribute to identification, classification, treatment, and reducing spelling difficulties among foreign language learners, particularly Iranian EFL students. Moreover, EFL teachers could identify the challenging aspects of learning spelling among learners and adopt new approaches in teaching spelling. Teachers could identify and clarify the following, as supported by Bean (1998), in teaching and learning spelling. Teachers should estimate the time spent on spelling and decide on the useful approaches in teaching spelling. Intervening approaches could be identified at this level and remedial approach be taken for the problematic or challenging areas. For instance, the description of phonological, morphological, and orthographical spelling error among Persian EFL learners may help students in acquiring the English language spelling, i.e., through more implicit learning of word spelling rather than explicit explanation, particularly in the acquisition of English phones, phonemes, and letters.

Despite using the words in their spoken English, spellers might occasionally evade using the words that are difficult for them in the written tasks because of their concern in committing spelling errors. This could also affect their participation in group tasks and activities, particularly if the activity requires the learners to write words on the board. For the same reason, they might be also worried about taking any notes in the classroom from the lessons. Overall, this study contributes to the enhancement of learning spelling through mitigating spelling difficulties and provides insightful understanding to design strategy-based syllabus for EFL contexts and lead to conducive language performance.

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