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Patterns, causes, and solutions of spelling errors among university students

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Abstract

This paper explores patterns, causes, and solutions to spelling errors among university students. Utilizing the descriptive survey method, the research objectives are achieved. The research sample consists of 328 male and female students from the School of Arts at Al-Zaytoonah University of Jordan. The research instruments adopted in this paper are a spelling test and a questionnaire. The findings indicate that students at the School of Arts make mistakes in several spelling topics. This study is highly significant as it plays a key role in exploring patterns, causes, and solutions to spelling errors among university students. The practical implications are reflected in focusing on the skill of writing and spelling in the secondary school curricula, intensifying the practical application of writing and spelling in university courses, and offering university courses specialized in writing and addressing spelling errors during public holidays and vacations to solve spelling errors.

Keywords: Causes, Errors, Patterns, Solutions, Spelling.

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1. Introduction

Language is the most significant means of communication utilized by humankind to communicate. Linguistics is a science based on the scientific study of language and describes language in all its manifestations, branches, methods of teaching it, and approaches of solving various linguistic weakness phenomena in its multiple branches. Spelling, however, represents an important branch of language and is the process through which the student writes words, phrases, and sentences according to linguistic rules. Therefore, specialists in the Arabic language and its teaching methods are keen to put spelling at the top of their priorities in many of the literature and studies addressing common spelling errors among students [1].

Spelling as a difficulty and problem is not a new issue, but rather something old and has its roots. The problem of spelling remains for many students, especially at the university levels Abdeljawad [2] and Taleb [3]. Al-Tamimi and

Rashid [4] point out that despite the importance of spelling as an essential part of the basics of writing, the mistakes made by student may change the meaning and weaken the strength of the writing [1]. Spelling problem is a common phenomenon among many university students, as its prevalence is largely due to poor writing training and the school curricula's lack of anything that enhances their spelling skills [5].

According to Al-Baja [6] the phenomenon of poor spelling is no less important than grammar, as researchers have noticed it through their differing positions towards it. Some of them accepted it, some of them saw a mistake in it that could be corrected, and some of them rejected it entirely. In any case, spelling errors remain widespread and are due to many reasons that must be studied and delved into in depth [7]. A spelling error spoils the meaning, hinders speed in writing, and leads to the writer's disdain for inability to express thoughts in proper language during the writing process [8].

As evidenced by Fitria [9] the spelling errors that students make are among the most common phenomena. This is a problem that is not limited to a certain group of students and not others, but it has also become an educational problem that even students who study the same language suffer from. No student's results are free of repeated spelling errors due to various reasons, including those related to the student, some related to the curriculum, and some related to the teacher and education policy, as it is a phenomenon that deserves attention, study, and research [10]. Spelling errors are due to several reasons, including the nature of the curricula that does not encourage correct spelling and teaching methods that are based on memorization learning [11].

Spelling errors are also attributed to reasons related to the student's motivation to learn spelling and writing as a whole and not allocating sufficient space and time for the student's spelling training from early stages of life, especially in the basic school stages [12, 13]. Accordingly, the current paper addresses the common spelling errors among university students from multiple aspects, i.e., patterns, causes, and solution methods from the perspective of the students themselves. With this in mind, this paper explores patterns, causes, and solutions of spelling errors among university students.

2. Literature Review

Research has documented the role of language and its important branches such as spelling in the learning process. In a study conducted in Iraq, Al-Amiri [14] diagnosed common spelling errors among students at male and female teacher training institutes. The results indicated that students in Arabic language departments in the male and female teacher training institutes were not at the required level in their knowledge of basic spelling rules and made many spelling mistakes. The findings showed that students relied on memorization in studying the spelling rules without understanding the spelling rules, which leads to them forgetting it once the test is completed. The results also demonstrated the lack or absence of exercises and applications that ensure understanding the spelling rules and consolidating them in the minds of students because frequent practice helps students understand and retain information for a longer period.

In a different context, Othman [15] identified the common spelling errors among English language students while writing at the University of Tabuk in the Kingdom of Saudi Arabia. The findings indicated that students moderately made spelling errors and that replacing letters with other letters was the most common among students, while spelling and deletion errors were less (14.4%). The results showed that the most important cause of errors is the use of incorrect vowels, poor writing skills among students, and interferences left by the student's mother tongue "Arabic".

In Palestine, Abdeljawad [2] uncovered common mistakes among students of the Department of Curriculum and Instruction at the School of Education at Al-Aqsa University in Gaza. The findings indicated that two of the test items did not constitute a common error among the research sample members, while the rest of the errors reached a rate of (25%), and thus the prevalence rate was medium. The results showed no statistically significant differences between male and female students in linguistic errors, and that the lowest errors were among students majoring in the Arabic language, while the highest errors were among students majoring in sciences and mathematics.

In a vocational school, Fitriani and Zulkarnain [16] revealed common spelling errors committed by students in vocational schools in Banda Province in Indonesia. The results indicated that spelling errors were the most common followed by weakness in words and increased letters to the word. The results showed that (70%) of the students made spelling and grammatical errors, especially in tenses and the process of making plural nouns. From a different lens, Sasali, et al. [17] compared the linguistic errors committed by Japanese students in Japan. The findings indicated that the level of students' errors was medium in the linguistic aspect, but high in the grammatical aspect. The results showed that students in literary majors made fewer mistakes than students in scientific majors with no statistically significant differences between linguistic errors among males and females.

On the other hand, at the School of Basic Education in the Department of Special Education in Iraq, Al-Saidi [18] identifies common spelling errors among students in writing words consisting of two syllables and words that are pronounced differently than their pronunciation as an example. The results showed a major failure by students in spelling topics, as students write the word according to its pronunciation and not its articulation because students do not realize the differences between letters that are close in pronunciation, which causes errors in writing the word, and the lack of clear distinguishing rules for it in the curricula.

Additionally, Sayfitri [19] revealed the type and extent of spelling errors when writing words in English among third-semester students at the University of Muhammadiyah in Indonesia. The findings showed that the students committed (187) errors, as the errors ranged from deleting letters (33.15%), replacing letters and words (28.34%), and that (3.74%) substituted a word for another word. The results showed no statistically significant differences in the extent and type of incorrect words written by students due to the gender of the student.

In the Kingdom of Saudi Arabia, Al-Dafas [20] revealed the level of spelling writing among students of preparatory programs and the most common spelling errors at Imam Muhammad bin Saud Islamic University. The study concluded that

the students' performance level in spelling skills reached a medium level, as the most common spelling errors among the research sample were in writing hamzas. The findings also found statistically significant differences at the level of (0.01) between the mean scores of the students in the research sample in the total score of the spelling writing test according to the gender variable in favor of the female students.

Besides, Agustine [21] identified students' spelling errors when writing in Indonesia. The results showed that the number of errors among students was large (76 errors), with the most errors being poor vocabulary, spelling errors in writing such as doubling a letter or increasing letters within a word, and the inability to find the correct word that expresses the meaning. An analysis of the previous studies and research work demonstrates similarity with the current study in the sample, as most studies have addressed spelling errors among university students [2, 14-18]. However, the current research study is distinguished from it in that it has investigated the Jordanian environment, specifically among students at the School of Arts at Al-Zaytoonah University of Jordan, which is something that previous studies have overlooked - to the best of the researcher's knowledge - which means that there is a dire need for this type of research study. The current research study has taken advantage from previous studies, including multiple models, methods, procedures, and processing used in the methodology of the current research study, deepening understanding of the research problem, discussing its results, and providing appropriate recommendations.

3. Research Problem

Language is considered a fruit of human thinking and is a tool for thinking. Thinkers are interested in the relationship between thought and language and learning as a whole and language. They consider that learning in all its forms is based on language used by the mind to carry out thinking processes [22]. The better the student can write and dictate, the better his learning of the language, as this is reflected in the learning of the rest of the academic subjects, especially after completing the school stage and entering university education [14].

However, the problem of spelling weakness is one of the most common problems among learners, whether in general education or university education, as shown in many studies conducted on the subject at Arab and international levels [9, 23, 24]. For that reason, there is a need to conduct this research study that clarifies the common patterns of spelling errors among university students, their causes, and proposed solutions. Due to the lack of local studies on this subject - according to the researcher's knowledge - this current research study has been conducted at Al-Zaytoonah University of Jordan, where it is noticed that many spelling errors made by students when writing.

Accordingly, the research problem is articulated in answering the following questions:

- What are the patterns of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?
- What are the reasons for the common spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?
- Are there statistically significant differences ($\alpha = 0.05$) in the reasons for the prevalence of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan due to the variables of gender, academic level, and specialization?
- What are the proposed solutions to overcome spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?

4. Research Significance

The significance of the research study is highlighted by its theoretical and practical significance. The theoretical significance is highlighted by what the study can add to the theoretical literature and previous studies, along with enriching the Arabic educational library with the aim of addressing the spelling weakness of university students. The study may also contribute to revealing the causes of spelling errors those students make and developing effective solutions to confront this problem.

On the other hand, the practical significance lies in the fact that it may benefit faculty members and educational planners in higher education institutions in solving the problem of weakness in spelling and developing methods to overcome it. The study may direct students' attention to the mistakes they make, their causes, and ways to overcome and address them. Also, the study may benefit those in charge of the educational process in higher education institutions by providing a tool that has validity and reliability to identify spelling errors from the aspects of their patterns, causes, and solutions. Hopefully, the results and recommendations of the current study may open the door for researchers and scholars to conduct further studies on the linguistic errors that university students make in public and private universities in Jordan.

5. Research Terms and Definitions

In this research, the following terms are mentioned, and their procedural definitions are as follows:

Spelling: As defined by Al-Dulaimi [25] spelling is the art of writing words in Arabic through the written representation of spoken sounds, as it is one of the pillars of written expression. Procedurally, it is defined as the fact that male and female students write the spelling paragraph correctly, subject to the rules of orthography known in the Arabic language.

Common Spelling Errors: As defined by Belgdoush and Kharaz [26] spelling errors as a change in the order of letters, words, and sentences, which lead to disorder in the meaning due to departure from the general principles of recognized spelling rules. Procedurally, they are defined as words written by the student in violation of the correct grammar in the Arabic language.

6. Research Limitations

The findings of this study can be generalized considering the following limitations:

1. Human Limitations: This research study is limited to a random sample of male and female students at the School of Arts at Al-Zaytoonah University of Jordan.
2. Spatial Limitations: This research study is conducted at Al-Zaytoonah University of Jordan.
3. Temporal Limitations: This research study is conducted in the second semester of the academic year (2023/2024).
4. Objective Limitations: The research study is limited to the patterns, causes and solutions of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan. The generalization of the results of this research study depends on the validity and reliability of the instrument and the objectivity and seriousness of the research sample members' response to this instrument. The generalizability of the results is also limited to the place and time in which this study is conducted.

7. Conceptual Framework

Within the conceptual framework, the concept and importance of spelling, spelling errors, and methods for solving spelling errors are explained in detail.

7.1. The Concept and Importance of Spelling

Spelling means writing words and letters correctly according to agreed-upon principles or it is the symbolic tool for expressing the idea through an orthographic writing that ensures cohesion, correctness and clarity of the writing, protects the pen from errors in writing and helps the reader understand what is written [27]. On the other hand, Al-Dulaimi [25] believes that spelling is the art of writing words in Arabic through the linear development of spoken sounds. Spelling is one of the basic pillars of written expression, in addition to the fact that the error in writing words is a flaw in the writer's personality and causes difficulty in written reading and leads to errors in understanding.

In the same context, Al-Baja [28] defines spelling as the art of writing words in Arabic through the written representation of spoken sounds with symbols that allow the reader to re-pronounce them according to their first form according to rules established by linguists. However, Aryuni [29] defines spelling as the learner receives verbal input, keeps it in short-term memory, and then writes it according to what he heard and the correct linguistic rules. It can be said that spelling is nothing but the means of correctly writing words and phrases in their known forms, with correct writing subject to the writing rules recognized in the Arabic language, where the writing is sound and free of any errors.

The importance of spelling is that it is a good means of sound expression and understanding. Spelling also raises the general interest among students because the correct spelling of any text leads to its complete understanding and because errors contribute to the ambiguity of the meaning. In order for writing to be completed without errors, it is necessary to activate a multiple and complex body of knowledge, review situations, and discover the rule that must be applied Al-Dulaimi [25]. Al-Saidi [18] points out that spelling has great importance gleaned from the dependence of the entire Arabic language on it because there is a strong and solid relationship between it and other subjects of knowledge.

According to Al-Saidi [18] written expressions occur with spelling, and any error in it leads to distortion of the writing. It may go beyond mere distortion because it leads to a defect in meaning or confusion and ambiguity, and thus negatively affects the writer and is considered a major deficiency in his or her work. For this reason, correct spelling is considered a measure of the writer's educational and cultural level, regardless of the specialty. The said analysis confirms the importance of spelling in contemporary life, especially as a means of learning and using written and oral expression skills. It is also a means of communication and writing that requires specific rules when writing, which are trained and employed in the language learning process in an integrated manner with other skills.

7.2. Spelling Errors

A spelling error means the student's low ability to write the word correctly according to the established spelling rules, while the common spelling error means an error that occurs at a rate of (10%-25%) or more by the student Al-Dulaimi [25]. Sari [30] considers that a spelling error indicates that a student makes writing errors that include errors in writing and arranging paragraphs, errors in punctuation marks, adding or subtracting letters in a single word, as well as violating the rules of writing words that the language expresses. Al-Zaidi [31] indicate that a spelling error means a characteristic that causes its writer to make a mistake in what he or she writes by adding or subtracting, or by violating the rules of spelling. A fair writer in this capacity is unable to write letters and words correctly in accordance with what the people of the principles of Arabic writing have agreed upon regarding the rules governing the control of writing.

In the context of the reasons that lead the student to make a spelling error, Mohsen [32] shows that these reasons are due to multiple factors, including the student's poor hearing and vision, the inability to distinguish between close sounds, and the teacher's use of traditional methods of correcting students' errors without their participation in correcting the errors. In addition, some school curricula still neglect spelling from the early school stages for students. Similarly, Al-Kulaib [33] attributes the reasons for students' poor spelling and many spelling errors to many reasons, including: the large number of synonyms which leads to student distraction, the similarity of some Arabic letters in writing and pronunciation, the incompetence of some Arabic language teachers, and the lack of interest in the spelling class and considering it a secondary class in the curriculum.

Moreover, Abdeljawad [2] relates spelling errors, on the one hand, to the spread of modern technology, as one of the factors that increases these errors and affects the future of the Arabic language, especially considering the weak focus of the

curricula on the student's writing and spelling ability. Therefore, the students clearly make these mistakes to the university level. Al-Dulaimi [25] divides the reasons that lead students to make spelling errors into:

- a. Student: This may be due to poor performance or wandering thoughts. The reason may be the result of poor eyesight or poor hearing, or the weakness in writing resulting from fear and confusion.
- b. The teacher: The teacher may speak quickly or have a low voice, or his or her pronunciation of vocabulary and letters may be unclear. Consequently, this has negative consequences for some students, as the student is confused about the pronunciation he or she hears, especially in letters that are similar in sound.
- c. The spelling Paragraph: If the selected spelling paragraph has difficult words or has a large percentage of deviations from the original rule in its outline, it will negatively affect the students and their spelling writing.
- d. Teaching methods, methods of correcting spelling, and factors related to written material, such as: rules of spelling, form, and the difference in the shape of a letter depending on its position and connecting and separating letters.
- e. Factors related to the school system: They are reflected in the teacher's workload, weak curricula, and lack of attention to spelling.

Abdel-Moneim [34] also indicates that a student's error in spelling is due to a few reasons related to the student himself or herself, the associated weakness in general level, lack of familiarity with spelling rules, neglect and indifference and appreciation of responsibility, and as a result of the hesitation and fear. Other reasons are related to the characteristics of the Arabic language itself, represented in the spelling paragraph. Sometimes the paragraph chosen to apply the spelling rule is higher than the level of the students in terms of concept and style, or it contains many words that are difficult in form and spelling rules. Also, there are reasons related to the teacher, such as not being concerned with spelling as a major part of teaching different language skills, poor reading, lack of sufficient training in it, and not relating spelling to other branches of the Arabic language, such as teaching spelling as an art or separate skills.

7.3. Methods For Solving Spelling Errors

The success of the method in solving spelling errors depends on the topic that the student is learning, the student's self-efforts, and the teacher's behavior and understanding of the purpose of spelling. There are many methods and approaches that help solve the problem of spelling errors. Al-Dosari and Al-Subaie [24] explain that the teacher must eliminate the mistakes that they make, create their own internal motivation to correct their mistakes, and make them feel that error-filled performance distorts the language. Here, difficult words can be identified, applied to them, simulated, and repeated as the exercise lengthens and increases.

Importantly, Barakat [12] shows that the best way to deal with spelling errors is the preventive method, which means protecting the student from making a mistake. In other words, the method is based on training the student to write and not asking him or her to write any words that were not presented to them previously, until they develop the ability to distinguish and build a wealth of vocabulary. Al-Shalan [35] also points out some methods that reduce spelling errors, including linking spelling lessons together by correcting errors during training texts, even if they are in previously learned skills. Correction is done with the student's participation, and the student is trained to listen. It is the most important basis for teaching spelling to differentiate between the sounds of letters and their vowels, and direct correction in front of students to provide them with feedback.

With that, Abdel-Moneim [34] defines some methods to solve the problem of spelling errors. One of these methods is that the teacher should improve the selection of spelling texts so that they suit the level of the learners and serve multiple educational and linguistic goals, provide appropriate solutions of grammar and spelling skills, with many different exercises and applications on the required skills, and read the text correctly, clearly, and without ambiguity. Other methods include assigning the student to find spelling skills from the reading passage, assigning the learners tasks to train on different skills, such as the learner putting together words that end with the linked ta' and so on, increasing the number of similar examples of the skill that the teacher addresses in each class, paying attention to using modern means in interpreting the meanings of new words, and linking spelling to other academic subjects.

8. Method

8.1. Research Approach

The current research study utilizes the descriptive survey method, which depends on studying the research problem, describing it, analyzing its elements, and interpreting its results.

8.2. Research Population and Sample

The research population consists of all students at the School of Arts at Al-Zaytoonah University of Jordan according to the college's statistics for the second semester of the academic year (2023-2024). The research sample involves (328) male and female students selected by a stratified random method from various specializations and academic levels in the School of Arts at Al-Zaytoonah University of Jordan. Table 1 illustrates the distribution of research sample members according to its variables.

Table 1.

Frequencies and Percentages According to the Research Variables of Gender, Academic Level, and Specialization.

Variable	Categories	Frequency	Percentage
Gender	Male	125	38.1
	Female	203	61.9
Academic Level	First Year	65	19.8
	Second Year	92	28.0
	Third Year	90	27.4
	Fourth Year	81	24.7
Specialization	Scientific	104	31.7
	Humanities	224	68.3
Total		328	100.0

8.3. Research Instrument

To achieve the research objectives in identifying common patterns of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan, revealing the reasons that lead male and female students to make spelling errors, and identifying proposed solutions to address the spelling errors, the following instruments are utilized to collect data as follows:

8.3.1. First: Spelling Text Test

Since the current research paper aims to identify the patterns of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan, a spelling text test was constructed including the patterns, according to what previous studies have shown, such as Al-Amiri [14]; Abdeljawad [2] and Othman [15]. A few faculty members at Jordanian universities and secondary school teachers were interviewed so that the spelling text test would be coherent, clear in meaning, easy in style and familiar to the students.

a. To ensure that the spelling text test is appropriate for the students' academic level, in terms of clarity and length of words, and the correctness of its linguistic structures, the spelling text was reviewed and validated by (10) experienced and specialized faculty members with experience in the Arabic language and literature in Jordanian universities. The comments, modifications, and recommendations proposed by the validators are considered, modifying the spelling text based on feedback from the expert group. In order for the spelling method to take one form and avoid speed, the spelling text was divided into sections, taking into account the meaning of the section and the suitability of its length to the level of the students before applying for the test.

To identify the time the test would take and ensure the clarity of the researcher's voice and the accuracy of her pronunciation, the text was conducted on a sample of (30) male and female students. The researcher asked them not to write names on the test papers and gave each sheet a number to ensure the research instrument's reliability. Having read the text spelling to the exploratory sample, it is found that spelling required 15 minutes, which is considered an appropriate time.

b. Research Instrument Reliability: To ensure reliability, the spelling text test was conducted on the exploratory sample after two weeks in the same way. Each word in the in the spelling text was given one score, and each preposition, such as "from, about", was made a word for the purpose of calculating the score. The incorrect word was also given a zero because the word was either correct or incorrect. The incorrectly written words were summed, multiplied by (100), divided by the total number of words, then subtracted from (100), and the remainder represented the student's grade, as shown in the following equation: $(100 - \text{Total Errors} \times 100 / \text{Number of Words})$. The Pearson correlation coefficient was used to calculate reliability, as it reached (0.84), which is considered high reliability.

c. Test Application: The test was applied to the basic sample, considering all procedures to ensure the integrity of the test and prevent cheating, as the researcher read the text spelling to the students in one of the classrooms. The researcher also lightened the atmosphere and motivated students to interact by explaining the importance of the test. After completing the application, the papers were collected, corrected, and linguistic patterns common to the students were identified.

8.3.2. Second: Questionnaire

To identify the reasons for making spelling errors and suggestions to confront this problem, a second instrument "the questionnaire" was applied to collect data. With a detailed analysis to theoretical literature and previous studies addressing the common spelling errors among students (see [18, 20, 36, 37]), and conducting interviews with a group of male and female students and colleagues, a questionnaire initially consisting of (29) items and covering the causes of spelling errors and solution methods was developed.

a. To ensure the validity and reliability of the second dimension of the questionnaire, the instrument validity by reviewed by a number of faculty members at public and private universities in Jordan, where they were requested to read the items of the research instrument and express their comments on it in terms of the accuracy of the linguistic wording of the items, the suitability of the items to their dimensions, deleting similar items, and suggesting appropriate items. Considering the reviewers' comments, the questionnaire consisted of (24) items distributed over the same previous areas "18 items of causes of spelling errors" and "6 items of suggested solution methods".

b. Construct validity of the common spelling errors: To attain construct validity implications for the dimension of the reasons for the common spelling errors, correlation coefficients were calculated for each item and the total score, and between each item and its association with the related dimension, and between the dimensions and the total score in an exploratory sample from outside the research sample consisting of (30) male and female students. The correlation coefficients of the items with the overall instrument ranged between (0.39) and (0.75) and with the dimension (0.40) and (0.8). Table 2 illustrates these values.

Table 2.

Correlation Coefficients between the Item, the Total Score, and the Related Dimension to the Reasons for the Common Spelling Errors

Item No.	Correlation Coefficient with the Dimension	Correlation Coefficient with the Instrument	Item No.	Correlation Coefficient with the Dimension	Correlation Coefficient with the Instrument	Item No.	Correlation Coefficient with the Dimension	Correlation Coefficient with the Instrument
1	0.80**	0.72**	7	0.78**	0.75**	13	0.83**	0.73**
2	0.75**	0.70**	8	0.71**	0.58**	14	0.65**	0.49**
3	0.66**	0.61**	9	0.65**	0.61**	15	0.77**	0.56**
4	0.81**	0.63**	10	0.84**	0.70**	16	0.72**	0.69**
5	0.74**	0.39*	11	0.77**	0.65**	17	0.40*	0.50**
6	0.83**	0.60**	12	0.76**	0.75**	18	0.70**	0.59**

Note: *Statistically significant at the significance level (0.05).

** Statistically significant at the significance level (0.01).

As shown in Table 3 it is important to note that all correlation coefficients were of acceptable and statistically significant degrees, and therefore none of these items were deleted. The dimension correlation coefficient with the total score and the correlation coefficients between the dimensions were also calculated. Table 3 illustrates these values.

Table 3.

Correlation Coefficients between the Dimensions with Each Other and with the Overall Degree

	Arabic Lngauge Teachers	Student	Arabic Language Curricula	Reasons of the Common Spelling among Students
Arabic Lngauge Teachers	1			
Student	0.390*	1		
Arabic Language Curricula	0.382*	0.912**	1	
Reasons of the Common Spelling among Students	0.735**	0.897**	0.889**	1

Note: *Statistically significant at the significance level (0.05).

** Statistically significant at the significance level (0.01).

As illustrated in Table 4, all correlation coefficients had acceptable and statistically significant degrees, which indicate an appropriate degree of construct validity.

c. Reliability of the common spelling errors among students: To ensure the reliability of the research instrument, it was ensured using the test-retest method by applying the scale and reapplying it after two weeks to a group outside the research sample consisting of (30) male and female students. The Pearson correlation coefficient was also calculated between their responses at the two times. The reliability coefficient was also calculated using the internal consistency method according to Cronbach's alpha equation. Table 4 shows the internal consistency coefficient according to the Cronbach alpha equation and the re-test reliability of the dimensions and the total score, as these values were considered appropriate for the purposes of this research study.

Table 4.

Cronbach's Alpha Internal Consistency Coefficient and Re-test Reliability of the Dimensions and the Total Score.

Dimension	Re-test Reliability	Internal Consistency
Arabic Lngauge Teachers	0.84	0.81
Student	0.82	0.80
Arabic Language Curricula	0.83	0.79
Reasons of the Common Spelling among Students	0.89	0.85

8.4. Research Variables

The research study included the following categorical and main variables:

8.4.1. Categorical Variables

1. Gender: Male and Female.

2. Academic Level: First year, second year, third year, and fourth year.

Main Variables: Reasons for the common spelling errors among students and solutions methods.

8.4.2. Statistical Processing

The following statistical methods are used to answer the research questions and process the data statistically. The 5-point Likert scale was adopted to correct the research instruments by giving each item one score out of its five levels “strongly agree, agree, neutral, disagree, strongly disagree”, which are numerically represented as follows, (5, 4, 3, 2, 1), respectively. The following scale was adopted to analyze the results:

Adding (1.33) to the Minimum Value of the alternative (the minimum); the criterion for expressing those levels is: the Mean ranging between (1-2.33) indicates a Low Degree, the Mean ranging between (2.34-3.67) indicates a Medium Degree, and the Mean ranging between (3.68-5) indicates a High Degree.

Thus, the scale was calculated using the following equation:

The Upper Limit of the Scale (5) - the Lower Limit of the Scale (1)

Number of the Required Categories (3)

1-5 1.33=

3

Then, add the answer (1.33) to the end of each category.

9. Results and Discussion

This section gives an insight into the results and discussion related to the research questions.

9.1. First: Results Related to the First Research Question

What are the patterns of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?

To answer this question, the frequencies and percentages of common spelling error patterns among students at the School of Arts at Al-Zaytoonah University of Jordan were calculated after applying a spelling text test to the students. Table 5 illustrates those results.

Table 5.

Frequencies and Percentages of Common Spelling Error Patterns among Students at the School of Arts at Al-Zaytoonah University of Jordan

Text of Item	Frequency	Percentage
Writing the dhammah in the form (waw)	55	1.4%
Ignoring the alif after the waw at the end of related words	211	5.5%
Mistakes in writing the hamza at the beginning, middle, and end of words	200	5.2%
Writing the extended alif is short	300	7.8%
Adding the alif in some words, such as (Olaika, lakain, etc.).	77	2.0%
Writing the Kasra in the form of Ya	50	1.3%
Confusion in writing the letter “ha” and “tā” that are linked	45	1.2%
Writing the extra letter alif at the end of the noun al-Mannoon	311	8.1%
Error in the form of the exclamation sign when writing	256	6.7%
Confusion between the hamzat al-wasl and qat`	322	8.4%
Changing the hamzat al-wasl in the definite article to an alif after the interrogative hamzat	298	7.8%
Error in writing the number in relation to the countable noun.	326	8.5%
Separating multiples of a hundred when writing “nine hundred”	144	3.8%
Confused punctuation (period, comma, colon, parentheses, question mark, exclamation mark)	267	7.0%
Adding and deleting the alif from the word (ibin)	80	2.1%
Confusion in the case of feminizing and masculinizing the verb	20	0.5%
Using Kasra and Fatha with the hamza (An)	298	7.8%
Poor distinction between short and long letters	11	0.3%
Irregularity (neglecting to place dots)	15	0.4%
Adding or subtracting a letter	7	0.2%
Insert (al) to the word “Ghair”.	323	8.4%
Confusion between (dād and Thaād) in some words (example: yathhar, yathbat)	215	5.6%
Total	3831	100%

As shown in (5), the students made mistakes in many spelling topics, as the errors were limited to the highest percentage (8.5%) “Error in writing the number in relation to the countable noun”, while the lowest percentage (0.02) “Adding or subtracting a letter”. This result may be attributed to the students’ lack of practice and getting used to writing numbers correctly and linking them to the countable. Moreover, the number and the countable are among the Arabic rules that the student studies in the early academic stages. In other words, this may mean forgetting the rules or lack of training in

them in the upper stages. As for the increase or decrease of letters, it was small due to the nature of the literary study of the study sample, and thus their writing is more accurate. Table 5 also indicates that the students made a mistake in “Writing the extra letter alif at the end of the noun al-Mannoon” with a percentage of (8.1%). This is due to the students' failure to understand spelling rules correctly in previous academic stages, as the problem continued with them without solutions until they reached the university stage.

Not to mention that most students get their words from social networking sites and write them as they read them on these sites, and thus you find many spelling errors in their writing. Table 5 also shows that students make multiple spelling errors even though they study specializations such as the Arabic language and literature, a classroom teacher, the French language and literature, and the English language and literature. Thus, this requires allocating enrichment courses and lectures concerned with Arabic writing and spelling to avoid making this type of error in the future and to retrain students on the correct rules of writing and spelling. This result agreed with the result of Abdeljawad [2] study regarding some types of errors committed by students. However, this result differed with the result of Sayfitri [19] which showed that the students committed (187) errors, and that the errors ranged from deleting letters (33.15%), and replacing letters and words (28.34%), and that (3.74%) replaced one word with another word due to the difference in the nature of the two study samples.

9.2. Second: Results related to the Second Research Question

What are the reasons for the common spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?

To answer this question, means and standard deviations for the reasons of the common spelling errors among students are calculated. Table 6 illustrates those results.

Table 6.
Means and Standard Deviations for the Reasons for the Common Spelling Errors among Students Arranged in Descending Order According to the Means.

Rank	No.	Dimension	AM	SD	Degree
1	2	Student-Related Reasons	3.69	0.6030	High
2	3	Reasons Related to Arabic Language Curricula	3.57	0.6430	Medium
3	1	Reasons Related to Arabic Language Teachers	2.79	0.9820	Medium
		Entire Reasons	3.35	0.6030	Medium

As revealed in (6), the means ranged between (2.79) and (3.69), where the dimension of student-related reasons is ranked first with the highest mean of (3.69) with a high degree. However, the dimension of reasons related to teachers of the Arabic language is ranked last place with a mean of (2.79) with a medium degree, where the overall mean of the reasons for the common spelling errors among students was (3.35) with a medium degree. This result may seem justified, as most students' spelling errors are mostly due to a lack of practice in writing and spelling, excessive reliance on memorization, reliance on technology in writing, or on the use of computers for printing, which reduces their practice and weakens their writing abilities. Hesitation, lack of self-confidence, and poor visual observation among students may also be among the reasons why they make spelling errors.

During her dealings with many male and female students, the researcher noticed weaknesses in pronunciation and speech, and this, in turn, may affect the occurrence of spelling errors while writing. This result agreed with the result of Al-Amiri [14] which showed that students in Arabic language departments in male and female teacher preparation institutes make many spelling errors, as the students rely in their study of spelling rules on memorization without understanding the spelling rule. The result also agreed with the result of Othman [15] which showed that students make spelling errors to a medium degree. The result agreed with the result of Abdeljawad [2] which showed that the prevalence of spelling errors among students is medium. The means and standard deviations of the study sample members' responses were calculated on the items in each dimension separately, according to their descending order, as follows:

9.2.1. First: Student-Related Reasons

Table 7.
Means and Standard Deviations for the Student-Related Reasons Arranged in Descending Order According to the Means.

Rank	No.	Text of Items	AM	SD	Level
1	7	Difficulty in spelling rules for the student	3.70	0.9320	High
2	8	Spelling errors have become entrenched since the basic stage	3.69	0.9710	High
2	10	Getting wrong feedback from social media sites	3.69	0.9330	High
2	11	The nature of university study does not encourage writing	3.69	0.9750	High
2	12	Students suffer from poor reading and reliance on ready-made texts	3.69	1.194	High
6	9	Feeling that spelling is not important in the age of technology	3.68	1.066	High
		Student-related reasons	3.69	0.6030	High

As shown in (7), the means ranged between (3.68) and (3.70), where item (7) stipulating “Difficulty in spelling rules for the student” is ranked first with a mean of (3.70) with a high degree. However, item (9) stipulating “Feeling that

spelling is not important in the age of technology” is ranked last with a mean of (3.68), with a high degree, where the mean for the entire student-related reasons was (3.69), with a high degree. It is found that the lack of writing and spelling practice and the weakness of the exercises and practical applications provided to students negatively affected them. Also, relying on the technology element in the study reduced the time and space in which the student could practice spelling, as the student’s writing now resembles that found on social media sites, full of spelling errors. Although students emphasized the difficulty of spelling rules, continuous training and practice reduces this difficulty and can correct most spelling errors. This result agreed with the result of Othman [15] which showed that most spelling errors are caused by the student’s clear weakness in this skill.

9.2.2. Second: Reasons Related to Arabic Language Curricula

Table 8.

Means and Standard Deviations for the Reasons Related to Arabic Language Curricula Arranged in Descending Order According to the Means

Rank	No.	Text of Item	AM	SD	Degree
1	18	There is no special course for spelling at the university level	3.65	1.029	Medium
2	15	Lack of time allocated for spelling lessons	3.64	1.031	Medium
2	16	University Arabic language courses do not include assignments for spelling	3.64	1.094	Medium
4	17	University courses focus on the theoretical rather than the applied aspect	3.62	1.162	Medium
5	13	Lack of spelling lessons at the primary and secondary levels	3.43	1.101	Medium
6	14	Curricula do not focus on spelling from early ages	3.42	.999	Medium
		Reasons related to Arabic language curricula	3.57	.643	Medium

As shown in (8), the means ranged between (3.42) and (3.65), where item (18) stipulating “There is no special course for spelling at the university level” is ranked first with a mean of (3.65) with a medium degree. However, item (14) stipulating “Curricula do not focus on spelling from early ages” is ranked last with a mean of (3.42), with a medium degree, where the mean for entire reasons related to the Arabic language curricula was (3.57), with a medium degree. This result may be attributed to the fact that university courses do not pay attention to students’ spelling skills, if they have reached the stage of mastery. This matter, therefore, requires university courses to include lessons specifically about spelling rules. In addition, spelling classes in schools are not considered basic classes and do not take the time they deserve from the teacher to establish the rules of spelling and correct writing in students. This result agreed with the result of Al-Saidi [18] which showed a major failure on the part of students in spelling topics, and it comes at the forefront of the problems, as students wrote the word according to the pronunciation and not because of the speech. This is due to the students’ lack of awareness of the differences between letters that are close together in pronunciation, which causes errors in writing the word, and because there are no clear distinguishing rules for it in the curricula.

9.2.3. Third: Reasons Related to Arabic Language Teachers

Table 9.

Means and Standard Deviations for the Reasons Related to Arabic Language Teachers Arranged in Descending Order According to the Means

Rank	No.	Text of Item	AM	SD	Degree
1	6	Lack of focus by university faculty members on spelling	3.02	1.221	Medium
2	5	Poor teacher planning for spelling lessons in the primary and secondary levels	2.93	1.258	Medium
3	4	Lack of practical classes to practice spelling in class	2.83	1.258	Medium
4	3	Teachers' weak focus on spelling compared to grammar	2.75	1.141	Medium
5	1	Poor level of teachers professionally and scientifically	2.66	1.419	Medium
6	2	Teachers' workload makes them less focused	2.59	1.403	Medium
		Reasons related to Arabic language teachers	2.79	0.982	Medium

As shown in (9), the means ranged between (3.02) and (2.59), where item (6) stipulating “Lack of focus by university faculty members on spelling” is ranked first with a mean of (3.02) with a medium degree. However, item (2) stipulating “Teachers' workload makes them less focused” is ranked last with a mean of (2.59) with a medium degree, where the mean for entire reasons related to Arabic language teachers was (2.79), with a medium degree. It is found that the teacher, whether at the university or pre-university stage, does not work to establish the rules of spelling among students, especially in terms of distinguishing between the writing of a letter and its sound because there are many linguistic skills that take up most of the teacher’s time, and therefore spelling is not considered a basic skill. It is also necessary to develop and modify school curricula in order to pay more attention to spelling in all its forms. Barakat [12] stated that the failure to allocate sufficient space and time for spelling training for students from the early stages of life, especially in the basic school stages, and the burden on teachers and their lack of interest in spelling are among the reasons for its apparent weakness.

9.2.3. Third: Results related to the Third Research Question

Are there statistically significant differences ($\alpha = 0.05$) in the reasons for the prevalence of spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan due to the variables of gender, academic level, and specialization?

To answer this question, means and standard deviations for the reasons of the common spelling errors among students according to gender and academic level are calculated. Table 10 illustrates those results.

Table 10.

Means and Standard Deviations for the Reasons for the Common Spelling Errors among Students According to Gender and Academic Level

		AM	SD	No.
Gender	Male	3.42	0.6270	125
	Female	3.30	0.5850	203
Academic Level	First Year	3.34	0.5600	65
	Second Year	3.36	0.6350	92
	Third Year	3.47	0.6180	90
	Fourth Year	3.21	0.5630	81

As shown in (10), there is an apparent discrepancy in the means and standard deviations due to the common spelling errors among students due to the different categories of variables of gender, academic level, and specialization. To demonstrate the significance of the statistical differences between the means, analysis of variance (ANOVA) was used as shown in Table 11.

Table 11.

Analysis of Variance of the Effect of Gender and Academic Level on the Causes of the Common Spelling Errors among Students

Source of Variation	Sum of Squares	FD	Square Mean	F-Value	Sig. Level
Gender	0.0010	1	0.0010	0.0020	0.9650
Academic Level	1.420	3	0.4730	1.324	0.2670
Error	115.182	322	0.3580		
Total	118.991	328			

As illustrated in Table 11 there were no statistically significant differences ($\alpha = 0.05$) because of gender, as the F-value was (0.002) with a statistical significance of (0.965). There were also no statistically significant differences ($\alpha = 0.05$) because of academic level, as the F-value was (1.324) with a statistical significance of 0.267. This result seems justified, as male and female students coming from government schools adopt the same curricula and teaching methods. Also, many university students today make the same spelling errors due to their reliance on technology or written posts on social media sites, which leads them to the same errors contained therein. This result agreed with the result of Sasali, et al. [17] which showed no statistically significant differences between linguistic errors among males and females. However, this result differed from the result of the Al-Dafas [20] showing statistically significant differences at the level of (0.01) between the mean scores of the students in the study sample in the total score of the spelling writing test according to the gender variable "male and female students" in favor of female students, where the reason for the difference here is due to the different nature of the two sample studies.

9.2.4. Fourth: Results Related to the Fourth Research Question

What are the proposed solutions to overcome spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan?

To answer this question, the frequencies and percentages of the proposed solutions to overcome spelling errors among students at the School of Arts at Al-Zaytoonah University of Jordan were calculated after applying a spelling text test to the students. Table 12 illustrates those results.

Table 12.

Frequencies and Percentages of Proposed Solutions to Overcome Spelling Errors (N=328)

No.	Text of Item	Frequency	Percentage
19	The focus in secondary school curricula is on writing and spelling skills	255	16.3%
20	Intensifying the practical application of writing and spelling in the university course	212	13.6%
21	Holding university specialized courses in writing and correcting spelling errors during holidays and vacations	326	20.8%
22	Linking the study of spelling to all university courses	322	20.6%
23	The faculty member corrects the student's spelling errors as soon as they occur through feedback	128	8.2%
24	Encouraging students to check writings on social media sites as they are full of errors	322	20.6%

As illustrated in Table 12 item (21) stipulating "Holding University specialized courses in writing and correcting spelling errors during holidays and vacations" received the highest frequency of (326) with a percentage of (99.3%). However, items (22) and (24) stipulating "Linking the study of spelling to all university courses" and "Encouraging students to check writings on social media sites as they are full of errors" obtained a frequency of (322) and a percentage of (98.1%). However, item (23) stipulating "The faculty member corrects the student's spelling errors as soon as they occur through feedback" received the lowest frequency of (128) and a percentage of (0.39%). This result may be attributed to the students' desire and awareness of the importance of spelling in their university life, especially since they are students at the School of Arts.

Therefore, training in spelling and addressing the problems associated with it are among their most important priorities. In addition, they stress that linking spelling to university studies, as well as working to verify and proofread everything published on the Internet, will increase their spelling skills and will correct many errors. The role of the university teacher is appropriate here in training and providing feedback to the students to consolidate the correct spelling rules in them. Al-Amiri [14] confirmed that students rely on memorization in their study of spelling rules without understanding the spelling rule, which leads to them forgetting it once the test is completed and the lack or absence of training and applications that ensure understanding the spelling rules and establishing them in the students' minds because it is known that frequent practice helps students understand and retain information for a longer period. Therefore, there is a need for practice and training within university courses, specialized courses, and enrichment lectures to overcome this problem.

10. Conclusion

In a word, as the paper explored patterns, causes, and solutions of spelling errors among university students, key findings are attained such as indicating that students at the School of Arts make mistakes in several spelling topics. The practical implications are reflected in focusing on the skill of writing and spelling in the secondary school curricula, intensifying the practical application of writing and spelling in university courses, and holding university courses specialized in writing and solving spelling errors during public holidays and vacations to solve spelling errors.

11. Recommendations

Given the previous results and discussion, the current article recommends holding university courses that include practical applications of spelling to address students' spelling errors and encouraging a faculty member to correct the spelling error and provide feedback to the student immediately after the spelling error occurs. Other key recommendations include reconsidering the methods of teaching spelling at the primary and secondary levels in accordance with the needs of students and the developments of the current era and focusing on training teachers on methods of teaching spelling while encouraging them to intensify practical spelling applications for students while teaching various Arabic language skills.

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