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Research Article

Effectiveness of Game-Based Spelling Applications in Improving Spelling Proficiency: A Study of Grade 7 Students

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Abstract: Spelling is a vital component of writing, yet many students continue to struggle with it due to inconsistent pronunciation and lack of consistent practice. Although emphasized in the Philippine K–12 curriculum, spelling challenges persist into secondary education. This study aimed to compare the effectiveness of two audio-visual learning applications – "Listen and Write" and "Spell it Write" – in improving the spelling proficiency of Grade 7 students from two (2) public secondary schools. This study employed a quasi-experimental research design involving two phases. In the first phase, 30 students from each school took a traditional paper-and-pencil pre-test, underwent a four-week intervention using the "Listen and Write" audio-visual learning application, and completed a post-test. Based on the results, the researchers developed an enhanced and localized version of the application called "Spell it, Write." In the second phase, another set of 30 students from each school followed the same procedure using the improved application to assess its effectiveness. Data were analyzed using mean, standard deviation, and paired t-tests. Results showed significant improvements in spelling proficiency after both interventions. However, students who used "Spell it Write" demonstrated greater gains compared to those who used "Listen and Write". The findings suggest that audio-visual, game-based applications are effective tools for improving spelling skills, and that customized tools like "Spell it, Write" may yield better outcomes. The study recommends integrating such interactive technologies in language instruction to enhance student engagement and academic performance.

Keywords: spelling proficiency; audio-visual learning; K-12 curriculum; game-based learning; mobile applications; educational technology

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1. Introduction

Spelling is a crucial component of literacy, as it involves the accurate arrangement of letters to form meaningful words, and it plays a vital role in achieving academic success. According to Da Costa and Arias (2021), spelling is a complex written language skill that requires learners to possess strong phonological, morphological, and visual memory, along with semantic understanding and knowledge of spelling rules. In support of this, Altamimi and Rashid (2019) emphasized that errors in spelling can significantly alter the intended meaning of a text. Therefore, employing correct spelling is essential to ensure clarity and comprehension in written communication.

Moreover, Sultani and Himat (2020) asserted that spelling is a particularly demanding skill because it requires continuous practice, accumulated experience, and a broad vocabulary to allow writers to choose from various word options effectively. This view is further supported by Galuschka, Görgen, Kalmar, Haberstroh, Schmalz, and Schulte-Körne (2020), who described spelling proficiency as the ability to apply phonological processing knowledge and understand how sounds correspond to specific letters. Similarly, Lee and Pegler (1982)

highlighted that accurate spelling depends on the learner's capacity to map phonemes onto letters. Reinforcing these ideas, Da Costa and Arias (2021) reiterated that spelling is an advanced written language skill that calls for a comprehensive set of language abilities, including knowledge of spelling rules, phonological and morphological awareness, visual memory, and semantic understanding.

Beyond its role in effective communication, spelling proficiency also contributes significantly to academic performance, as it strengthens the relationship between letters and sounds, which is fundamental to literacy development. Although mastering spelling presents challenges, it empowers students to decode unfamiliar words, fosters independence, and cultivates critical thinking. In the Philippine K-12 educational context, spelling instruction is emphasized in the early years of schooling. However, many students continue to encounter difficulties with spelling as they progress to secondary education, where higher levels of proficiency are expected. This persistent issue highlights the need for improved instructional strategies and innovative interventions that address spelling challenges more effectively.

Incorporating technology-based learning tools, such as using engaging software, can be a potential solution to the problem. Games engage students on an affective, cognitive, and sociocultural level; using them in the classroom is therefore a successful teaching strategy (Bin-Hady, 2021). Interactive digital tools can motivate students to engage with independent learning, with teachers serving as their facilitators rather than sole providers of knowledge within the classroom. This study uses a technology application, "Listen and Write," and "Spell it, Write" with 7th-grade students to assess how an interactive technology can enhance the spelling proficiency of students. The study of Booton, Hodgkiss, and Murphy (2021) highlights the access to and use of certain digital technologies, including mobile applications, is positively associated with spelling skills.

This research study investigates the effectiveness of two technology-enhanced learning tools – "Listen and Write" and "Spell it, Write" – in improving the spelling proficiency of Grade 7 students. The study aims to compare students' spelling skills before and after using each application. By administering pre-tests and post-tests, it examines whether the use of these audio-visual applications significantly enhances spelling proficiency. The research will assess how each app, with its interactive and game-based features, influences students' ability to spell and whether technological tools can be an effective addition to traditional spelling instruction.

Furthermore, the study seeks to determine if there is a significant difference in students' spelling proficiency after utilizing "Listen and Write" and "Spell it, Write". It explores how these applications can be integrated into classroom instruction to support continuous and meaningful spelling learning. Through engaging, interactive features, the study aims to empower students by improving their spelling skills and fostering a deeper understanding of the relationship between letters and sounds. Evaluating the impact of both apps, this research will offer valuable insights into the potential of game-based learning in promoting students' confidence and academic performance in spelling.

2. Materials and Methods

2.1. Research Design

The study used a quasi-experimental design with pre-tests and post-tests to evaluate the effectiveness of two audio-visual learning applications – "Listen and Write" (Appendix A) and "Spell it, Write" (Appendix B) – in improving spelling proficiency. A one-group pre-test-post-test approach was used to assess the impact of these applications on students' spelling skills. This design allowed the measurement of spelling performance changes before and after the interventions, providing quantifiable evidence of improvement. Comparing initial and final test results enabled researchers to analyze variations in spelling accuracy and determine the overall effectiveness of the intervention on students' spelling proficiency.

Both applications categorized spelling words into three levels of difficulty: easy, average, and hard, ensuring a comprehensive assessment across varying complexities. "Spell it, Write", developed by the researchers, enhanced "Listen and Write" by incorporating features like the researchers' own voice for word pronunciation, offering a personalized learning experience. Additionally, "Spell it, Write" is editable, allowing teachers to create custom quizzes and other types of assessments. One significant improvement in "Spell it, Write" is its alignment with the Department of Education's Most Essential Learning Competencies (MELCs), ensuring that the spelling words are consistent with the curriculum standards. Like "Listen and Write", this new app enabled students to learn autonomously, at their own pace, both during and

outside scheduled intervention times, promoting self-directed learning.

Both applications also provided hints to guide students toward correct spelling, encouraging self-correction and reinforcing learning. This approach aimed to empower students to take control of their learning, accommodating individual learning speeds and preferences. By providing flexibility, the apps allowed students to engage with the material independently, helping them strengthen their spelling skills without direct teacher supervision. The structured methodology ensured that the intervention's effectiveness was systematically measured, addressing diverse learner needs and fostering an environment where students could develop greater confidence in their spelling abilities.

2.2. Research Locale

The study was conducted in two public secondary schools that serve a diverse student population. These schools were selected due to the noticeable spelling difficulties among Grade 7 students. Both school administrations supported the initiative, recognizing its potential to improve students' English language proficiency. The study focused on a specific group of Grade 7 students from each school who were struggling with spelling, ensuring that the intervention targeted those most in need of support.

The schools provided an ideal setting for the research, with existing educational resources and a strong commitment to integrating technology into the learning process. The accessibility of the schools and the cooperation of the faculty facilitated smooth data collection and the effective implementation of the intervention. By conducting the study within a real classroom environment, researchers ensured that the findings were relevant and could contribute to the development of future educational strategies.

2.3. Population of the Study

A purposive sampling technique was used to select participants, focusing on students with identified spelling difficulties. Thirty (30) Grade 7 students from the first public secondary school and another thirty (30) from the second public secondary school were chosen based on recommendations from their head teachers. The teachers assessed students' spelling proficiency through a pre-survey and pre-test. This approach ensured the study targeted students who would benefit most from the intervention, optimizing the effectiveness of the "Listen and Write" and "Spell it, Write" applications.

The sample size of thirty (30) students from each public secondary school was deemed suitable for evaluating the intervention's impact while ensuring manageability in data collection and analysis. The selected students represented a range of academic abilities but shared a common struggle with spelling, making them ideal candidates for assessing the application's effectiveness. By carefully selecting participants, the study maintained a focused and practical approach to measuring spelling improvement in a controlled, real-world educational setting.

2.4. Research Instrument

The primary research instruments used in this study included a pretest and a posttest, each consisting of ten (10) spelling words categorized into three levels: items 1-3 (easy), items 4-7 (average), and items 8-10 (hard). The pretest assessed the students' initial spelling skills, establishing a baseline for comparison. After the intervention, the posttest was administered to measure improvement, providing quantitative data on spelling development.

In addition to the tests, the study utilized the "Listen and Write" application and "Spell it, Write", which played a crucial role in the intervention. This application featured audio pronunciations at adjustable speeds, allowing students to listen to words multiple times. It also provided incomplete sentences to enhance contextual understanding and spelling accuracy. A unique feature of the application was its hint system, which guided students toward the correct spelling when needed. These combined tools ensured a structured and supportive learning experience, fostering gradual improvement in spelling skills.

2.5. Data Gathering Procedure

The data gathering process began with researchers visiting the schools to observe common challenges students faced in English, particularly in spelling. Upon identifying spelling difficulties as a prevalent issue, researchers sought permission to conduct the study and selected thirty Grade 7 students from each of the two public secondary schools who showed low spelling proficiency. After obtaining approval, a validated pre-survey was administered to gather background information on the students' spelling challenges. This ensured the study targeted the students most in need of the intervention.

Following the pre-survey, a pre-test using traditional paper-and-pencil spelling methods was conducted. The students then engaged with the "Listen and Write" application for four (4) weeks, practicing spelling through auditory and contextual learning. The intervention was structured to provide consistent exposure to spelling tasks, facilitating gradual skill development. After the intervention, a post-test was administered to assess any improvements in spelling proficiency. This method allowed for reliable data collection, providing accurate insights into the application's effectiveness. Subsequently, the same procedure was repeated, but with the "Spell it, Write" app, which was introduced after the post-test for "Listen and Write".

The Kirkpatrick Model (figure 1), developed by Dr. Donald Kirkpatrick in 1959, is widely used to assess the effectiveness of training or educational programs. It consists of four levels: Level 1 evaluates participant satisfaction, focusing on engagement and relevance. Level 2 measures learning outcomes, assessing knowledge and skill acquisition. Level 3 examines behavioral changes, such as how well learners apply spelling rules in practice, as seen with the "Listen and Write" and "Spell it, Write" applications. Level 4 assesses the impact on results, such as improved written communication and fewer spelling errors, indicating the program's overall effectiveness.

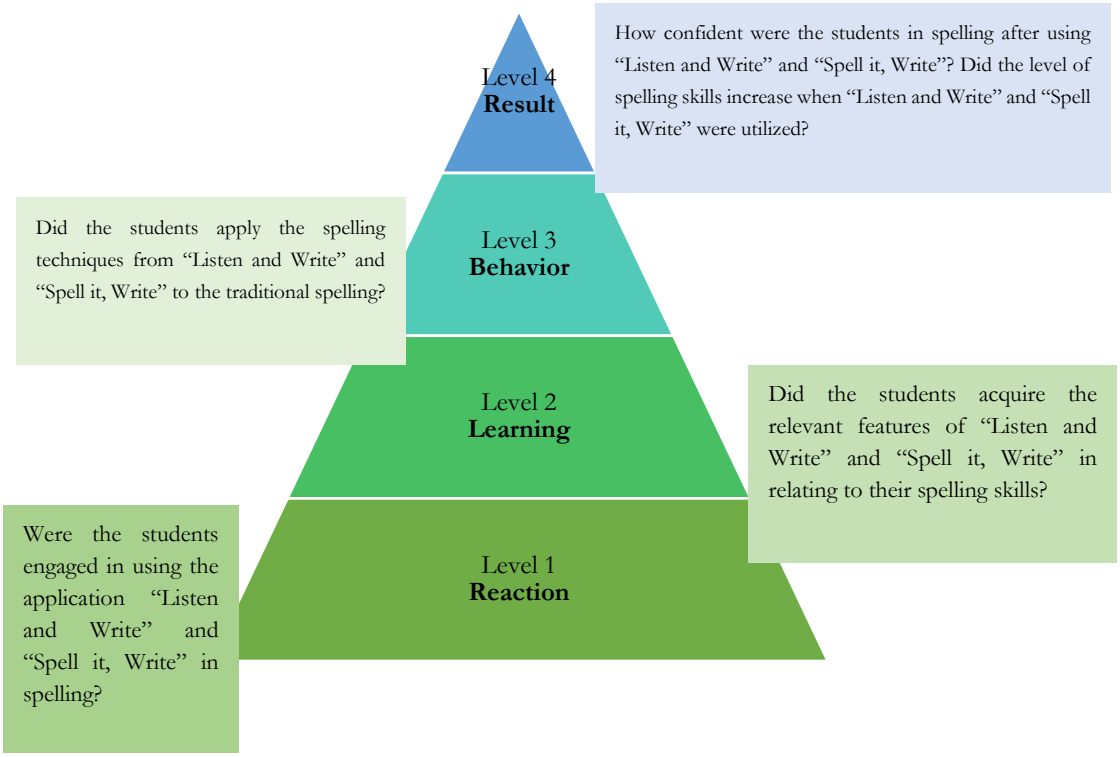

Figure 1. Conceptual framework based on the Kirkpatrick Model.

To support the framework used in this study, the Kirkpatrick Evaluation Model has been effectively applied in various educational and training contexts. Nazli, Hasan, Hizam, and Abdullah (2022) employed the model's four-level approach to evaluate training outcomes. The evaluation assessed participant satisfaction, knowledge and skill acquisition, behavioral changes, and the overall impact on professional practices. Among the 116 participants, 28 (24.1%) expressed gratitude for the programs, 62 (53.4%) approved of the content, while 26 (22.4%) were not satisfied. Furthermore, the study reported a 17.67% improvement in mean scores between pre- and post-MCQs, indicating significant cognitive gains. In terms of long-term application, 56.9% of participants initiated the research following the training, and 6.9% were able to publish their findings. Overall, 79% of participants reported that they were able to apply what they had learned in their professional contexts.

This evaluation underscores the reliability and applicability of the Kirkpatrick Model in assessing educational interventions. Thus, its integration into the present study offers a systematic and validated approach to measure the effectiveness of the spelling applications, particularly in terms of learner satisfaction, skill acquisition, behavioral improvement, and academic impact.

2.6. Management and Treatment of Data

To analyze the collected data, researchers employed statistical tools to assess changes in students' spelling performance. The mean and standard deviation were calculated for the pretest and posttest scores to evaluate the overall improvement in spelling skills. These statistical measures provided insights into the degree of progress and the consistency of results, highlighting patterns in students' development over the course of the intervention.

Additionally, a paired t-test was conducted to determine whether the observed differences between pretest and posttest scores were statistically significant. This analysis ensured that any improvements in spelling proficiency were not due to chance but were a direct result of the intervention. The paired t-test provided objective evidence supporting the effectiveness of the "Listen and Write" and "Spell it, Write" applications in improving students' spelling skills.

To compare the effectiveness of the two applications, an Independent Samples t-test was performed on the posttest scores of the two groups, each using a different application. This statistical test allowed researchers to determine if there was a significant difference between the results, providing a clear comparison of the effectiveness of the two applications. The Independent Samples t-test helped assess which application had a greater impact on students' spelling proficiency after the interventions.

2.7. Ethical Considerations

This study adhered to ethical research guidelines to ensure the integrity and protection of all participants. Informed consent was obtained from the Grade 7 students and their guardians before participation. The study maintained confidentiality and anonymity, ensuring that no personal information was disclosed. Participants were given the freedom to withdraw at any point without repercussions. The researchers also ensured that the "Listen and Write" and "Spell it, Write" audio-visual learning applications did not cause harm or undue stress to students and was used strictly for educational purposes. The research followed the principles of fairness and objectivity, ensuring that no biases influenced the results. Data collected were securely stored and used solely for academic purposes. Furthermore, permission was sought from the school administration before conducting the study, and ethical guidelines for working with minors were strictly observed. All sources used in the research were properly cited to uphold academic integrity.

3. Results

The effectiveness of the "Listen and Write" and "Spell it, Write" audio-visual learning applications in improving students' spelling skills was assessed by comparing their performance before and after the interventions. The study measured students' spelling proficiency through pretest and posttest assessments, analyzing the results for statistical significance. Findings revealed a notable improvement in spelling skills following the interventions, marked by an increase in mean scores and a reduction in score variability. Statistical analysis confirmed that the observed improvement was significant, indicating the positive impact of both learning applications on students' spelling proficiency.

In addition to this, the study compared the effectiveness of the two (2) audio-visual learning applications by analyzing the posttest results of both groups. This comparison aimed to identify which application – "Listen and Write" or "Spell it, Write" – had a greater impact on improving students' spelling skills. The comparative analysis of the post-test results offers valuable insights into the strengths of each application in fostering spelling improvement. Detailed results are presented in the following tables.

3.1. Spelling Skills and Utilization of "Listen and Write"

Table 1 presents the pre-test results of students from School 1 and School 2, focusing on their spelling skills. School 1 recorded a mean score of 5.20, with a standard deviation of 2.70, indicating a moderate level of spelling skills. Meanwhile, school 2 had a higher mean score of 7.60 and a standard deviation of 1.04, which reflects that the students from school 2 have proficient spelling skills, and it is interpreted as a high level of spelling skills. This suggests that students from School 2 were already performing better in spelling. This date indicates that the students from school 1 had developed a foundation in spelling, while school 2 demonstrated a high level of competency when it comes to spelling.

Table 1. Level of students' spelling skills before the utilization of "Listen and Write."

Assessment	Group	Mean	SD	Verbal Interpretation
Pre-test	School 1	5.20	2.70	Moderate level of spelling skills
	School 2	7.6	1.04	High level of spelling skills

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 – 10.0).

Table 2 presents the results after the implementation of the "Listen and Write" application in both School 1 and School 2. In School 1, students attained a mean score of 8.67 with a standard deviation of 1.45, indicating a notable improvement in their spelling skills following the intervention. Meanwhile, students in School 2 achieved an even higher mean score of 9.6 with a lower standard deviation of 0.72, which reflects not only improvement but also greater consistency in performance. These outcomes suggest that the "Listen and Write" application was effective in enhancing the spelling proficiency of students across both school settings, regardless of initial skill levels or contextual differences.

However, despite these improvements, it is important to recognize that students initially encountered various challenges in spelling. Many struggled due to a lack of phonological awareness, as well as insufficient coordination between pronunciation and the orthographic representation of English words. Additionally, learners found it difficult to recognize silent letters and were often confused by homonyms. These complexities create a significant gap between how words are spoken and how they are spelled, which frequently leads to spelling errors. As Santos, Cahapay, and Castro (2020) explained, acquiring spelling proficiency is inherently difficult, especially in languages with alphabetic orthographies that do not always follow consistent patterns. To become competent spellers, students must develop a solid foundation in core cognitive skills such as phonological, morphological, and orthographic knowledge. Thus, the success of digital interventions like "Listen and Write" lies in their ability to support the development of these essential components of spelling.

Table 2. Level of students' spelling skills after the utilization of "Listen and Write."

Assessment	Group	Mean	SD	Verbal Interpretation
Post test	School 1	8.67	1.45	High level of spelling skills
	School 2	9.6	0.72	High level of spelling skills

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 – 10.0).

Table 3 compares the pretest and posttest scores of students' spelling skills in School 1 and School 2 following the use of the audio-visual learning application "Listen and Write." In School 1, the average pretest score was 5.20, which reflected a moderate level of spelling proficiency. After the intervention, this significantly increased to a posttest mean of 8.67, indicating a transition to a high level of spelling skills. Similarly, School 2 began with a higher pretest mean score of 7.6, which also fell within the moderate range, and further improved to a posttest mean of 9.6, resulting in a high level of spelling proficiency. These results demonstrate that the application had a substantial and positive effect on students' spelling performance in both schools.

The findings align with the study of Budiman, Widyaningrum, and Azizah (2020), which revealed that audio tools – such as songs – can serve as effective mediums to enhance student motivation and comprehension. Their research emphasized that integrating audio components into instructional materials helps learners understand content more easily. Moreover, they concluded that the use of song-based media in spelling instruction not only boosts student engagement but also encourages teacher creativity and contributes to improved English learning outcomes, particularly among elementary students. These insights support the effectiveness of the "Listen and Write" application, which similarly employs auditory strategies to enhance spelling skills and learner involvement.

Table 3. Difference in the students' level of spelling skills before and after the utilization of "Listen and Write."

Group	Mean		t-stat	df	t-crit	p-value	Analysis
	Pretest	Posttest					
School 1	5.20	8.67	-11.0604	29	2.0452	0.000	Significant
School 2	7.6	9.6	-8.3426	29	2.0452	0.000	Significant

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 – 10.0).

3.2. Implementation of "Spell it, Write"

Table 4 shows the level of spelling skills of school 1 and school 2 before using the digital learning tool "Spell it, Write." School 1 manages to obtain a mean score of 5.7, with the standard deviation of 2.26, which corresponds to a moderate level of spelling skills and indicates a need for improvement. Meanwhile, school 2 obtained a mean score of 6.2, with a standard deviation of 0.81, reflecting a moderate level of spelling skills and highlighting the need for further development. The results show that both schools were performing at a moderate level in spelling before the utilization, suggesting room for growth and the potential benefit of using the digital tool to enhance their skills.

In the context of educational setting, teachers are not able to dedicate enough time to spelling sessions. Nguyen, Pham, and Phan (2020) agreed that this gives the learners a sense of responsibility to enhance their spelling skills by themselves. When students practice to engage in spelling activities, they develop not only their writing skills but also their ability to analyze the meaning of words.

Table 4. Level of students' spelling skills before the utilization of "Spell it, Write."

Assessment	Group	Mean	SD	Verbal Interpretation
Pre-test	School 1	5.7	2.26	Moderate level of spelling skills
	School 2	6.2	0.81	Moderate level of spelling skills

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 – 10.0).

Table 5 displays the results of School 1 and School 2 after the implementation of the digital learning tool "Spell it, Write". School 1 achieved a high mean score of 9.07 with a standard deviation of 1.08, reflecting a high level of spelling proficiency. Similarly, School 2 obtained an even slightly higher mean score of 9.13 with a standard deviation of 0.73, also indicating a high level of spelling skills. These results highlight the effectiveness of the "Spell it, Write" tool in enhancing students' spelling abilities. The data demonstrates that the digital learning tool significantly contributed to the improvement of spelling skills in both schools.

Table 5. Level of students' spelling skills after the utilization of "Spell it, Write."

Assessment	Group	Mean	SD	Verbal Interpretation
Post test	School 1	9.07	1.08	High level of spelling skills
	School 2	9.13	0.73	High level of spelling skills

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 – 10.0).

Table 6 provides a comparison of students' spelling skills in School 1 and School 2 before and after the utilization of the audio-visual learning application "Listen and Write." In School 1, the average pretest score was 5.7, indicating a moderate level of spelling skills, whereas the posttest average increased to 9.07, resulting in a high level of spelling skills. Similarly, School 2 had a pretest mean of 6.2, also in a moderate range, which improved to 9.13 in their posttest,

indicating significant enhancement in spelling skills. The t-statistics for both schools are -9.9819 for School 1 and -15.8317 for School 2, both exceeding the critical t-value of 2.0452, which denotes that the observed improvements are statistically significant. The results indicate that both schools showed transitioned from moderate to high levels of spelling skills, demonstrating the positive impact of the audio-visual learning tool.

As emphasized by Cabual (2021), each student has his or her own learning style and preferences. Some people discover their dominant learning style, while others use various learning styles in different circumstances. It contradicts Kolb's learning style theory which claims that people are born with a preference for a particular learning style.

Table 6. Difference in the Students' Level of Spelling Skills Before and After the Utilization of "Listen and Write."

Group	Mean		t-stat	df	t-crit	p-value	Analysis
	Pretest	Posttest					
School 1	5.7	9.07	-9.9819	29	2.0452	0.000	Significant
School 2	6.2	9.13	-15.8317	29	2.0452	0.000	Significant

Note: Low level of spelling skills (0.0 – 3.3); Moderate level of spelling skills (3.4 – 6.6); High level of spelling skills (6.7 - 10.0).

3.3. Comparison of Effectiveness of Two Applications in the First Public High School)

Table 7 shows the comparison of students' spelling skills in School 1 and School 2 before and after the utilization of the audio-visual learning application "Spell it, Write." In School 1, the average pre-test score was 5.7, indicating a moderate level of spelling skills. In contrast, the post-test average increased to 7.97, resulting in a high level of spelling skills. In addition, School 2 had a pre-test mean of 6.2, also in a moderate range, which improved to 9.13 in their post-test, indicating significant enhancement in spelling skills. The t-statistics for School 1 is -6.5601 and -15.8317 for School 2, both exceeding the critical t-value of 2.0452, which denotes that the observed improvements are statistically significant. The results indicate that both schools showed transitioned from moderate to high levels of spelling skills, demonstrating the positive impact of the audio-visual learning tool, "Spell it, Write".

Table 7. Difference in the students' level of spelling skills before and after the utilization of "Spell it, Write."

Group	Mean		t-stat	df	t-crit	p-value	Analysis
	Pretest	Posttest					
School 1	5.7	7.97	-6.5601	29	2.0452	0.000	Significant
School 2	6.2	9.13	-15.8317	29	2.0452	0.000	Significant

Table 8 provides data analysis of two digital learning applications, "Listen and Write" and "Spell it, Write," across two different schools. The application Listen and Write demonstrated the effectiveness for two schools. In school 1, they gained a 6.94 mean score with a standard deviation of 2.17, which indicates a shift in students performance. On the other hand, School 2 has significantly achieved a higher mean score of 8.60, with a standard deviation of 0.89, which reflects a more consistent performance of the students. Despite all of these results, the table shows that both schools indicate that Listen and Write is effective for students.

Table 8. Comparison of the effectiveness of "Listen and Write" and "Spell it, Write" applications on the spelling proficiency of students from two public secondary schools.

Application	School	Mean	SD	Interpretation
Listen and Write	School 1	6.94	2.17	Effective
	School 2	8.60	0.89	Effective
Spell it, Write	School 1	7.39	1.77	Highly Effective
	School 2	7.67	0.77	Highly Effective

Note: Less Effective (0.0 – 1.9); Effective (2.0 – 2.9); Highly Effective (3.0 – 4.0).

On the other hand, the "Spell it, Write" application produced higher overall results compared to its counterpart. In School 1, students achieved a mean score of 7.67 with a standard deviation of 1.77, indicating a high level of effectiveness. Likewise, School 2 obtained the same mean score of 7.67 but with a lower standard deviation of 0.77, which reflects greater consistency in students' performance. These results suggest that "Spell it, Write" had a more uniform impact on learners and was perceived in both schools as a highly effective tool for enhancing spelling proficiency. Based on these findings, it can be concluded that while both applications were beneficial, "Spell it, Write" proved to be more impactful in improving students' spelling abilities.

Furthermore, the effectiveness of "Spell it, Write" is consistent with existing strategies aimed at reinforcing spelling skills. For instance, Khasanah and As Sabiq (2020) acknowledged the "Spelling Bee" as a well-established technique for developing students' overall spelling proficiency. Their study emphasized that such methods not only motivate learners but also enrich their vocabulary, improve pronunciation, and help them master correct spelling through repeated exposure and active participation. Like the "Spelling Bee," the "Spell it, Write" application offers an engaging and interactive approach that encourages students to practice spelling in a fun and educational manner. Therefore, combining technology-based tools with traditional strategies may offer an even more robust framework for enhancing literacy among learners.

4. Discussion

This study investigated the effectiveness of two audio-visual learning applications—"Listen and Write" and "Spell it, Write" in improving students' spelling skills across two different schools. The findings revealed a positive impact from both interventions, though the degree of improvement varied between the two applications and between the two schools.

Before the utilization of the "Listen and Write" learning application, School 1 recorded a mean pretest score of 5.20 with a standard deviation of 2.70, indicating a moderate level of spelling skills and a wide variability in individual performance. This suggests that students began with differing levels of proficiency, which could potentially influence how effectively the intervention addressed individual learning needs and the degree of improvement observed.

In contrast, School 2 demonstrated a higher pretest mean score of 7.60 with a lower standard deviation of 1.04, indicating a strong level of spelling proficiency and more consistent performance among students. The narrower distribution of scores suggests a relatively uniform skill level across the group, which may influence the extent of observable improvement following the intervention.

These observations are consistent with the findings of Breadmore and Deacon (2018), who noted that children's accuracy in spelling under various circumstances, as well as the nature of the spelling errors they commit, provides valuable insight into their developmental stage in spelling. Supporting this perspective, Darch, Eaves, Crowe, Simmons, and Conniff (2006) found that rule-based spelling instruction yields moderate to large effects on student performance, particularly when measured through unit and transfer assessments.

Incorporating audio-visual strategies also enhances the learning experience. Noira (2025) emphasized that using audio and visual tools helps students form stronger mental connections, making learning not only easier but also more interactive and engaging. Likewise, Budiman et al. (2020) demonstrated that using audio tools – such as songs – in classroom instruction increases student motivation and comprehension. Their study further concluded that integrating song media into spelling lessons enhances teacher creativity and boosts elementary students' English learning outcomes.

These findings align well with the principles of the multimedia learning theory developed by Richard E. Mayer in 1997. The theory emphasizes the effectiveness of combining visual and verbal instructional materials, asserting that students learn more efficiently from words and pictures together than from words alone. This theory supports the design of tools such as the "Listen it, Type it" application, which aids spelling acquisition through the use of audio pronunciation and visual hint images. According to Mayer (1997), when learners encounter content that utilizes both working memory channels – visual and auditory – it allows them to generate meaning, connect new information with prior knowledge, and improve long-term retention. This dual-modality approach supports spelling accuracy and reinforces language learning.

In support of Mayer's theory, Ramlatchan (2019) also affirmed that illustrations combined with text can significantly improve learning outcomes. He argued that educational materials that allow learners to see animated visuals while simultaneously hearing corresponding audio narration produce the most effective results. In contrast, treatments using narration alone or animation without audio were found to be less impactful.

Following the use of the "Listen and Write" audio-visual learning application, both schools demonstrated substantial gains in spelling proficiency. In School 1, the posttest mean score rose to 8.67 with a standard deviation of 1.45, reflecting clear improvement from the initial pretest score. The decrease in variability suggests the intervention had a balanced impact across students with different skill levels. Meanwhile, School 2 achieved an even higher posttest mean of 9.60 and a lower standard deviation of 0.72, indicating consistent improvements across learners.

Statistical analysis further confirmed the significance of these results. For School 1, the t-statistic of -11.0604 exceeded the critical value of 2.0452, and the p-value of 0.000 indicated that the improvement was highly significant. Similarly, School 2 yielded a t-statistic of -8.3426, also demonstrating a significant improvement at the 0.05 level. These outcomes reinforce the conclusion that "Listen and Write" effectively enhanced students' spelling performance.

These results also support the claim of Javillo (2023), who stressed the role of interactive strategies – such as those found in digital learning tools – in maintaining student engagement and improving academic outcomes. The "Listen and Write" application exemplifies this through its integration of audio-visual features that hold students' attention while reinforcing correct spelling patterns.

Before the implementation of the researcher-developed application "Spell it, Write," both schools showed moderate spelling proficiency. School 1 had a pretest mean of 5.70 and a standard deviation of 2.26, while School 2 had a mean of 6.20 and a standard deviation of 0.81, suggesting slightly more consistent performance. After using "Spell it, Write," both schools showed substantial improvement. School 1's posttest mean rose to 9.07 (SD = 1.08), and School 2's to 9.13 (SD = 0.73), indicating high levels of spelling proficiency and greater performance consistency.

This improvement was also validated statistically. School 1 recorded a t-statistic of -9.9819, and School 2 recorded -15.8317, both exceeding the critical value of 2.0452, with p-values of 0.000. These results confirm that the "Spell it, Write" application was highly effective in enhancing students' spelling skills.

Furthermore, the findings align with those of Bliss, Skinner, McCallum, Saecker, Rowland-Bryant, and Brown (2010), who concluded that technology-based interventions that utilize audio input and interactive features contribute to sustained improvements in spelling proficiency.

Although both applications – "Listen and Write" and "Spell it, Write" – proved effective, comparative analysis revealed that "Spell it, Write" delivered more consistent results across both schools. While School 2 students using "Listen and Write" achieved a high mean of 8.60 with a standard deviation of 0.89, students from School 1 had a wider spread of performance with a mean of 6.94 and a standard deviation of 2.17. This variation suggests that "Listen and Write" may have been more beneficial to some students than others, depending on individual learning differences.

In contrast, the "Spell it, Write" application produced uniformly high results. Both schools recorded an identical mean score of 7.67, but School 2 displayed greater consistency with a standard deviation of 0.77 compared to School 1's 1.77. This suggests that the structured, rule-based, and interactive nature of "Spell it, Write" supported various learning styles and contributed to a more equitable improvement among all students.

In conclusion, while both digital applications positively impacted spelling proficiency, "Spell it, Write" emerged as the more effective tool overall due to its consistent results and lower variability. These findings highlight the significant potential of well-designed, interactive educational technology to support literacy development. Moreover, the consistent gains across diverse student groups point to the value of using inclusive digital tools that accommodate different learning needs and promote equitable academic outcomes.

5. Conclusions

This study aimed to evaluate the effectiveness of two audio-visual learning applications, "Listen and Write" and "Spell it, Write", in enhancing the spelling skills of Grade 7 students from two public secondary schools. Specifically, the study sought to address the following research questions: (1) What is the level of students' spelling skills before the utilization of "Listen and Write"? (2) What is the level of students' spelling skills after the utilization of "Listen and Write"? (3) Is there a significant difference in students' spelling skills before and after the utilization of "Listen and Write"? (4) Based on the assessment results, what application can be developed to further improve students' spelling skills? (5) What is the level of students' spelling skills before the utilization of "Spell it, Write"? (6) What is the level of students' spelling skills after the utilization of "Spell it, Write"? and (7) Is there a significant difference in students' spelling skills before and after the utilization of "Spell it, Write"?

The study employed a quasi-experimental research design, consisting of a pre-survey, pre-test, a four-week intervention for each learning application, and a post-test conducted in two public secondary schools. The research objectives included assessing students' baseline spelling proficiency, developing a learning application to enhance these skills, measuring the effectiveness of the interventions through post-test results, and identifying significant differences in spelling performance before and after each application was implemented.

A total of sixty Grade 7 students participated in the study—thirty students from one section in School 1 and thirty from one section in School 2. Participant selection was informed by the school head teacher's records, which highlighted these students' prior challenges with spelling performance.

Initial findings indicated that students struggled with spelling, often due to mispronunciation and the limitations of conventional instructional methods. The implementation of the "Listen and Write" application, which combines auditory and visual learning modalities, led to marked improvements in students' spelling skills. Subsequently, the researchers introduced a newly developed and enhanced application, "Spell it, Write", which featured improved functionalities based on the results of the first intervention. The second intervention yielded even greater improvements in spelling proficiency.

Comparative analysis of pre-test and post-test scores for both applications revealed significant progress, and results from paired t-tests confirmed statistically significant differences in performance before and after the interventions. These outcomes affirm the effectiveness of the applications.

The findings demonstrate that "Listen and Write" is an effective tool for improving students' spelling abilities. However, the enhanced version, "Spell it, Write", proved to be even more impactful, delivering more consistent and substantial gains in students' spelling proficiency. These results underscore the value of integrating interactive, audio-visual learning applications into language instruction to support literacy development in secondary education.

Supplementary Materials & Data availability statement: The supporting information for the "Listen and Write" audio-visual learning application, which is relevant to the research findings, can be accessed and downloaded from the following link: Google Play Store – "Listen and Write."

Author Contributions: The contributions of each author are outlined as follows: Shaira Mae G. Lara, Lhaica Lowriez R. Alfante, Jana Francine E. Miranda, Aira Q. Mendoza, and Rachelle D. Reluya were responsible for writing and editing the introduction, abstract, and discussion, as well as conducting software implementation, data validation and voice recording for application development. Ms. Jovelle M. Reyes provided significant contributions through main concept, content revision, editing, and voice recording, while Rose Nannette San Juan served as the statistician, focusing on the analysis of the results and research findings.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the ethical standards established by Laguna University, with approval number LU-IRB-2023-06, granted on June 10, 2023.

Informed Consent Statement: Informed consent was obtained from all participants and schools, ensuring they were fully briefed on the research objectives before agreeing to take part in the study.

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Conflicts of Interest: The authors declare no conflicts of interest regarding the publication of this paper.

Appendix A

Figure A1. The succeeding levels of spelling difficulty in "Listen and Write." The researchers allow the students to use only three (3) succeeding levels such as easy, medium and hard.

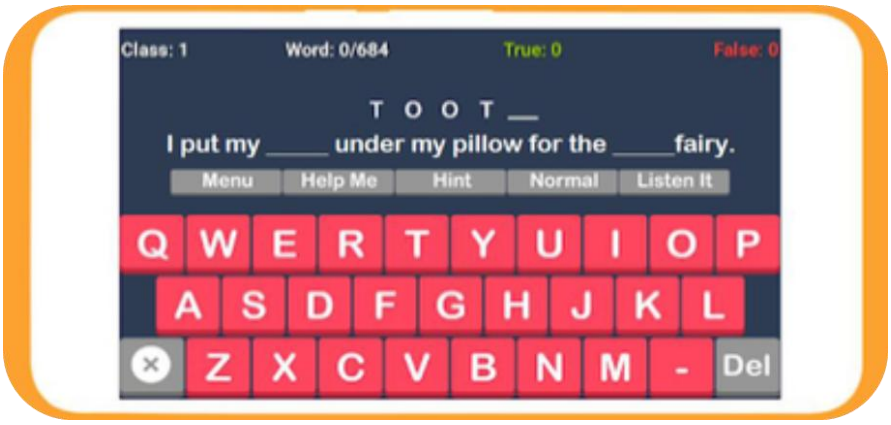


Figure A2. The incomplete sentence and pace of pronunciation provided by "Listen and Write." It allows the user to listen to the pronunciation of the word according to the preferred pace of delivery. Additionally, it provides an incomplete sentence to help the user figure out the word to spell.

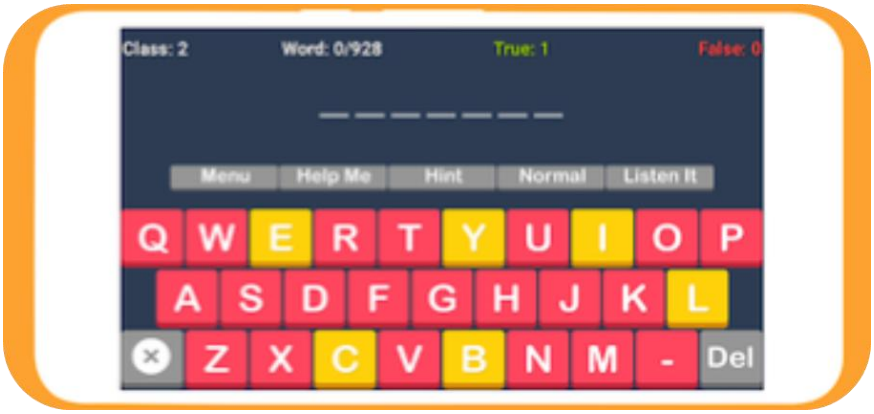


Figure A3. The hint highlighted in "Listen and Write." It highlights the letters that compose the right spelling of the word to help the students who are having difficulty spelling a word.

Key Features of "Listen and Write"

a. Extensive Vocabulary: Explore a vast collection of over 1600 spellings meticulously curated to cater to a wide spectrum of language learners. These spellings are thoughtfully grouped into categories, ranging from beginner-friendly to difficult level, ensuring a progressive learning journey.

b. Contextual learning. Each spelling is accompanied by a well-constructed sentence example, facilitating a deeper understanding of how the word is used in practical contexts. This contextual learning approach empowers users to grasp nuances and nuances of word usage.

c. Audio guidance. Enhance pronunciation and listening skills with the option to listen to the correct spelling pronunciation. This auditory component further solidifies language learning experience, making it immersive and effective.

d. User-friendly design. It boasts an intuitive and user-friendly design that caters to learners of all ages. Navigating through categories, ensuring a seamless learning process.

Innovative Learning Tools

a. Hint feature, When stuck on a tricky spelling, it is useful to utilize the hint feature to identify the letters present in the word, guiding the user towards successful completion.

b. Help option. If struggling with a particular spelling, the help option provides the correct answer, allowing the user to proceed and continue the learning journey.

c. Customizable keyboard. Tailor learning experience by toggling between small and capital letters on the keyboard, adapting the app to individual preferences.

d. Offline access. It can be used both online and offline, granting users the flexibility to practice English vocabulary skills anytime, anywhere.

This learning application aims to enhance English listening and writing skills while having an enjoyable experience. It is a language learning application designed to elevate proficiency in English vocabulary through daily practice. With a diverse range of words spanning from 4 to 10 letters, this app offers an engaging way to enrich language skills, making it a delightful choice for enthusiasts of word games and spelling challenges

Appendix B.

The description of "Spell it, Write"

Figure B1. Multi-user functionality: students, teachers, and guests. It can be used by a student, teacher, or a guest.

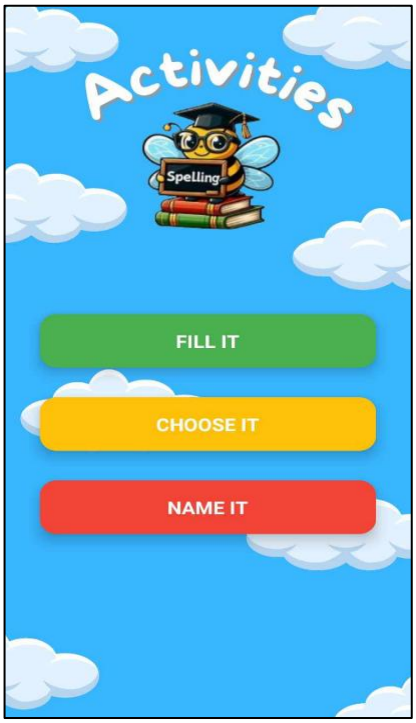
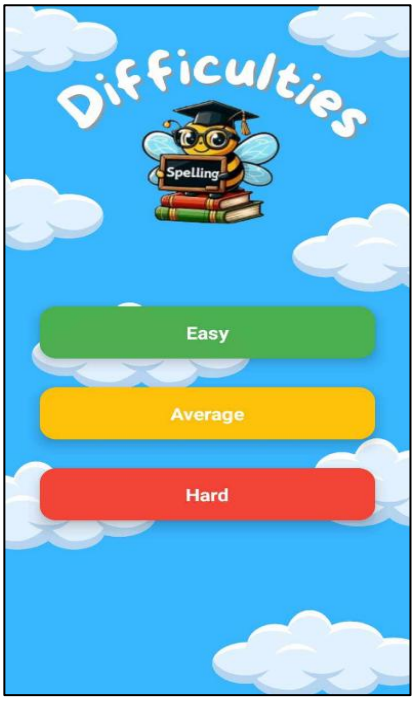


Figure B2. Interactive learning modes: Fill It, Choose It, and Name It. It has 3 modes to choose from: fill it, choose it, and name it.



FigureB3. Adaptive challenge levels: Easy, Average, Hard. It has 3 levels of difficulty: easy, average, and hard.

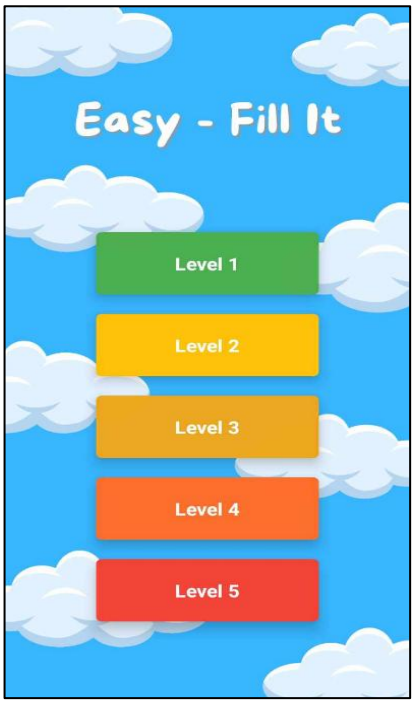


Figure B4. Five-level structure for guest users in each mode. Each mode has five levels for guest users.

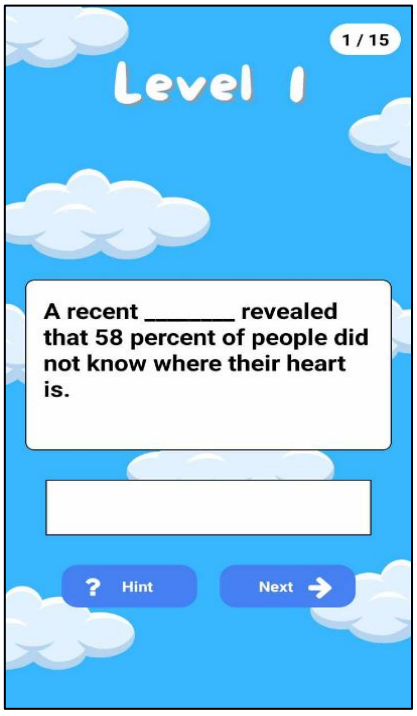


Figure B5. Mode 1: Fill In. In "fill in", it provides pronunciation of the word. It also provides an incomplete sentence for easy word identification.

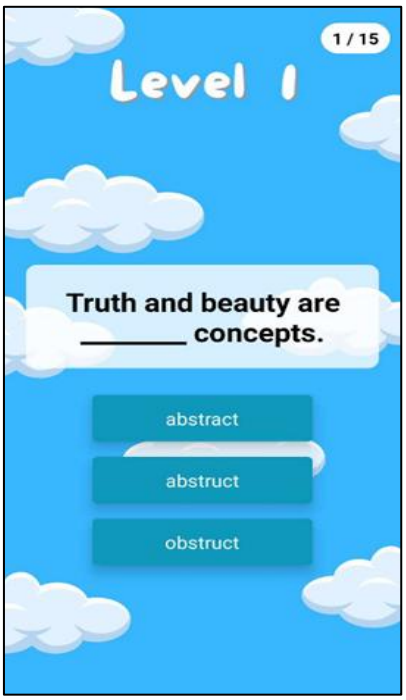


Figure B6. Choose It. In "choose it", it provides pronunciation of the word. It also provides 3 choices of words in completing the sentence.

Figure B7. Name It. In "name it", it provides prounciation of the word to identify name of the illustration

Figure B8. Registered users log in using their email and password. When the user has an account already, it requires the email and password for logging in.

Figure B9. Teachers can create quizzes, view them, and access student records. The teacher has the ability to create a quiz, view them, and visit the student records.

Key Features of "Spell it, Write"

a. Extensive vocabulary. Explore a vast collection of over 500 words, aligned with Department of Education, Most Essential Learning Competencies (MELCs) meticulously curated to cater to a wide spectrum of language learners. These spellings are thoughtfully grouped into categories, ranging from easy to hard level, ensuring a progressive learning journey.

b. Contextual learning. Each spelling is accompanied by a well-constructed sentence example, facilitating a deeper understanding of how the word is used in practical contexts. This contextual learning approach empowers users to grasp nuances and nuances of word

usage.

c. Audio guidance. Enhance pronunciation and listening skills with the option to listen to the correct spelling pronunciation. This auditory component further solidifies language learning experience, making it immersive and effective.

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References

Altamimi, D., & Rashid, R. A. (2019). Spelling Problems and Causes among Saudi English Language Undergraduates. *Arab World English Journal, 10*(3) 178- 191. DOI: https://dx.doi.org/10.24093/awej/vol10no3.12

Bin-Hady, W. R. A. (2021). The role of games in enhancing EFL students' vocabulary acquisition. *Journal of the faculty of Education, 1*(17, 48-58. DOI:10.60037/edu.v1i17.1178

Bliss, S.L., Skinner, C.H., McCallum, E., Saecker, L. B., Rowland-Bryant, E., & Brown, K. S. (2010). A Comparison of Taped Problems With and Without a Brief Post-Treatment Assessment on Multiplication Fluency. *Journal of Behavioral Education, 19*, 156–168. https://doi.org/10.1007/s10864-010-9106-5

Booton, S. A., Hodgkiss, A., & Murphy, V. A. (2021). The impact of mobile application features on children's language and literacy learning: a systematic review. *Computer Assisted Language Learning, 36*(3), 400–429. https://doi.org/10.1080/09588221.2021.1930057

Breadmore, H. L., & Deacon, S. H. (2018). Morphological Processing Before and During Children's Spelling. *Scientific Studies of Reading, 23*(2), 178–191. https://doi.org/10.1080/10888438.2018.1499745

Budiman, M. A., Widyaningrum, A., & Azizah, M. (2020). Improving spelling learning in primary school age through songs. *Jurnal Ilmiah Sekolah Dasar, 4*(4), 614-620. https://ejournal.undiksha.ac.id/index.php/JISD/article/view/28584/17428

Cabual, R.A. (2021) Learning Styles and Preferred Learning Modalities in the New Normal. *Open Access Library Journal, 8*, 1-14. DOI: 10.4236/oalib.1107305

Da Costa, P. T., & Arias, F. R. (2021). A case study on the use of spelling as a determining factor in teaching English grammar in Dominican schools: monograph. https://eric.ed.gov/?id=ED610509

Darch, C., Eaves, R. C., Crowe, A., Simmons, K., & Conniff, A. (2006). Teaching spelling to students with learning disabilities: A comparison of rule-based strategies versus traditional instruction. *Journal of Direct Instruction, 6*(1), 1–16.

Galuschka, K., Görgen, R., Kalmar, J., Haberstroh, S., Schmalz, X., & Schulte-Körne, G. (2020). Effectiveness of spelling interventions for learners with dyslexia: A meta-analysis and systematic review. *Educational Psychologist, 55*(1), 1–20. https://doi.org/10.1080/00461520.2019.1659794

Javillo, E. J. (2023). Game-based teaching strategy on learning spelling of Grade 3-Masayahin of Sevilla Elementary School. *Amburayan Research Journal, 1*(1), 87-95. https://www.amburayanresearchjournal.xyz/index.php/arj/article/view/15/9

Khasanah, U., & As Sabiq, A. H. (2020). Dealing with students' pronunciation: The "spelling bee" effect. *Journal of English Teaching, 8*(1), 101-114. https://jurnal.unipasby.ac.id/index.php/jet/article/view/2001

Lee, V. L., & Pegler, A. M. (1982). Effects on spelling of training children to read. *Journal of the Experimental Analysis of Behavior, 37*(2), 311–322. https://doi.org/10.1901/jeab.1982.37-311

Mayer, R. E. (1997). *Multimedia learning.* Cambridge University Press.

Nazli, N. N. N., Hasan, N. N. A., Hizam, S. M., & Abdullah, A. S. (2022). Theory of training effectiveness evaluation by Kirkpatrick background of theory. In *The Handbook For Management Theories*. ABRN Asia Publication.

Nguyen, H. T. N., Pham, T. U., & Phan, T. M. U. (2020). Difficulties in writing essays of English majored sophomores at Tay Do University, Vietnam. *European Journal of English Language and Teaching, 6*(2). http://dx.doi.org/10.46827/ejel.v6i2.3518

Noira , Y. (2025). Aspects Of Using The "Spelling Audio Dictionary" In Teaching English To Visually Impaired Students. *Collection Of Scientific Papers "Scientia",* 127–128. https://previous.scientia.report/index.php/archive/article/view/2440

Ramlatchan, M. (2019). Chapter 3: Multimedia learning theory and instructional message design. *Instructional Message Design, 1*, 10. https://digitalcommons.odu.edu/instructional_message_design/10

Santos, E. E., Cahapay, M. B., & Castro, R. D. (2020). Difficulties in remote learning: Voices of Philippine university students in the wake of COVID-19 crisis. *Asian Journal of Distance Education, 15*(2), 147-158. https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/504/324

Sultani, N. A., & Himat, A. N. (2020). Impacts of spelling problems on EFL students' writing skill at Kandahar University, Kandahar, Afghanistan. *European Journal of Education Studies, 8*(4), 22-39. https://doi.org/10.46827/ejes.v8i4.3668