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The Effectiveness of Wordwall in Improving Pronunciation, Stress Placement, and Intonation for B2-Level English Psychology Students: An Experimental Case Study at a Georgian University

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Abstract

This paper focuses on examining the effectiveness of the Wordwall online game application in improving pronunciation, stress placement, and intonation for B2-level English for Psychology students. An experimental approach using quantitative methods was employed to gather statistically reliable data. Sixty Georgian university students participated, with 30 in the experimental group (using Wordwall) and 30 in the control group (using traditional methods). Students recorded 10 challenging words using smartphones and computers and submitted them to the researcher before and after a semester of learning. The recordings were evaluated using a rubric, and data were analyzed with SPSS 24.00. Statistical analysis, using the Wilcoxon Signed-Rank and Mann-Whitney U Test, showed significant improvements in pronunciation and intonation in the experimental group (p-value < 0.05). Positive feedback from students highlighted Wordwall's effectiveness. The findings suggest that game-based learning is a valuable tool for improving language skills.

Keywords: Psychology Students, Wordwall, Pronunciation, Stress Placement, Intonation, Improvement

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Introduction

Kelly (1969, p.87), as cited by Sharma (2021, p. 68), referred to pronunciation as the ***"Cinderella of language teaching,"*** highlighting how it often gets overlooked despite its importance. Even though this quote is from a while ago, it remains highly relevant today.

Effective communication is essential in all professional fields. Mastery of English as a foreign language not only opens doors to academic and professional opportunities but also facilitates meaningful interactions in a globalized world. According to Ahmad (2016), as cited by Ambarwati and Mandasari (2020), proficiency in a language, particularly in English as a foreign language, offers significant advantages across numerous domains. Furthermore, English as a lingua Franca necessitates effective English communication, engaging in contextual learning, and consistent practice.
Fraser (2000, p.7), as cited by Afshari and Ketabi (2017, p. 84), argues that:

> *"Being able to speak English involves various skills such as vocabulary, grammar, and pragmatics.*
> *However, pronunciation plays a key role in communication. If a speaker has poor pronunciation, it may make it difficult to understand, even if other aspects of language are correct.*
> *This is why pronunciation is often the most important skill in language assessment."*

As Kobilova (2022) cited, one of the most fundamental yet often challenging aspects of effective communication is pronunciation. Pronunciation plays a significant role in ensuring clarity and comprehension in spoken interactions. Inaccurate pronunciations can lead to misunderstandings, even if their grammar is perfect, especially in professional context, where precise articulation is crucial. For **English for Specific Purposes** (ESP) students, particularly those studying psychology, accurate pronunciation is pivotal, as their professional interactions often demand clarity and credibility to avoid negative performance in the workplace (Pennington, 2021). Despite its significance in English acquisition, pronunciation still remains one of the challenging components in developing verbal skills (Berry, 2021). Traditional teaching methods have proven inadequate for helping students grasp key terms and achieve meaningful learning. Prenksy (2001), as cited by Kayan and Aydin (2020), explains that the main issue is the gap in language and understanding between educators, referred to as "digital immigrants," and students, known as "digital natives." In other words, using traditional teaching methods for students who are immersed in technology has not been effective in achieving the desired outcomes (Ping & Tao, 2025).

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However, this gap requires innovative and more interactive tools to make pronunciation practice more effective.

This research focuses on Wordwall, an online game application for enhancing English pronunciation among ESP psychology students. By exploring students' perceptions of its use, the study aims to shed light on the potential of learning via online game applications to address pronunciation challenges in a professional ESP context.

Research Questions

1. To what extent does the use of the Wordwall online game application improve the **accuracy of stress placement** in B2-level English for Psychology students compared to traditional methods?
2. How does the use of the Wordwall online game application impact the **development of intonation** in B2–level English for Psychology students compared to traditional methods?

Research Objectives

- To examine the impact of the Wordwall online game application on the **accuracy of stress placement** in B2-level English for Psychology students compared to traditional methods.
- To assess how the use of the Wordwall online game application influences the **development of intonation** in B2-level English for Psychology students compared to traditional methods.

1.1. Novelty of the Research

The researcher focused on implementing online game applications to enhance pronunciation skills in English language learning. Despite the wide availability of online language tools, their potential for educational use has largely remained underutilized by English lecturers, particularly for English for ESP (psychology) purposes.

Since students are attached to smartphones, this presents a valuable learning opportunity rather than an obstacle. As Vazquez (2014), cited by Haryadi Haryadi and Aprianoto (2020), notes, contemporary gadgets can be used for productive learning. However, some conservative lecturers are unable to take advantage of this opportunity. As a result, pronunciation instruction often remains repetitive and fails to enhance students' engagement and learning awareness.

The researcher aims to introduce innovative approaches to pronunciation instruction as a novel solution to overcome its traditionally monotonous nature. This initiative seeks not only to foster greater student engagement and learning awareness but also to boost students' confidence in their pronunciation skills.

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Literature Review

2.1. The Definition of Pronunciation

"Pronunciation is the process of producing comprehensible sound by articulating speech organs such as lips, teeth, lungs, vocal tracts, and tongue. To pronounce words, we push air from our lungs up through our throat and vocal cords, through our mouth, past our tongue, and out between our teeth and lips" (2020, p. 427). According to Gilakjani (2012), pronunciation involves producing sounds to convey meaning, including individual sounds (segments) and suprasegmental features like intonation, stress, rhythm, and voice quality. It also encompasses gestures and expressions related to speech. These aspects work together when speaking and are best learned as part of the whole language. Pennington and Rogerson-Revell (2019, p. 1) define pronunciation as the "foundation of messaging in speech- through articulating words and their combinations in grammatical and discourse units and through projecting multiple facets of social and contextual meaning." According to Harmer (2007), as cited by Gilakjani and Sabouri (2016), pronunciation refers to how the sounds of a language are produced, the placement of word and sentence stress, and the use of pitch and intonation to convey emotions and meaning.

2.2. The Significance of Pronunciation in ESP (Psychology) Context

According to Krashen and Terrell (1983) and Scovel (1988), as cited by Demenko et al. (2010), for many years, the main focus in English language learning was primarily on grammar and vocabulary rather than pronunciation. Moreover, limited attention has been given to suprasegmental features, such as stress and intonation, which are also crucial components of effective pronunciation (2024). On the one hand, it was believed that working on pronunciation had little or no effect. On the other hand, teachers might not focus on teaching pronunciation because it is difficult to assess or evaluate how well students pronounce words. Additionally, this difficulty in assessment could indicate that teachers lack proper training or expertise in how to effectively teach and evaluate pronunciation (Almusharraf, 2024). However, tendencies and approaches in English learning have changed, leading to a growing interest in the study and instruction of pronunciation. Pronunciation has become a cornerstone of clear communication; ensuring ideas are conveyed and understood without ambiguity (Mir & Afsar, 2024). Its role is so significant that Caisaguano Tigasi (2024) refers to pronunciation as the "backbone" of the English language. According to Shankar (2008), as cited by Kosasih (2021), clear pronunciation ensures the speaker is easily understood and keeps the listener engaged. Poor pronunciation, by contrast, can cause confusion and misunderstandings, even when the speaker uses advanced grammar or vocabulary. Yoshida (2016), as cited by Fernández et

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al. (2024, p. 69), holds the same view, claiming that "even if students' grammar and vocabulary are strong, if their pronunciation is not easy to understand, their communication will fail.' There is limited research on improving psychology students' pronunciation skills, yet this area is crucial for their future careers. As effective communication is essential in psychology-whether through interviews, therapy sessions, or professional presentations-developing clear and confident pronunciation can significantly impact their ability to engage with clients, colleagues, and audiences. It also helps them transmit information correctly and avoid misunderstanding (Qobilovna, 2024).

2.3. Pronunciation Challenges Faced by ESP learners

Teaching pronunciation is complex due to several factors. First, different languages have unique sounds that can be difficult to master. For instance, the English language contains fricative sounds like /θ/ (as in "think") and /ð/ (as in "this") that are not present in many other languages. Learners unfamiliar with these sounds may struggle to produce them accurately. A study by Mada (2025) showed that students often replace these sounds with /d/, /t/, or /s/, highlighting the challenge of mastering non-native sounds.

Another complication is that every learner is different, and individuals may face unique struggles when learning pronunciation. Additionally, a learner's native language can influence how they pronounce words in a new language (Tiwari, 2024).

Age is another factor that complicates pronunciation instructions. According to Nation and Newton (2009) and Loewenthal and Bull (1984), as cited by Barboura and Grazib (2025), younger learners have a biological advantage over adults, suggesting that language learning is most effective before puberty. In line with this view, learners who begin after puberty are less likely to achieve accurate pronunciation compared to those who start at a younger age.

Moreover, previous studies indicate that gender might affect the path of pronunciation learning, as there are differences in learning strategies and how learners engage with feedback. For instance, Jahandar et al. (2012) and Hariri (2012) argue that gender has little impact on L2 pronunciation, though females tend to perform better than males. However, Khamkhein (2010) discovered that females outperformed males in identifying word stress, implying that gender differences may vary depending on the specific linguistic tasks (Moxon, 2024).

In addition, scholars argue that teachers' accent directly influence students' pronunciation. When a teacher has a clear accent, students may adopt it as models. They often imitate the teacher's speech patterns, stress, and intonation, which positively impact their pronunciation outcomes (Tsang,

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2025). These factors highlight the need for tailored teacher training, curriculum adjustments, and resource development (Tiwari, 2024).
Spoken language relies on both segmental and suprasegmental features. Segmental features involve individual sounds, such as consonants and vowels, while suprasegmental features include elements like stress, pitch, intonation, and pauses (Tolibovna, Importance of Teaching the Pronunciation of Suprasegmental Features of English, 2023).

There are some components connected to proper pronunciation, which is given below:

Component	Description
Segmental Features	Individual sounds like vowels and consonants, Word stress, and blending
Suprasegmental Features	Intonation, stress patterns, and rhythm
Pitch	Refers to frequency of a sound, or how high or low a voice sounds

Created by the researcher

Intonation is an important suprasegmental, or prosodic, feature of English pronunciation, referring to the variation in the voice pitch as it rises and falls during speech (Islam, 2020).

According to Nuhiu (2002, p.130), as cited by Toçi (2020, p. 117), "stress refers to the degree of prominence that a syllable has." Ladefoged and Johnson (2014, p. 119), as cited by Sa'di et al. (2022, p. 81), explain that "a stressed syllable is usually produced by pushing more air out of the lungs in one syllable relative to the other… A stressed syllable thus has greater respiratory energy than neighboring unstressed syllable." The rhythm of speech is influenced by the way certain syllables in words and certain words in sentences are stressed (i.e., given more emphasis). Stress refers to how some parts of a word or sentence are pronounced more strongly than others. Intonation, on the other hand, involves the rise and fall of pitch in speech and plays a key role in conveying speaker's intentions, emotions, and focus. In English, how speakers stress certain syllables and use pitch can significantly alter the interpretation of a sentence (Al-Asi, 2024).

Pitch, a fundamental component of speech prosody, refers to the perceived frequency of a sound, how high or low a voice sounds (Hirst & de Looze, 2021). Crystal (2003), as cited in the literature, defines pitch as "the attribute of auditory sensation in terms of which a sound may be ordered on a scale from low to high."

Mastery of both segmental and suprasegmental features of pronunciation poses challenges for learners. Nonetheless, focusing on pronunciation remains essential for clear and effective oral communication (Tolibovna, 2023).

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To address these challenges, educators are continually seeking creative strategies to enhance pronunciation instruction. Tejedor-García et al. (2020) emphasize that one of the core reasons for incorporating online game applications into educational settings is their ability to engage and motivate students. These games address both segmental pronunciations, such as vowels and consonant articulation, and suprasegmental features like stress and intonation. Many online game applications now integrate advanced speech recognition technologies, offering real-time audio and visual feedback. When applied within appropriate pedagogical frameworks, these tools significantly contribute to the development of pronunciation skills.

Using online game applications has proven to be an effective approach, making pronunciation learning more enjoyable and boosting students' confidence in speaking (Sevara & Dilrabo, 2024). Several online game applications have been used in teaching with positive outcomes. One of which is Wordwall.

1.4. Wordwall: Features and Applications in Language Education

Wordwall is a widely used online game application known for its interactivity and engaging approach to learning. It offers various features, including text-to-speech, speech recognition, and pronunciation exercises, all designed to improve oral proficiency. Furthermore, it creates a vibrant classroom atmosphere, replacing monotonous and boring lessons, particularly in pronunciation learning (Rosyida, 2024). When implemented effectively, the role of the teacher shifts from a traditional evaluator to that of a "speech coach. This shift allows educators to provide constructive and motivational feedback, which can be especially beneficial for ESP learners working to improve their pronunciation" (Warchol, 2020, p. 163).

According to Purwitasari (2022), students can use the Wordwall game by following these steps:

1. Open the link shared by the teacher, enter their name, and start the quiz.
2. Click "start" to begin the game.
3. Tap each box to reveal the item inside and listen to the particular word or the whole sentence.
4. Select the correct answer.
5. Check the score and timer, and if desired or required, click "start" to try again

Dwiningrum et al. (2024) note that Wordwall provides a user-friendly interface, comprehensive features, and a high-quality platform. Its straightforward menu design allows for seamless navigation. Beyond linguistic outcomes, Wordwall also promotes emotional and cognitive development. As long as learners find the activity enjoyable, they remain

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engaged. In contrast, boredom can diminish participation and retention. Rather than being a distraction, interactive games like Wordwall offer learners the opportunity to develop real-word skills, identify their strengths and weaknesses, and enhance cognitive flexibility. According to Fazaa (2024), Wordwall supports holistic development- emotional, intellectual, creative, and social.

Methodology

In recent years, the importance of innovative teaching methods in education has grown significantly. For instance, a study by Qadriani et al. (2025) demonstrated that interactive games, particularly through online game applications, substantially improve the learning process compared to traditional lectures. Similarly, Nurastanti and Ratnaningrum (2025) highlight that game-based learning enhances students' motivation and engagement. However, there is limited research specifically assessing improvements in suprasegmental features such as stress placement and intonation. The study focused on the following components: 1) stress placement, 2) intonation improvement, and 3) their overall impact on pronunciation. Furthermore, the study explored how integrating online games into the learning process affects student motivation and engagement.

The experimental design included two groups: an experimental group using an online game application and a control group following traditional instruction. In this experiment, both the experimental and control group (B2–level English for psychology students) recorded 10 challenging words via their smartphone or computer and submitted them to the researcher. These words included terms such as schizophrenia, disequilibrium, and amnesia. The recordings were evaluated using a standardized pronunciation rubric. The experimental group used the Wordwall online game application, which emphasized pronunciation practice, particularly suprasegmental features like word stress and intonation using psychology terms, through content-specific questions (e.g., "what is the main characteristic of **schizophrenia?'**). The platform allowed students to listen to a native speaker model for correct pronunciation. The control group received instructions using the same word list, but through conventional teaching.

This study builds upon an earlier experiment conducted as part of the researcher's PhD dissertation, which investigated how the online game application Wordwall can enhance pronunciation skills in psychology students

3.1. Participants

The study involved a sample of 60 Georgian ESP psychology students from two university classes. Participants included both male and female

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students, aged 18-24, with a mean age of 22. All were studying English for psychology at the university level and had not received any formal instruction in pronunciation at external language institutes. Participant selection was based on a language placement test confirming B2 proficiency.

3.1. Sampling Technique

A purposive sampling technique was employed to select participants based on their enrollment in an English language course and their B2 proficiency level. This approach ensured the participants were relevant to the research objectives, as they were already studying English in a specific academic context (psychology).

3.2. Data Collection

Participants recorded 10 challenging words using smartphones or computers, both at the beginning and end of the semester. Recordings were submitted to the researcher and evaluated using a rubric focused on three criteria: pronunciation, stress placement, and intonation.

3.3. Data Analysis

Data were analyzed using SPSS 24.00, employing non-statistical tests such as the Wilcoxon Signed-Rank Test and the Mann-Whitney U Test to evaluate improvements in pronunciation and intonation.

3.4. Results

The results compared pronunciation improvements in the experimental and control groups using the same assessment rubric.

The Shapiro-Wilk Test was conducted to assess the normality of data distribution, which is particularly appropriate for small sizes ($n<50$). The test indicated non-normal data distribution ($p\text{-value}<0.05$) for four key variables: stress and intonation accuracy before and after training.

Statistical Tests: Given the non-normal data, non-parametric tests like Wilcoxon Signed-Rank Test and Mann-Whitney U Test were used for analysis.

1. **Wilcoxon Signed-Rank Test:** This test revealed statistically significant improvement in both the experimental and control groups regarding stress and intonation accuracy after training.

Stress Accuracy: In the control group, 15 out of 30 students showed improvements, while 21 out of 30 students in the experimental group improved, Including 3 students who improved by two units.

Intonation accuracy: 15 control group students showed improvement, while 22 in the experimental group showed improvement, with 7 students improving by two units.

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2. **Mann-Whitney U Test:** Results confirmed significant differences between the experimental and control group across all variables (p-value <0.05), indicating that the experimental group (using online game apps) performed significantly better.

Additionally, qualitative feedback indicated that 21 students in the experimental group rated Wordwall as effective or highly effective for improving their pronunciation and intonation.

These findings suggests that online game applications, particularly Wordwall, significantly enhanced students' pronunciation and intonation skills. Results confirm that game-based learning is an effective method for improving language accuracy.

Data Description

The dataset includes 8 variables:

- Group: 1= Control group; 2= Experimental group
- Age, Gender: Demographic characteristics
- A1.1, A1.2 variables: Stress Score (Pre and Post)
- A2.1, A2.2 variables: Intonation Score (Pre and Post)
- A2.3 variables: The impact of the immediate feedback system from the online game Wordwall on students' learning outcomes.

2.2 Tests Used

2.2.1. Normality Testing

The results of the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality are presented in **Table 1** below. To assess the normality of data distribution, the Shapiro-Wilk Test was used, which is recommended for small sample sizes (n<50), as it is sensitive to deviations from normality, an important consideration for small sample sizes such as in this study. The test allows for the precise selection of subsequent statistical tests.

The Shapiro-Wilk Test was conducted for the four key variables examined in the study: 1. Accuracy of stress placement assessment (Pre and Post), and 2. Accuracy of intonation assessment (Pre and Post).

The normality test indicates that the distribution of data for all four parameters is not normal. If the null hypothesis assumes that the data are normally distributed, while the alternative hypothesis suggests that the data are not normally distributed, the Shapiro-Wilk test shows that the obtained data is not normally distributed (p-value<0.05).

The normality test was performed for the variables A1.1, A1.2, A2.1, and A2.2 in both groups (Control and Experimental).

The visual representation of the normality test is shown below.
Attention should be given to the Sig. column in the Shapiro Wilk graph, where the values for all variables are < 0.05.

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Table 1. Tests of Normality for Control and Experimental Groups in Stress and Intonation Scores

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	**Sig.**
A1.1 Stress Score - I stage	Control Group	.326	30	.000	.751	30	**.000**
	Experimental Group	.372	30	.000	.721	30	**.000**
A1.2 Stress Score - II stage	Control Group	.270	30	.000	.852	30	**.001**
	Experimental Group	.372	30	.000	.721	30	**.000**
A2.1 Intonation Score - I stage	Control Group	.412	30	.000	.669	30	**.000**
	Experimental Group	.359	30	.000	.735	30	**.000**
A2.2 Intonation Score - II stage	Control Group	.344	30	.000	.795	30	**.000**
	Experimental Group	.328	30	.000	.765	30	**.000**

2.2.2. Statistical Tests

As presented in **Table 1**, the assessment of data normality revealed that the distribution of the data did not meet the assumption of normality. Given the small sample size and the non-normal distribution, the use of non-parametric tests was recommended for further statistical analysis. Specifically, the Wilcoxon Signed-Rank Test and the Mann-Whitney U test were used to determine the reliability of differences in the data.

1. To assess the reliability of the trend of change between pre- and post-testing, the Wilcoxon Signed-Rank Test was conducted. The test revealed that, in both the control group and experimental groups, the trend of improvement in stress placement and intonation scores was statistically significant- indicating that the results changed over the course of the study and that these changes were positive.

Below are the results of the Wilcoxon Signed-Rank Test conducted for the variables A1.1 and A1.2 (for both the control and experimental groups), as well as A2.1 and A2.2 (for both control and experimental groups):

The reliability of the pre-and post-test results stress placement in the control group.

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Table 2. Wilcoxon Signed-Rank Test Results for Stress Placement and Intonation

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between Stress Score - I stage and Stress Score - II stage equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 3. The reliability of the pre- and post-test results for stress placement in the experimental group

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between Stress Score - I stage and Stress Score - II stage equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 4. The reliability of the pre- and post –test results for intonation assessment in the control group

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between Intonation Score - I stage and Intonation Score - II stage equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 5. The reliability of the pre- and post-test results for intonation assessment in the experimental group

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between Intonation Score - I stage and Intonation Score - II stage equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

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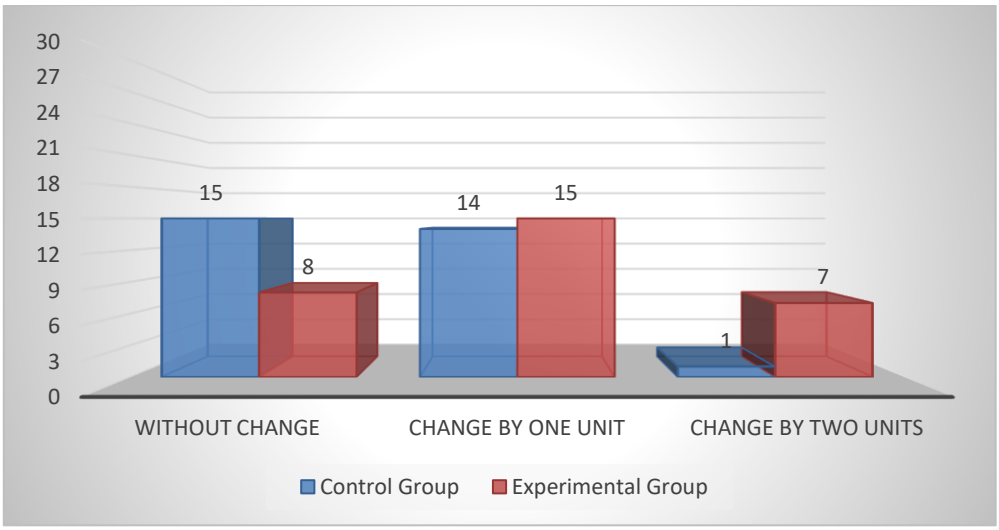
As shown in **Table 5**, the results indicate a notable difference in improvement between the two groups. In the control group, 15 out of 30 students improved their stress placement in words. In contrast, 21 out of 30 students in the experimental group, which utilized online game applications, showed improvement in stress placement. Additionally, in the group where online games were used in the learning process, three students improved their stress placement by two points, highlighting the positive impact of game-based learning on pronunciation accuracy.

Table 6. The data chart is shown below



As shown in the table above, the experimental group exhibited even greater progress in the intonation of word pronunciation. In the control group, 15 out of 30 students showed improvement in intonation following the learning process. In contrast, the experimental group witnessed 22 out of 30 students achieve the same level of improvement, meaning 22 students improved their intonation by at least one point on the assessment scale. Furthermore, the experimental group demonstrated significantly greater qualitatively improvements. While only one student in the control group showed a two-point improvement, seven students in the experimental group achieved this level of improvement, underscoring the effectiveness of using online games in pronunciation training.

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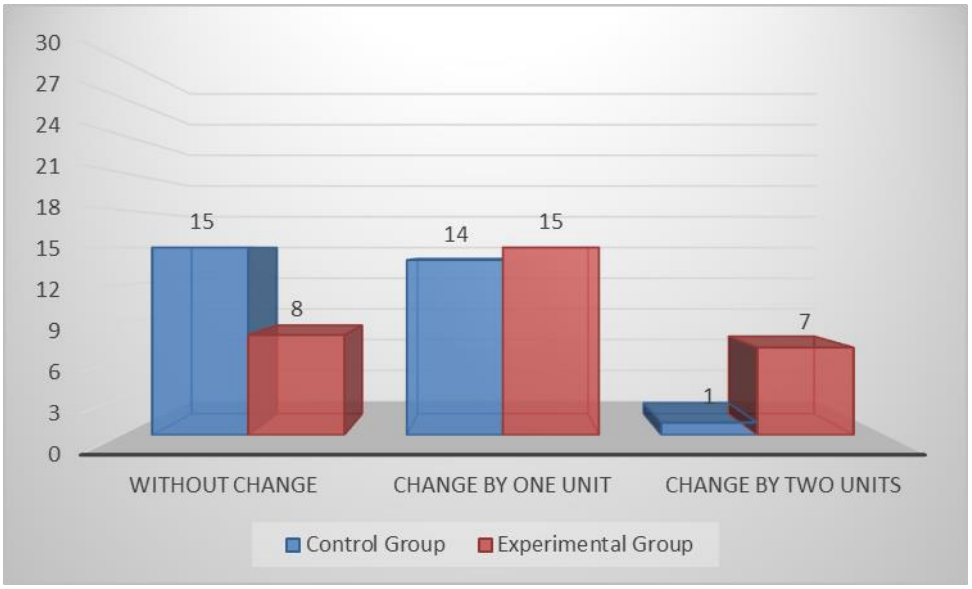
Table 7. The Chart is Shown Below



2. In the next stage of data analysis, the Mann-Whitney U Test was conducted to assess the reliability of the differences between the control and experimental group. This test aimed to determine whether the use of online games in the learning process led to better outcomes in pronunciation skills, specifically in terms of stress placement and intonation.

Table 8. Test Statistics

	A1.1 Stress Score - I stage	**A1.2 Stress Score - II stage**	**A2.1 Intonation Score - I stage**	**A2.2 Intonation Score - II stage**
Mann-Whitney U	300.000	222.000	275.000	160.500
Wilcoxon W	765.000	687.000	740.000	625.500
Z	-2.594	-3.697	-3.104	-4.611
Asymp. Sig. (2-tailed)	**.009**	**.000**	**.002**	**.000**

a. Grouping Variable: Group

The results of the comparison test show that there are significant differences between the control and experimental groups across all variables (A1.1, A1.2, A2.1, A2.2), with a p-value <0.05 in all cases. This indicates that the results achieved in the experimental group (game-based learning) are significantly better compared to the control group.

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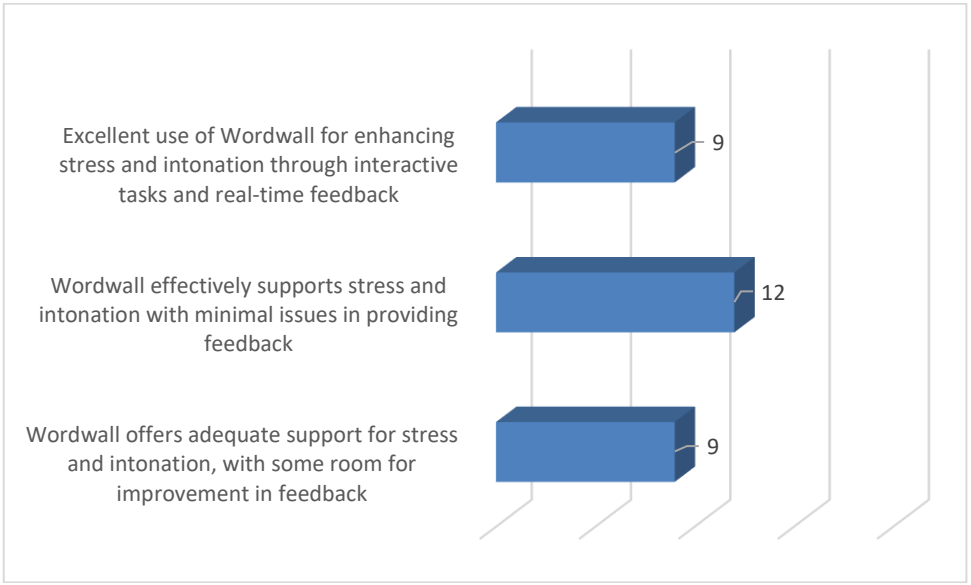
Table 9. Students' Feedback on Wordwall Effectiveness



The perceptions of students regarding the effectiveness of the online Wordwall platform were also examined in the experimental group. The majority of students, as summarized in **Table 9,** evaluated the platform effectiveness positively. Specifically, 21 students reported that the Wordwall Game app was effective for language learning, particularly in stress placement and intonation. Among them, 12 students rated it as effective, while 9 students considered it very effective.

In conclusion, game-based learning has a positive impact on the acquisition of the English language, particularly in the areas of stress placement and intonation in word pronunciation. The data from the experimental group strongly supports the hypothesis that the game-based learning methodology is effective in enhancing these aspects of pronunciation.

Discussion

Numerous previous studies have highlighted the effectiveness and benefits of utilizing Wordwall in education. For instance, Medina et al. (2024) demonstrated that game-based learning strategies, especially those involving Wordwall, can enhance student motivation and improve learning achievement in English. Similarly, Hidayaty et al. (2022) examined the impact of Wordwall on student interest and learning outcomes through a quasi-experimental design. Their findings revealed that 71% of students in the experimental class reported feeling happy, with a significant improvement in posttest completion (89%) compared to the control group (45%), as indicated by a U-Mann Whitney test (0.000 < 0,05). In another study by Putri et al. (2024),

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quantitative research methods were used to assess narrative text scores based on content, organization, vocabulary, and grammar using Wordwall. The students who used Wordwall achieved an average score of 16.17, while those using traditional textbooks scored 14.43. An independent t-test showed a significant difference ($p=0.000$, $p < 0.05$), indicating better writing outcomes with Wordwall. The results highlight the effectiveness of Wordwall in enhancing EFL writing skills. Although there is limited research specifically focusing on teaching pronunciation through Wordwall, several studies in language learning context have shown valuable insights, underscoring the novelty of its application, specifically in the Georgian context. For instance, research by Pratiwi et al. (2024) aligned with recent findings, showing notable improvement in pronunciation. Their study revealed that students' speech became significantly clearer and more understandable compared to traditional methods. Similarly, Sakamurti et al. (2024) reported a significance value of 0.001 (<0.05), indicating notable differences in students' literacy levels before and after using the Wordwall game application, particularly with respect to the audio-visual support it provided.

Recent studies consistently indicate that students using Wordwall to master pronunciation outperform those using traditional learning methods. One possible reason for this is that the online game provided a more focused learning environment. Unlike traditional learning, where students may be distracted by anxiety or delayed feedback, Wordwall enables immersion. Students can listen to native speakers' audio recordings for better pronunciation, gain visual cues, earn points, and receive virtual rewards—all of which boosts their motivation and allow for real-time correction of mistakes. This combination of interactive features enhances their ability to master pronunciation skills.

Implications of Findings

The results of this study indicate that Wordwall can significantly improve pronunciation, stress placement, and intonation in B2-level English students. This suggests that game-based learning, such as that facilitated by Wordwall, offers an engaging and effective approach to enhancing key aspects of language acquisition. The improvements observed in the experimental group could particularly be valuable for psychology students, who may benefit from clearer communication of complex concepts. These findings also imply that educators could integrate Wordwall into their language teaching curricula to foster more interactive and personalized learning experiences. Additionally, the use of online tools may be a cost-effective and scalable method for improving language skills across various educational settings.

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Suggestions for Future Research

Future studies could investigate the long-term effectiveness of Wordwall by conducting follow-up assessments after several months to determine whether improvements in pronunciation, stress placement, and intonation are sustained over time. Furthermore, research could explore whether the use of Wordwall has similar effects on other language skills, such as writing and listening. Expanding the study to include students from other disciplines or varying proficiency levels could provide further insight into generalizability of these findings.

Conclusion

The study demonstrates the positive impact of game-based learning, specifically through the use of the Wordwall platform, on improving key aspects of students' pronunciation, such as stress placement and intonation, in B2-level English Psychology students. The findings highlighted that students who used Wordwall showed significant improvements in their language skills compared to those who used traditional learning methods, as confirmed by the statistical analysis (p-value <0.05). Positive feedback from students further reinforces the effectiveness of Wordwall, suggesting that game-based learning can offer a highly engaging and effective approach to language acquisition. Moreover, students' positive feedback corroborates the effectiveness of Wordwall, highlighting that an interactive, game-based learning environment facilitated greater motivation and engagement, which are crucial for language acquisition. These findings align with previous research that has shown the positive impact of game-based learning platforms like Wordwall on various aspects of language learning. The context of a Georgian university adds a unique dimension to existing literature. Given the significant improvements observed, it is recommended that educators incorporate interactive online tools like Wordwall into language learning curricula to foster a more dynamic and personalized learning environments. Additionally, these findings provide a basis for future research into the long-term effects of game-based learning on language development, as well as its potential applicability to other educational contexts and student groups.

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