



Efficacy of Story-Telling Multimedia Package in Developing Selected Functional Words among Children with Hearing Impairment

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This research examined the effectiveness of a storytelling multimedia package in enhancing selected functional vocabulary among children with hearing impairment. A total of nineteen hearing-impaired students, aged between 5 and 15 years, were intentionally chosen from special schools in the Chennai district. A preliminary assessment was carried out before the intervention to determine initial performance levels. The participants then underwent ten weeks of targeted training utilizing storytelling multimedia, followed by a final test assessment. To assess the importance of the differences noted between the initial test and final test scores, a paired t-test was applied. The findings, deemed statistically significant at the 5% level, suggest that the storytelling multimedia package had a beneficial effect on the selected functional words of the students with hearing impairments.

Keywords: *Hearing Impairment, Story-Telling Multimedia, Functional Word, Verb, Adverb, Adjective.*



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1. INTRODUCTION

The development of language is fundamental to children's cognitive and social progression. However, for children with hearing impairments (CwHI), this process is often delayed or impeded due to difficulties in acquiring language, especially functional words those necessary for effective daily communication. Traditional strategies for teaching functional words may fall short in addressing the unique needs of children with hearing loss, as these approaches often rely on auditory input. Consequently, there is a growing need for creative,

multisensory techniques to support their language learning. One promising strategy is the use of multimedia storytelling packages, which combine visual, auditory, and interactive components to offer an engaging and immersive learning experience. Storytelling has long been recognized as a valuable tool in language instruction, capturing children's attention while providing meaningful contexts for learning new words (Wright, 1995). When enhanced with multimedia features such as pictures, animations, and sound effects, storytelling can become an even more potent educational tool. Based on Mayer's (2009)

Cognitive Theory of Multimedia Learning, integrating visual and verbal content enhances understanding and memory retention. For children with hearing impairments, multimedia storytelling offers essential visual aids and contextual clues, helping them understand and internalize functional words despite auditory challenges.

Functional words, such as conjunctions, pronouns, and prepositions, are often difficult for children with hearing impairments to grasp due to their abstract nature (Moeller & Tomblin, 2015). By embedding these words into interactive stories, multimedia packages can help make these terms more tangible and easier to understand. Research shows that interactive multimedia tools, particularly in special education, can enhance learning by accommodating different learning preferences and providing immediate reinforcement and practice (Easterbrooks & Beal-Alvarez, 2013). This research focuses on assessing the effectiveness of a storytelling multimedia package in improving the acquisition of selected functional words in children with hearing impairments. By targeting the development of functional vocabulary, the intervention seeks to enhance communication skills, contributing to better social interactions and academic success for these children.

2. REVIEW OF RELATED LITERATURE

A study revealed that multimedia storytelling markedly enhanced vocabulary recognition and comprehension among students with hearing impairments, underscoring the value of visual aids in conjunction with auditory stimuli for successful learning (Adams & Tidwell, 1989). Ju (2009) explored how multimedia narratives featuring deaf celebrities influenced reading comprehension and vocabulary development in Taiwanese students with hearing loss. The results demonstrated significant advancements in the students' skills, reinforcing the concept that relatable content can elevate engagement and learning outcomes. Donne & Briley (2015) showed that multimedia storybooks effectively improved receptive vocabulary in deaf learners. Their study highlighted the advantages of diverse multimedia teaching approaches in promoting vocabulary acquisition. Messier & Wood (2015) examined the role of electronic storybooks in vocabulary education for children with cochlear

implants. Their findings indicated that multimedia formats could enhance vocabulary learning, particularly through interactive and captivating storytelling techniques. Fung (2021) investigated the impact of online dialogic storytelling on vocabulary development in children at risk of hearing loss. The results revealed substantial vocabulary improvement, especially when storytelling involved interactive components that actively engaged students.

3. NEED OF THE STUDY

Children with hearing impairments face significant challenges in acquiring functional words, which are critical for everyday communication. Traditional language instruction methods often rely on auditory cues, limiting their effectiveness for this population. The development of innovative, visually-oriented approaches is crucial to bridge this gap. A storytelling multimedia package offers a promising solution by integrating visual aids, animations, and interactive elements, making abstract functional words more comprehensible and engaging for children with hearing loss.

This study is essential to address the growing need for inclusive education strategies that cater to diverse learning needs. By evaluating the efficacy of multimedia storytelling in enhancing functional word acquisition, the research can offer evidence-based tools for educators and therapists working with hearing-impaired children. Additionally, the study can contribute to the broader field of special education by introducing adaptable teaching methods that promote better language outcomes, thus improving communication skills and fostering greater academic and social inclusion.

4. OBJECTIVES

- Detecting male youth with auditory challenges
- Craft narratives incorporating functional words
- Design a multimedia toolkit focused on storytelling for vocabulary enhancement
- Implement a multimedia toolkit for the selected children

5. HYPOTHESES

- The story-telling multimedia package has led to a considerable shift in the

preliminary test and final test mean scores on verbs

- The story-telling multimedia package has led to a considerable shift in the preliminary test and final test mean scores on adverbs
- The story-telling multimedia package has led to a considerable shift in the preliminary test and final test mean scores on adjectives

6. RESEARCH METHODOLOGY

6.1. Selection of subjects

Nineteen male students with hearing impairments, aged between 5 and 15 years, were intentionally chosen as participants from the specialized school for hearing loss in Chennai.

6.2. Variables

Table-1: Details of Variables

Independent Variables	Dependent Variables
Story-Telling Multimedia Package	Verb
	Adverb
	Adjective

6.3. Tool used

The checklist was created by the researcher and comprises 10 items for each domain. Each item is presented in a fill-in-the-blank format. The supervisor will administer the checklist individually to each student, both before and after the intervention, without any time restrictions. Correct responses will be awarded one point, while incorrect responses will receive zero. A higher score indicates a greater acquisition of functional words.

6.4. Research design

The research was structured as an experimental design featuring both pre-test and post-test assessments. During the study, participants underwent 10 weeks of training using a story-telling multimedia package.

6.5. Statistical techniques

The following statistical procedures were employed to find the effect of the story-telling multimedia package in developing selected functional words among children with hearing impairment. A 'Dependent t-test' was conducted to

determine the significant difference. For all instances, a significance level of 0.05 was established to evaluate the hypotheses.

7. RESULTS

Table – 2: Derivation of the t-ratio for verb assessment

Test	Mean	SD	n	DF	t-ratio
Pre-test	3.42	1.60	19	18	21.46*
Post-test	7.63	1.57			

In this instance, the initial mean score was 3.42, while the final mean score increased to 7.63. The pre-test had a standard deviation of 1.60, while the post-test's standard deviation was 1.57. The computed t-value of 21.46 surpassed the critical value of 2.10 from the table, suggesting a statistically significant difference in verb usage between the pre-test and post-test score.

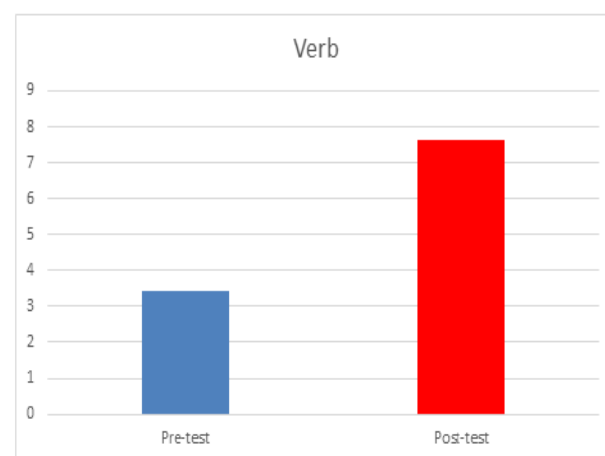


Fig – 1: Bar graph for mean scores on verb pre and post-test

Table – 3: Derivation of the t-ratio for adverb assessment

Test	Mean	SD	n	DF	t-ratio
Pre-test	3.31	0.94	19	18	10.86*
Post-test	7.73	1.79			

In this instance, the initial mean score was 3.31, while the final mean score increased to 7.73. The pre-test had a standard deviation of 0.94, while the post-test's standard deviation was 1.79. The computed t-value of 10.86 surpassed the critical value of 2.10 from the table, indicating a statistically significant difference in adverb usage between the pre-test and post-test scores.

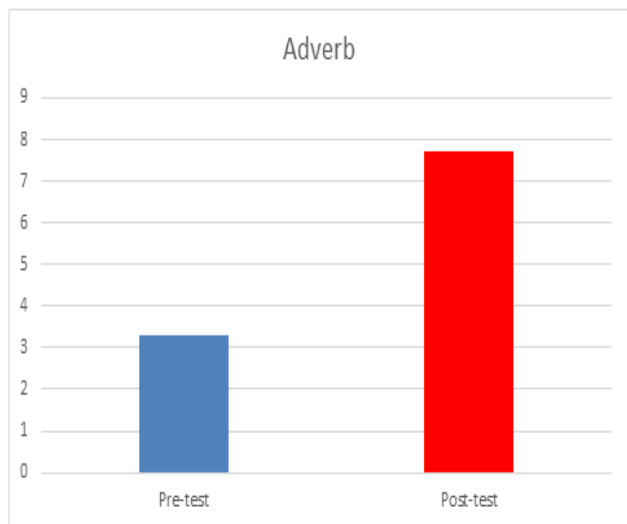


Fig-2: Bar graph for mean scores on adverb pre and post-test

Table - 4: Derivation of the t-ratio for adjective assessment

Test	Mean	SD	n	DF	t-ratio
Pre-test	3.57	1.46	19	18	20.04*
Post-test	8.00	1.59			

In this instance, the initial mean score was 3.57, while the final mean score increased to 8.00. The pre-test had a standard deviation of 1.46, while the post-test's standard deviation was 1.59. The computed t-value of 20.04 surpassed the critical value of 2.10 from the table, indicating a statistically significant difference in adjective usage between the pre-test and post-test score.

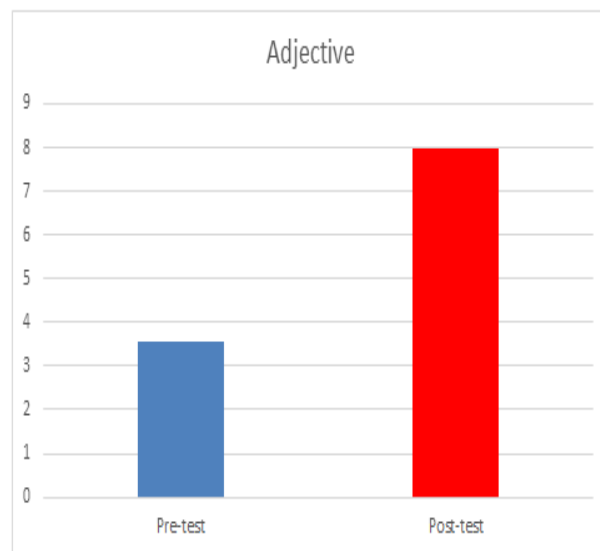


Fig-3: Bar graph for mean scores on adjective pre and post-test

8. DISCUSSION ON HYPOTHESES

- Based on the first hypothesis, the story-telling multimedia package had a considerable shift in the initial and final test mean scores on the verb
- Based on the second hypothesis, the story-telling multimedia package had a considerable shift in the initial and final test mean scores on adverb
- Based on the third hypothesis, the story-telling multimedia package had a considerable shift in the initial and final test mean scores on the adjective

9. DISCUSSION ON FINDINGS

The implementation of storytelling multimedia packages has demonstrated significant effectiveness in improving the acquisition of functional words namely verbs, adverbs, and adjectives among children with hearing impairments. These storytelling techniques, enhanced with multimedia components, facilitate language development by offering engaging, multisensory experiences that attract attention and improve memory retention (Zeng et al., 2020). Such interactive strategies are especially advantageous for children with hearing loss, who may encounter difficulties in conventional learning settings due to restricted auditory input.

Studies indicate that multimedia-assisted storytelling not only strengthens vocabulary but also improves contextual comprehension, making it easier for children to understand the functional dimensions of language (Mayer & Sims, 1994). The narrative framework of storytelling helps to demonstrate how verbs, adverbs, and adjectives operate in everyday contexts, thereby promoting a deeper understanding of these word types (Smeets & Bus, 2015). Furthermore, consistent exposure to multimedia resources can reinforce language learning by transforming abstract ideas into more tangible forms through visual and interactive stimuli (Neuman & Dwyer, 2009). Findings from recent research support the notion that multimedia-rich storytelling is more effective than traditional methods, as it enables learners to visualize the application of language, thus improving their overall language skills (Yang & Wu, 2012). Consequently, the storytelling multimedia package serves as a valuable intervention for children with hearing impairments, aiding them in developing functional vocabulary and enhancing their language and literacy skills (Yoshinaga-Itano, 2003).

10. CONCLUSION

The study on the efficacy of a storytelling multimedia package in enhancing selected functional words specifically verbs, adverbs, and adjectives among children with hearing impairment demonstrates significant positive outcomes. The multimedia approach, combining visual and auditory elements, captures the attention of young learners and supports their language acquisition process. By engaging with stories that feature rich vocabulary, children not only improved their understanding and usage of verbs but also expanded their grasp of adverbs and adjectives. This holistic development is essential for enhancing their overall communication skills, allowing them to express thoughts and ideas more clearly and effectively.

The interactive nature of the multimedia package promotes active participation, fostering an environment conducive to learning and retention. Moreover, the multisensory experience caters to various learning styles, making it particularly beneficial for children with hearing impairments who may struggle with traditional learning methods. The study's findings suggest that integrating storytelling with multimedia tools

is an effective strategy for vocabulary development, as it encourages children to practice new words in context, thereby reinforcing their learning. Ultimately, this approach not only aids in language acquisition but also contributes to building confidence in communication, which is crucial for social interaction and academic success. Therefore, implementing storytelling multimedia packages in educational settings for children with hearing impairments is recommended, as it can significantly enhance their functional vocabulary and foster a love for language learning.

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