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RESEARCH ARTICLE

EFFECTIVENESS OF MULTISENSORY INSTRUCTION IN READING SKILLS OF GRADE 1 PUPILS

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Abstract

This study determined the effectiveness of multisensory instruction in improving the reading skills of Grade 1 pupils at Bagu Elementary School, Pamplona, Cagayan during School Year 2024–2025. The research addressed the problem of low reading performance among beginning learners, particularly in word recognition and reading comprehension. A one-group pretest–posttest quasi-experimental design was employed involving twenty (20) Grade 1 pupils. The Philippine Informal Reading Inventory (Phil-IRI) served as the primary instrument in measuring reading performance before and after the five-week multisensory intervention. The multisensory instruction integrated visual, auditory, tactile, and kinesthetic activities such as tracing, phonics drills, guided reading, and story retelling to enhance learner engagement and retention. Results showed a notable improvement in pupils' post-test mean scores in both word recognition and comprehension. The t-test for dependent samples revealed a statistically significant difference between pre-test and post-test results, leading to the rejection of the null hypothesis. The study concludes that multisensory instruction is an effective approach in strengthening early literacy skills and may serve as a valuable strategy for improving reading development among Grade 1 learners.

Keywords: comprehension, Grade 1 pupils, literacy development, multisensory instruction, Phil-IRI, reading performance, word recognition

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INTRODUCTION

Reading is widely recognized as one of the most essential skills that learners must acquire during the early years of schooling. Globally, literacy development has become a major educational priority because reading proficiency strongly influences academic success and lifelong learning. According to international literacy studies, children who fail to develop strong reading skills during the early grades often encounter difficulties in understanding academic content in later years (Snow et al., 1998). Consequently, educators and policymakers worldwide continue to emphasize the importance of strengthening early literacy instruction.

Across different countries, educational systems continuously seek effective teaching strategies to improve reading proficiency among young learners. Research indicates that many children experience challenges in reading due to differences in learning styles, language exposure, and socio-cultural backgrounds (Shams & Seitz, 2008). These challenges highlight the need for innovative instructional strategies that support diverse learners and enhance reading development.

In response to these challenges, multisensory instruction has emerged as an effective approach to teaching reading. Multisensory instruction involves engaging multiple senses, visual, auditory, tactile, and kinesthetic during the learning process. Through multisensory activities such as tracing letters, manipulating learning materials, listening to sounds, and performing movement-based tasks, learners are able to process information through different sensory pathways. This approach strengthens memory retention and improves understanding of reading concepts (Birsh & Carreker, 2018).

Research has shown that multisensory instruction can significantly improve phonemic awareness, word recognition, and reading comprehension among young learners. By actively involving learners in the learning process, multisensory strategies increase engagement and motivation, making reading instruction more meaningful and effective (National Reading Panel, 2000).

In the Philippines, improving reading proficiency among early grade learners remains a major priority of the Department of Education. Programs such as the Philippine Informal Reading Inventory (Phil-IRI) were developed to assess and monitor pupils' reading levels. Despite these efforts, many pupils in the early grades continue to struggle with basic reading skills, including word recognition and comprehension (Department of Education, 2018).

At Bagu Elementary School in Pamplona, Cagayan, some Grade 1 pupils demonstrated difficulty in developing foundational reading skills. These challenges emphasized the need for effective instructional strategies that could enhance reading performance among young learners.

Therefore, this study aimed to determine the effectiveness of multisensory instruction in improving the reading skills of Grade 1 pupils. The findings of the study may provide valuable insights for teachers and school administrators in designing instructional strategies that support literacy development among early grade learners.

Statement of the Problem

This study aimed to determine the effectiveness of multisensory instruction in improving the reading skills of Grade 1 pupils at Bagu Elementary School, Pamplona, Cagayan during the School Year 2024–2025.

Specifically, it sought to answer the following questions:

1. What is the reading performance of Grade 1 pupils before the implementation of the multisensory instruction approach?
2. What is the reading performance of Grade 1 pupils after the implementation of the multisensory instruction approach?
3. Is there a significant difference in the reading performance of Grade 1 pupils before and after the implementation of the multisensory instruction approach?

Hypothesis

There is no significant difference in the reading performance of Grade 1 pupils before and after the implementation of the multisensory instruction approach.

Theoretical Framework

This study was anchored on the Multisensory Learning Theory, Dual Coding Theory, and Constructivist Learning Theory, which explain how multisensory instruction supports reading development among beginning learners.

Multisensory Learning Theory explains that learning becomes more effective when multiple sensory pathways are engaged simultaneously. Educational researchers emphasized that learners are more likely to retain information when they see, hear, touch, and perform actions related to the learning content (Birsh & Carreker, 2018). In reading instruction, multisensory activities strengthen neural connections involved in literacy development, making learning more meaningful and effective for young learners.

The study was also anchored on the Dual Coding Theory developed by Paivio (1991), which explains that information processed through both verbal and visual channels enhances memory retention and comprehension. When learners simultaneously see letters, hear sounds, and interact physically with instructional materials, stronger associations between words and meanings are formed. This process improves word recognition and reading comprehension by allowing learners to encode information through multiple cognitive pathways (Paivio, 1991).

In addition, the study was supported by the Constructivist Learning Theory, which emphasizes that learners actively construct knowledge through interaction with their environment. Learning becomes more meaningful when learners actively participate in the learning process rather than passively receiving information. Multisensory instruction supports constructivist principles by providing hands-on and interactive learning experiences that allow learners to explore reading concepts through active engagement (Bruner, 1966).

These theories collectively support the use of multisensory instruction as an effective approach in improving the reading skills of Grade 1 pupils, particularly in enhancing word recognition and reading comprehension through active and meaningful learning experiences.

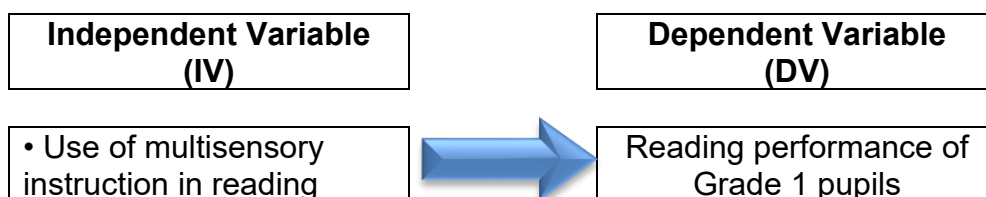


Figure 1. Research Paradigm

The independent variable of the study is the multisensory instruction approach used in reading instruction. This instructional approach is expected to influence the reading performance of Grade 1 pupils, which serves as the dependent variable of the study. The paradigm assumes that multisensory instruction engages learners through the integration of visual, auditory, tactile, and kinesthetic activities, thereby improving their reading performance.

RESEARCH METHODOLOGY

Research Design

This study utilized a one-group pretest–posttest design to determine the effectiveness of multisensory instruction in improving the reading performance of Grade 1 pupils. This research design is commonly used in educational research to measure changes in participants' performance before and after the implementation of an instructional intervention (Creswell, 2012).

The study involved one group composed of twenty (20) Grade 1 pupils who underwent multisensory instruction in reading. Prior to the implementation of the intervention, the participants were administered a pre-test to determine their baseline reading performance. After the implementation of the multisensory instruction approach, a post-test was administered to measure changes in the pupils' reading performance in terms of word recognition and reading comprehension.

The difference between the pre-test and post-test results served as the basis for determining the effectiveness of the multisensory instruction approach in improving the reading skills of the pupils.

Locale of the Study

The study was conducted at Bagu Elementary School located in Pamplona, Cagayan during the School Year 2024–2025. The school is a public elementary institution that provides basic education from Kindergarten to Grade 6 and serves learners from various socio-economic backgrounds within the community.

Respondents of the Study

The participants of the study consisted of twenty (20) Grade 1 pupils enrolled at Bagu Elementary School during the School Year 2024–2025. The participants were selected to undergo the multisensory instruction approach in reading as part of the intervention implemented in the study.

The pupils were administered a pre-test prior to the implementation of the intervention to determine their baseline reading performance. After the implementation of the multisensory instruction approach, a post-test was administered to measure changes in the pupils' reading performance in terms of word recognition and reading comprehension.

Research Instruments

The primary instrument used in this study was the Philippine Informal Reading Inventory (Phil-IRI). The Phil-IRI is a standardized reading assessment tool developed by the Department of Education to assess pupils' reading performance and determine their reading level (Department of Education, 2018).

The instrument evaluated the pupils' reading abilities in terms of word recognition, oral reading, and reading comprehension. It was administered to the participants as a pre-test and post-test to measure their reading performance before and after the implementation of the multisensory instruction approach.

Data Gathering Procedure

The data gathering procedure of this study followed a one-group pretest-posttest design to determine the effectiveness of the multisensory instruction approach in improving the word recognition and reading comprehension skills of Grade 1 learners. A quasi-experimental approach such as pretest-posttest design is commonly used in educational research to measure the effect of an instructional intervention (Creswell, 2012).

Permission was secured from the School Head of Bagu Elementary School prior to the conduct of the study, and ethical considerations were observed by informing the participants and securing parental consent. After approval, a pre-test was administered using the Philippine Informal Reading Inventory (Phil-IRI) to determine the baseline reading performance of the learners in terms of word recognition and reading comprehension (Department of Education, 2018). The results of the pre-test served as the basis for identifying the learners' initial reading levels prior to the implementation of the intervention.

After the pre-test, the multisensory instruction approach was implemented for five (5) weeks using prepared multisensory lesson plans. Multisensory instruction engages visual, auditory, tactile, and kinesthetic senses to enhance learning and reading development (Birsh & Carreker, 2018; National Reading Panel, 2000). Studies have shown that multisensory strategies improve phonemic awareness, word recognition, and reading comprehension by strengthening memory retention and increasing learner engagement (Shams & Seitz, 2008; Department of Education, 2018).

The intervention was conducted during the regular reading schedule and involved various multisensory activities such as flashcards, picture-word matching, word walls, phonics drills, choral reading, echo reading, tracing activities using textured materials, word-building exercises, movement-based reading games, guided reading, sequencing, WH-questioning, and story retelling activities. These activities were aligned with constructivist principles emphasizing active learning and learner participation (Bruner, 1966).

Consistent monitoring was conducted throughout the intervention period to ensure the proper

implementation of the multisensory activities and the active participation of the learners.

After the completion of the five-week intervention, a post-test was administered using the Phil-IRI to measure the learners' reading performance after exposure to the multisensory instruction approach (Department of Education, 2018). The post-test assessed the same reading components included in the pre-test, particularly word recognition and reading comprehension.

All scores obtained from the pre-test and post-test were recorded, tallied, organized, and presented in tabular form for analysis. The results were compared to determine the improvement in the learners' reading performance after the implementation of the multisensory instruction approach.

Statistical Treatment of Data

The data gathered in this study were analyzed using appropriate statistical tools to determine the effectiveness of multisensory instruction in improving the reading performance of Grade 1 pupils.

The mean was used to determine the average reading performance of the pupils before and after the implementation of the multisensory instruction approach. This statistical measure summarized the pupils' reading scores obtained from the Philippine Informal Reading Inventory (Phil-IRI).

To determine whether there was a significant difference in the reading performance of the pupils before and after the implementation of the intervention, the t-test for dependent samples was used. This statistical test determined whether the differences between the pre-test and post-test scores of the participants were statistically significant.

The level of significance was set at 0.05, which served as the basis for accepting or rejecting the null hypothesis.

Ethical Considerations

This study strictly observed the ethical standards in the conduct of educational research. Prior to the implementation of the study, permission to conduct the research was secured from the School Head of Bagu Elementary School. The participants and their parents or guardians were properly informed about the nature, purpose, and procedures of the study, and parental consent was obtained before the learners participated in the intervention.

The participation of the learners was voluntary, and they were assured that their responses and performance results would be treated with strict confidentiality. The identities of the participants were not disclosed in any part of the study, and all information gathered was used solely for academic and research purposes.

The study also ensured that the multisensory instruction activities conducted during the intervention were developmentally appropriate, safe, and beneficial to the learners. Throughout the conduct of the study, fairness, respect, and the welfare of the participants were prioritized to maintain the integrity and ethical soundness of the research process.

RESULTS AND DISCUSSION

This presents results from the data gathered. Discussion and thorough analysis of the results are also reflected.

Table 1. Reading Performance of Grade 1 Pupils Before the Implementation of the Multisensory Instruction Approach

Learners	Word Recognition	Comprehension
1	38	40
2	0	0
3	90	80
4	4	0
5	44	40
6	60	40
7	0	0
8	90	80

9	64	40
10	44	20
11	64	40
12	76	60
13	90	60
14	70	40
15	60	20
16	90	80
17	90	80
18	82	40
19	66	20
20	88	60
Mean	60.50	42.00
SD	30.37	26.68

Table 1 presents the reading performance of the Grade 1 pupils before the implementation of the multisensory instruction approach. The pupils' reading performance was assessed in terms of word recognition and reading comprehension using the Philippine Informal Reading Inventory (Phil-IRI).

In terms of word recognition, the pupils obtained a mean score of 60.50 with a standard deviation of 30.37. The findings indicate that the pupils demonstrated varying levels of ability in recognizing and decoding words prior to the implementation of the intervention. The relatively high standard deviation suggests considerable variability in the pupils' reading performance, implying that while some learners were able to recognize words with minimal difficulty, others experienced substantial challenges in decoding and identifying written words accurately. Such variation is commonly observed among beginning readers because learners differ in their exposure to print materials, phonemic awareness, and early literacy experiences (Snow et al., 1998).

Word recognition is considered a fundamental component of reading development because learners must first identify words accurately before comprehension can occur. According to Ehri (2005), automatic word recognition supports reading fluency and allows learners to focus cognitive attention on understanding the meaning of the text rather than merely decoding individual words. The findings therefore suggest that several pupils still experienced difficulties in foundational reading skills prior to the implementation of the multisensory instruction approach.

With respect to reading comprehension, the pupils obtained a mean score of 42.00 with a standard deviation of 26.68. This finding indicates that the pupils demonstrated lower comprehension performance compared with word recognition. The result suggests that many pupils encountered difficulty in understanding and interpreting the meaning of the text during the pre-test assessment. Reading comprehension requires the integration of multiple reading processes, including decoding ability, vocabulary knowledge, language comprehension, and prior knowledge (Duke & Pearson, 2002).

The relatively high variability in comprehension scores further indicates uneven comprehension abilities among the pupils. This suggests that some learners possessed emerging comprehension skills, while others struggled to construct meaning from the reading passages. Early reading research emphasizes that comprehension difficulties among beginning readers often arise when learners have not yet fully developed decoding fluency and vocabulary knowledge necessary for understanding written texts (National Reading Panel, 2000).

Overall, the findings reveal that Grade 1 pupils demonstrated varying levels of reading proficiency in both word recognition and comprehension. The relatively low mean scores and high variability in performance indicate the presence of reading difficulties among several learners, thereby highlighting the need for effective instructional interventions to support the development of foundational literacy skills.

Table 2. Reading Performance of Grade 1 Pupils After the Implementation of the Multisensory Instruction Approach

Learners	Word Recognition	Comprehension
1	90	80
2	16	20
3	100	80
4	20	20
5	60	60
6	98	100
7	10	20
8	100	100
9	94	100
10	90	80
11	98	100
12	94	80
13	100	100
14	94	100
15	88	80
16	100	100
17	100	100
18	98	100
19	98	100
20	98	100
Mean	82.30	81.00
SD	30.23	26.64

Table 2 presents the reading performance of the Grade 1 pupils after the implementation of the multisensory instruction approach. The pupils' reading performance was evaluated in terms of word recognition and reading comprehension using the Philippine Informal Reading Inventory (Phil-IRI).

In terms of word recognition, the pupils obtained a mean score of 82.30 with a standard deviation of 30.23. The findings indicate a substantial improvement in the pupils' ability to recognize and decode words after exposure to the multisensory instruction approach. The increased mean score suggests that the intervention strengthened the pupils' foundational reading skills, particularly in identifying words accurately and efficiently. Word recognition is an essential component of reading development because learners who recognize words more automatically are able to read with greater fluency and focus more on understanding the meaning of the text rather than decoding individual words (Ehri, 2005).

Although the standard deviation remained relatively high, the post-test results revealed that more pupils achieved higher levels of reading performance after the intervention. This suggests that the multisensory instruction approach contributed positively to the pupils' reading development despite differences in individual learning pace and ability. Multisensory instruction is considered effective in early literacy development because it engages learners through visual, auditory, tactile, and kinesthetic learning experiences that strengthen memory retention and decoding skills (Birsh & Carreker, 2018).

With respect to reading comprehension, the pupils obtained a mean score of 81.00 with a standard deviation of 26.64. The findings indicate a notable improvement in comprehension performance after the implementation of the intervention. The higher mean score suggests that the pupils became more capable of understanding and interpreting the reading passages presented during the post-test assessment. Reading comprehension improves when learners develop stronger decoding skills and increased familiarity with vocabulary and sentence structures (Duke & Pearson, 2002).

The relatively lower variability in comprehension scores compared with the pre-test results suggests that the pupils demonstrated more consistent comprehension performance after the intervention. This implies that the multisensory instruction approach not only enhanced word recognition skills but also contributed to improved understanding of the text among the learners. Previous studies have

emphasized that instructional approaches integrating multiple sensory modalities promote active engagement and meaningful learning experiences, which are essential in improving comprehension among beginning readers (Shams & Seitz, 2008).

Overall, the findings reveal that the reading performance of the Grade 1 pupils improved after the implementation of the multisensory instruction approach. The increased mean scores in both word recognition and reading comprehension indicate that the intervention contributed positively to the development of the pupils' reading skills. These findings suggest that multisensory instruction can serve as an effective strategy for enhancing early literacy development among Grade 1 learners.

Table 3. Test of Significant Difference in the Reading Performance of Grade 1 Pupils Before and After the Implementation of the Multisensory Instruction Approach

	t -computed	t - tabular	Decision	Interpretation
Word Recognition	7.46	1.73	Reject Ho	Statistically Significant
Comprehension	7.93	1.73	Reject Ho	Statistically Significant

Table 3 presents the results of the t-test conducted to determine whether there was a significant difference in the reading performance of the Grade 1 pupils before and after the implementation of the multisensory instruction approach.

The findings revealed that in word recognition, the computed t-value of 7.46 was significantly higher than the tabular value of 1.73 at the 0.05 level of significance. Consequently, the null hypothesis was rejected, indicating a statistically significant difference in the pupils' word recognition performance before and after the implementation of the multisensory instruction approach. This finding suggests that the intervention contributed positively to the improvement of the pupils' ability to recognize and decode words accurately.

Similarly, in reading comprehension, the computed t-value of 7.93 exceeded the tabular value of 1.73, leading to the rejection of the null hypothesis. The result indicates that there was a statistically significant difference in the pupils' comprehension performance before and after the implementation of the intervention. This implies that the multisensory instruction approach enhanced the pupils' ability to understand and interpret written texts.

The statistically significant improvement observed in both word recognition and reading comprehension suggests that multisensory instruction served as an effective intervention in improving the reading performance of Grade 1 pupils. Multisensory instructional approaches engage learners through visual, auditory, tactile, and kinesthetic learning experiences, enabling learners to process information using multiple sensory pathways. According to Shams and Seitz (2008), multisensory learning strengthens cognitive processing and improves learners' ability to retain and apply information effectively.

The findings are also consistent with the study of Birsh and Carreker (2018), who emphasized that multisensory structured language instruction improves learners' decoding abilities, reading fluency, and comprehension through repeated and interactive sensory experiences. Similarly, the National Reading Panel (2000) reported that explicit and systematic reading instruction contributes significantly to the development of foundational literacy skills among beginning readers.

Furthermore, the improvement in comprehension performance supports the findings of Snow, Burns, and Griffin (1998), who explained that strengthening word recognition and decoding skills contributes directly to improved reading comprehension among early learners. When pupils become more proficient in recognizing words automatically, they are able to allocate greater cognitive attention to understanding the meaning of the text rather than focusing solely on decoding.

Overall, the findings indicate that the multisensory instruction approach was effective in improving the reading performance of Grade 1 pupils in terms of both word recognition and reading comprehension. The significant increase in post-test performance demonstrates the potential of multisensory instruction as an effective strategy for enhancing early literacy development among beginning readers.

Conclusion

The findings of the study revealed that the Grade 1 pupils demonstrated low reading performance in terms of word recognition and reading comprehension prior to the implementation of the multisensory instruction approach, indicating the presence of foundational reading difficulties among the learners. After the implementation of the intervention, the pupils exhibited improved reading performance, as reflected in the increased post-test mean scores in both word recognition and reading comprehension.

The statistical analysis further confirmed that there was a significant difference in the reading performance of the pupils before and after the implementation of the multisensory instruction approach. The computed t-values exceeded the tabular value at the 0.05 level of significance, leading to the rejection of the null hypothesis. These findings indicate that the multisensory instruction approach was effective in improving the reading skills of Grade 1 pupils.

Overall, the study concludes that multisensory instruction serves as an effective instructional strategy for enhancing early literacy development by providing meaningful and engaging learning experiences that strengthen word recognition and reading comprehension skills among beginning readers.

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