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Research Article

Multimodal Reading Program to Aid San Mateo National High School's Grade 7 Students in Improving Reading Competency

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About Article

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ABSTRACT

This action research investigated into the extent to which a Multimodal Reading Program helped grade 7 students at San Mateo National High School improve their reading skills, especially during the important switch from Mother-Tongue-Based Multilingual Education (MTB-MLE) to English instruction. Recent test scores and teacher observations show that students' reading and writing skills have become significantly more serious since this change. In the context of Technology and Livelihood Education (TLE), the researchers developed a multimodal intervention that focused on technical vocabulary and included text, images, video, and guided reading activities. The study used a pre-test-post-test control group design to see how the intervention affected reading performance, using Phil-IRI tools. The results of the post-test and student surveys show that the multimodal approach made a big difference in students' reading comprehension, vocabulary retention, and interest in reading. This study backs up what other research has said about the benefits of multimodal learning and gives teachers useful ideas for how to deal with literacy problems in multilingual settings.

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1. INTRODUCTION

In the Philippines, using the mother tongue in early education has helped many young learners build strong reading skills and better understand their lessons. This approach, known as Mother-Tongue-Based Multilingual Education (MTB-MLE), works well in the lower grades, especially when it comes to reading fluency and student engagement. But the shift to English instruction in Grade 7 can be a difficult adjustment for students. At San Mateo National High School, this change has become a serious concern. Teachers have noticed that many Grade 7 students are struggling with reading comprehension and have a hard time writing clear paragraphs in English. These challenges show that students aren't just finding the new topics hard—they're also having trouble because of the sudden switch in language. That's why there's a need to find more flexible and supportive ways of teaching that can help students during this transition. This study looks into the use of multimodal strategies—such as combining text, images, and audio—as a way to make reading more accessible and engaging for learners in this new academic setting. To determine the potency of implementing the Multimodal Reading Program to enhance the reading skills among Grade 7 students at San Mateo National High School, San Mateo, Isabela. Specifically, this study aimed to answer the following questions:

i. What are the mean pretest and post test scores of the participants in the control and experimental groups before and after the implementation of the Multimodal Reading Program?

ii. Is there a significant difference between the mean pretest and post-test scores of the experimental group and control group?

iii. Is there a significant difference between the mean pretest and post-test scores of the experimental group and the control group after the implementation of MRP?

iv. What is the effect size of implementing MRP on the reading performance of the grade 7 in their reading skills?

v. How did the reading program impact the students' learning experience and improve skills in reading?

2. LITERATURE REVIEW

A growing body of both local and international research confirms that multimodal strategies significantly enhance students' reading comprehension, motivation, and engagement—particularly for learners navigating linguistic and cognitive transitions, such as Filipino Grade 7 students. Among the various strategies cited, the combination of visual aids and text-based materials, such as graphic organizers, infographics, and comics, has consistently shown to be highly effective. Cruz and Gutierrez (2018) demonstrated that these visual tools sharpened students' ability to recall details and make inferences, critical skills for reading comprehension. Garcia (2019) reinforced this by integrating videos and graphic organizers in her instruction, reporting a dual impact: deeper content understanding and heightened student motivation. The strength of these strategies lies in their ability to reduce cognitive load and offer scaffolds that make abstract or technical concepts more accessible, particularly for students still building academic vocabulary in English. In terms of auditory support, narrated e-books and guided reading, as shown in Delos Santos' (2016) research, proved especially useful for students shifting from mother-tongue instruction to English. These tools address both literal and inferential comprehension by providing simultaneous exposure to written and spoken language, aligning well with Mayer's (2014) dual-channel learning model.

Internationally, Durongbhandhu Suwanasilp and Chawat (2021) found that multimodal glossing—where definitions and context clues are presented using audio, images, and brief translations—significantly boosted vocabulary retention, a key foundation for comprehension. Faith *et al.* (2023) also showed that interactive and visually enriched environments are effective in helping struggling readers decode and comprehend text more efficiently. These findings underscore the importance of using layered, sensory-rich content to promote active learning and deeper engagement. Notably, Nurviyani *et al.* (2020) emphasized the role of inference-making across modes, which helps students develop both micro (word/sentence) and macro (text-level) reading skills—an essential ability for navigating content-heavy subjects like TLE. Furthermore, Jamil and Aziz (2021) highlighted how multimodal environments accommodate diverse cognitive profiles, making learning more inclusive and responsive to different student needs.

Synthesizing these insights, the Multimodal Reading Program (MRP) strategically integrates the most impactful approaches: visual vocabulary handouts, video-based instruction with subtitles, contextual narrative reading, and guided discussions. These were not chosen randomly but were directly informed by evidence of what works for learners at this pivotal transition stage. For Grade 7 students, who are often caught between the foundational learning style of the primary grades and the academic demands of secondary school, multimodal strategies function not just as enhancements but as essential supports. Therefore, the MRP is not merely instructional—it is an intervention design rooted in critical literature, tailored to bridge the language and cognitive gaps that, if left unaddressed, could hinder long-term academic success. In this way, multimodal instruction is validated not just theoretically, but practically, as a replicable and adaptable model for multilingual educational contexts.

3. METHODOLOGY

3.1. Research method

The results of the pre-test served as the basis for selecting the experimental and control groups. A test of homogeneity was done with the students' pre-test scores to make sure the groups were similar before the intervention started. The group with the lowest average pre-test scores was chosen to be the experimental group and got the intervention. The group with the highest average scores was chosen to be the control group and did not get the intervention. The primary sources of data for this study were the scores obtained by students in both the pre-test and post-test.

3.2. The intervention

Following the pre-assessment, the intervention phase took place. The experimental group (Bonifacio section) was exposed to multimodal learning strategies, including videos with subtitles on TLE topics specifically Industrial Arts, pictures with

names of TLE terminologies, and a narrative entitled "Material Cultures" to help contextualize the TLE content. After each intervention, students answered questions about the materials to see how well they understood them. The Rizal section, compared to the control group, did not get the multimodal resources and instead got traditional instruction. This made it possible to compare the two groups in terms of how involved they were and how well they learned.

Once the intervention period concluded, a post-assessment was administered to both groups, mirroring the pre-assessment. This post-assessment included 20 questions, allowing for a direct comparison of student performance before and after the intervention. The results provided valuable data on any improvements in reading skills and TLE understanding. After that, the researchers were able to rate their reading progress using the Phil-IRI Form 4.

In addition to the assessments, observations were made during the intervention. The researchers observed the level of student engagement, participation, and interaction with the multimodal materials, noting any differences in behavior and classroom dynamics between the experimental and control groups. An observation checklist was used to systematically record these interactions, the Phil-IRI Form A Part B.

Feedback from teachers were also collected at the end of the intervention through surveys or interviews. Teachers provided insights on the effectiveness of the multimodal resources, their ease of implementation, and how well students responded to the materials. This feedback helped evaluate the feasibility and impact of the intervention from an instructional perspective.

Lastly, students' feedback was gathered to understand their perspectives on the intervention. Students completed a short survey or participated in a group discussion, where they could share their experiences with the videos, pictures, and story. This feedback shed light on how the students perceived the learning materials and whether they felt the intervention was beneficial to their understanding of TLE.

Together, these data gathering methods provided a comprehensive picture of the effectiveness of the multimodal reading program and its impact on the students' reading skills and performance in TLE.

3.3. Participants

The one hundred twenty (120) Grade 7 respondents of this study were chosen using the simple random sampling method. This research aimed to improve the reading skills of Grade 7 students at San Mateo National High School (SMNHS). The study's participants during the pre-test were all Grade 7 students. These students underwent a reading intervention using the Multimodal Reading Program.

The results of the pre-test served as the basis for selecting the experimental and control groups. To ensure that the groups were comparable before the intervention began, a test of homogeneity was conducted using the students' pre-test scores. The section with the lowest average pre-test scores was designated as the experimental group and received the intervention, while the section with the highest average scores served as the control group and did not receive the intervention. The primary sources of data for this study were the scores obtained by students in both the pre-test and post-test.

The table presents the number of respondents who participated in the intervention.

Table 1. Number of respondents participating in the intervention

Section	Number of Students
Rizal	30
Bonifacio	30
Del Pilar	30
Aguinaldo	30
Total	**120**

3.4. Data gathering methods

This research employed a combination of quantitative and qualitative methods to gather data. The first data collection method was the pre-assessment, administered to all sections. The pre-assessment consisted of a 20-item questionnaire designed to assess the baseline knowledge of the students in TLE-Industrial Arts. The questions focused on key terminologies and concepts in Industrial Arts, and the results established a starting point for comparison after the intervention.

3.5. Ethical consideration

This research upheld ethical standards throughout the entire process. Prior to data collection, informed consent was sought from the participants and, where necessary, from their parents or guardians. The purpose of the study, the procedures involved, and the participants' rights were clearly explained. Participation in the study was voluntary, and students were assured that they may withdraw at any time without any academic consequences. The researchers ensured confidentiality and anonymity by not using the real names of the students in any part of the study. All data collected were used solely for the purpose of this research and kept secure and private. Furthermore, the intervention activities were designed to be inclusive, non-disruptive, and aligned with the students' academic development.

4. RESULTS AND DISCUSSION

This chapter presents a detailed discussion and critical analysis of the data collected during the implementation of the Multimodal Reading Program (MRP) for Grade 7 students in Industrial Arts. The results are interpreted in light of relevant literature and grounded in appropriate statistical methods. While the findings indicate strong improvements in student reading performance, interpretations are made with caution to avoid overstating the outcomes, particularly considering the significant disparity in pre-intervention performance between the experimental and control groups.

Section 1. Mean Pre-Test And Post-Test Scores Of The Participants In The Control And Experimental Groups Before And After The Implementation Of The Reading Program

Table 3. Level of reading skill of grade 7 students in industrial arts

Test	Group	N	MPS	Mean Score
Pretest	Experimental	30	48.83%	9.77
	Control	30	90.00%	18.00
Post-test	Experimental	30	89.83%	17.97
	Control	30	93.67%	18.73

Table 3 displays a marked difference in baseline reading performance. The experimental group had a low pre-test mean score of 9.77 (48.83% MPS), whereas the control group started with a substantially higher mean of 18.00 (90.00% MPS). This disparity is crucial as it suggests that the two groups were not equivalent at baseline, which could confound conclusions about the program's effectiveness. Despite random selection from demographically similar sections, the results suggest that initial reading abilities differed significantly.

Following the intervention, the experimental group's post-test mean rose sharply to 17.97 (89.83% MPS), closely approaching the control group's post-test mean of 18.73 (93.67% MPS). This suggests a substantial catch-up by the experimental group, likely attributable to the multimodal strategies implemented. However, due to the large initial gap, any conclusions about superiority should focus on growth rather than absolute performance parity.

Section 2. Difference Between The Mean Pre-Test and Post-Test Scores of The Experimental Group and The Control Group

Table 4. Independent sample t-test on the comparison between the level of reading skills of grade 7 students in industrial arts of both the control and experimental groups.

Test	Group	N	Mean Score	t-value	p-value	Decision
Pretest	Control	30	18.00	20.13	p<0.001	reject Ho
	Experimental	30	9.77			
Post-test	Control	30	18.73	2.95	P<0.001	reject Ho
	Experimental	30	17. 97			

Table 4 shows the results of independent samples t-tests comparing group performance. At pre-test, the t-value of 20.13 ($p < 0.001$) confirms a statistically significant initial difference. At post-test, the gap between groups narrowed substantially, though a statistically significant difference remained ($t = 2.95$, $p < 0.001$). These tests assumed normality and homogeneity of variances; Levene's Test (not reported but assumed) should ideally confirm that these assumptions were met.

The narrowing performance gap highlights the program's effectiveness in promoting learning among students who started at a disadvantage. Nonetheless, interpreting this as full equivalence between groups would be misleading given the baseline imbalance.

Section 3. Difference Between The Mean Pretest and Post-Test Scores of The Experimental Group and The Control Group Before and After The Implementation of Multimodal Reading Program

Table 5. Paired sample t-test on the difference between the pre-test and post-test of the control and experimental group

Group/Test	N	Mean Score	t-value	p-value	Decision
Control	30				
Pretest		18.00	4.63	p<0.0072	reject Ho
Post-test	18.73				
Experimental	30				
Pretest		9.77	26.58	p<0.001	reject Ho
Post-test	17.97				

Table 5 presents paired t-test results showing within-group improvements. The control group improved modestly ($M = 18.00$ to 18.73, $t = 4.63$, $p = 0.0072$), suggesting gains likely due to incidental learning or standard instructional exposure. The experimental group, however, improved substantially ($M = 9.77$ to 17.97, $t = 26.58$, $p < 0.001$), reflecting a highly statistically significant effect.

This dramatic increase supports the program's efficacy for low-performing readers. Still, it is essential to note that the experimental group had more room for improvement due to their lower starting point—a factor that may inflate the magnitude of the observed gains.

Section 4. Effect Size of Implementing Multimodal Reading Program on The Reading Skills of Grade 7 in Industrial Arts

Table 6. Cohen's d on the effect size of multimodal reading program on the reading skills of grade 7 in industrial arts.

Group/Test	N	Mean Score	t-value	p-value	Decision	Cohens' D
Control	30					
Pretest		18.00	4.63	p<0.0072	reject Ho	0.84
Post-test		18.73				
Experimental	30					
Pretest		9.77	26.58	p<0.001	reject Ho	4.85
Post-test		17.97				

Effect sizes calculated using Cohen's d (Table 6) further contextualize the program's impact. The control group showed a moderate effect (d = 0.84), while the experimental group demonstrated a very large effect (d = 4.85), well beyond typical educational intervention benchmarks (Cohen, 1988). This supports a practically meaningful improvement in reading skills for the experimental group. However, the extremely large effect size may be partially influenced by the floor effect in pre-test scores; caution is warranted in interpreting this value without further longitudinal validation or random assignment. Confidence intervals for effect sizes were not reported but would further strengthen the interpretation. Future research should include these, along with diagnostics for t-test assumptions such as normal distribution of differences and variance equality.

Section 5. Multimodal Reading Program Impact on The Students' Learning Experience and Reading Skills in Industrial Arts

Table 7. Impact of the Multi - Modal Reading Program on students' learning experiences and ability to improve their reading skills.

Indicator	Mean	Interpretation
Can the activities in the multi - modal reading program help you improve your reading skills?	3.85	Strongly agree
The steps and strategies used in the multi - modal reading program are clear and easy to understand.	3.63	Strongly agree
The multi-model reading program motivates me to read more and enhance my reading activities.	3.56	Strongly agree
I regularly participate and submit outputs related to the reading activities.	3.33	Strongly agree
I understand reading materials better when using multi-modal reading program compared to traditional methods.	3.78	Strongly agree
I am confident in applying the reading strategies from the multi-modal reading program in my reading task.	3.56	Strongly agree
OVERALL	**3.62**	**Strongly agree**

Note: 1.00-1.75 Disagree; 1.76-2.50 Quite Agree; 2.51- 3.25 Agree; 3.26-4.00 Strongly Agree

Student responses (Table 7) provide qualitative support for the MRP's perceived value. With an overall mean of 3.62 ("Strongly Agree"), students reported improved comprehension (M = 3.78), clarity of instruction (M = 3.63), and enhanced motivation to read (M = 3.56). These results suggest that beyond test scores, the program improved students' confidence and engagement—key predictors of sustained reading development (Guthrie & Wigfield, 2000).

While self-report measures may be subject to bias, the consistency of strong agreement across indicators suggests broad acceptability of the multimodal format.

The results of this study align with a substantial body of both local and international research supporting the effectiveness of multimodal instruction in improving students' reading skills, particularly for learners facing linguistic and cognitive transitions. Locally, Viray (2023) demonstrated that multimodal strategies enhanced fluency and comprehension among third-grade learners by providing multisensory pathways to engage with text. Similarly, Garcia (2019) found that combining videos with graphic organizers significantly boosted motivation and understanding among high school students. Cruz and Gutierrez (2018) also reported that visual tools such as comics and infographics improved students' recall and inferencing skills, especially in content-heavy subjects. These findings mirror the experiences of the students in this study, where visual vocabulary handouts and video-based instruction contributed to substantial improvements in reading outcomes.

International research further corroborates these results. For example, Faith *et al.* (2023) documented improved decoding and comprehension among struggling readers in Sweden and Croatia through interactive and visual materials. Suwanasilp and Chawat (2021) also confirmed that multimodal glossing

strategies enhanced vocabulary learning in Thai learners. Nurviyani *et al.* (2020) emphasized that multimodal inferences strengthened both word-level and text-level comprehension. These studies, combined with Mayer's (2014) Cognitive Theory of Multimedia Learning and Serafini's (2014) model of multimodal literacy, provide a theoretical foundation for understanding why these strategies work: by presenting information through multiple sensory channels, learners are better able to process, retain, and apply what they read. The findings of this research also resonate with Domingo and Garganté (2016), who emphasized that multimodal learning environments support struggling readers by increasing engagement and comprehension. Taken together, these studies reinforce the observed effectiveness of the Multimodal Reading Program in this context and support its continued refinement and application.

In conclusion, while the Multimodal Reading Program (MRP) demonstrated statistically significant and practically meaningful improvements in the reading skills of Grade 7 students, particularly those starting with lower baseline scores, caution must be exercised in interpreting these results due to the initial disparity between the experimental and control groups. The sharp gains in post-test performance among the experimental group suggest that multimodal strategies are a promising instructional approach for supporting transitional learners, but the effect may partly be influenced by the greater room for improvement. The extremely large effect size observed in the experimental group (Cohen's d = 4.85) supports the practical impact of the intervention, yet such values must be interpreted within the context of the students' initial low performance. The program's success was also reflected in students' feedback, which highlighted increased motivation, confidence, and understanding—all critical elements for long-term academic success.

These findings support the use of multimodal instruction not only as an academic intervention but also as a broader pedagogical strategy for diverse and multilingual classrooms. Still, future research should aim for more rigorous design features such as random assignment, inclusion of confidence intervals, and assumption testing for statistical models. Longitudinal tracking would also help assess the durability of the observed improvements. Overall, the MRP presents a scalable, inclusive model for improving reading competencies, particularly in content areas like Industrial Arts, where understanding technical texts is vital. The study contributes meaningfully to both theory and practice, offering evidence that with the right multimodal tools and structured support, even learners at risk of academic failure can achieve measurable growth and renewed confidence in their learning journey.

5. CONCLUSIONS

The implementation of the Multimodal Reading Program (MRP) at San Mateo National High School stands as a compelling example of how education can be reimagined to meet learners where they are. Far beyond a simple instructional adjustment, the MRP became a transformative experience—one rooted in equity, empathy, and responsiveness to the specific challenges faced by Grade 7 students transitioning from mother-tongue instruction to English. Anchored in evidence-based pedagogy, the program produced substantial gains in reading comprehension, as reflected in the experimental group's significant post-test improvements and large effect size. Yet the real success of the program lies not just in numbers, but in its ability to reconnect students with the joy and confidence of reading—particularly in a content-heavy subject like Industrial Arts, where language barriers often impede access to learning.

This research affirms that when instructional practices are intentionally designed to reflect students' linguistic, cognitive, and emotional realities, learning becomes more inclusive and meaningful. Students who once struggled with unfamiliar texts began to demonstrate not only academic progress but also increased motivation, self-efficacy, and engagement. These affective dimensions are vital, especially during adolescence, when learners are developing a sense of identity as readers and as learners. Teachers, too, rediscovered the power of adaptive, creative teaching—rooted not in rigid scripts, but in professional judgment, cultural sensitivity, and a deep commitment to their students' growth.

Given these findings, the broader adoption of multimodal strategies in Grade 7 reading instruction is strongly encouraged. This includes the integration of visual, auditory, and interactive resources that can support diverse learning preferences and bridge the gap between learners' current skills and curriculum expectations. School leaders should provide the necessary professional development and structural support to sustain such innovations, ensuring that all teachers are empowered to design responsive learning experiences. Moreover, future research should continue to explore how multimodal literacy strategies can support students across subjects and grade levels, particularly in multilingual and under-resourced settings.

Ultimately, this action research journey reaffirmed a vital truth: equity in education is not simply about access to content, but about aligning instruction with learners' lived experiences and developmental needs. The success of the MRP reminds us that students' difficulties often reflect a mismatch between instructional approaches and their readiness—not a lack of ability. By adopting a pedagogically responsive, multimodal approach, the research team witnessed students shift from passive readers to active, capable learners. This transformation not only strengthened their academic performance but also deepened their confidence and sense of belonging in the classroom.

The experience underscored the power of reflective practice and action research as tools for professional renewal and systemic change. It revealed what becomes possible when educators teach not only with intention—but with imagination, compassion, and a firm belief in every learner's potential.

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