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## Research Article

### A Proposed Cost-Effective Early Reading Intervention: A Tool in Improving Learners' Reading Performance

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#### ABSTRACT

Reading ability is a critical component of learners' overall academic success. The effective and efficient utilization of resources is critical, especially in the new normal of education. Hence, the researchers, even in the required intervention for early-grade learners, attempted to formulate a scheme to promote better reading profiles with due consideration to school resources. Reading interventions, such as Reading Recovery, utilize one-on-one tutoring to cater to learners' specific reading needs by evaluating reading interventions for cost and effectiveness in the specific reading skills of phonemic awareness, fluency, and text vocabulary, may improve their evidence-based decision-making when it comes to selecting an intervention. The researchers utilized a quasi-experimental design and purposive sampling where the whole population of interest is studied to determine the effectiveness of the cost-effective reading intervention. A multitude of research has proven that repeated reading is an effective strategy to improve fluency in struggling readers. The instruments employed in this study were the Early Grade Reading Assessment tool for the pre-test and the teacher-made equivalent test for EGRA for the post-test. There were 277 males and 268 females with a total of 545 grade 1-3 pupils as participants. Paired Samples T-Test utilized in the study and the results showed scores were all .000 which was less than 0.01 level of significance. Therefore, there were significant differences between the percentage scores of the pretests and the percentage scores of the post-tests. The negative sign of  $t$ -values indicates that the percentage scores of the post-tests were higher than the percentage scores of the pretests. Thus, the null hypothesis of no significant difference was rejected. Based on the result of this study, it can be inferred and concluded that early reading intervention in improving the learners'

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reading performance in terms of phonemic awareness, fluency, and text vocabulary is highly effective.

**Keywords:** *Phonetic Awareness, Fluency, Text-vocabulary, Cost-Effective, Reading Performance*

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## Introduction

Reading is complex and developmental, and it encompasses several different skills. Reading is not a straightforward process. It is a complex cognitive process involving processing the graphic print, decoding sights and sounds, and infusing text with meaning. It requires the synthesis of several mental skills (i.e., phonological awareness, letter recognition, word reading accuracy, and fluency) and several interactive reading skills that vary by the reader (i.e., reader's knowledge base, type structure, the topic of text, reading purpose, and understanding of reading strategies). It also requires continuous practice, development, and refinement. Reading is an essential skill. It is a vital part of all learning and is tied to achievement in an individual's education and success in their career (Garnes & Wichowski, 2004). Biancarosa & Snow (2004) reported that approximately eight million adolescents struggle with reading. Iyengar & Ball (2007) found that only one-third of high school seniors are reading proficiently. The U.S. Department of Education suggested reading ability is an essential forecaster of success in mathematics and science. The future of being a globally competitive nation requires today's students to be much more academically advanced than that of earlier generations (Pitcher et al., 2010).

For the Programme for International Student Assessment (PISA 2021), reading ability is the ability to comprehend, apply, and reflect on written materials to achieve goals, develop knowledge and potential, and participate in society. Independent readers have better reading comprehension, linguistic fluency, and general knowledge than their peers. They improve their reading skills, perform better on achievement exams across the board, and have more content understanding than non-reading classmates (Australian Christian College, 2010). Also, according to Murphy et al. (2013), pleasure reading improves reading comprehension,

background knowledge (which is beneficial in many subject areas), and student vocabulary abilities, and has been demonstrated to improve our understanding of human behaviour and help us sympathize with others.

"Reading is critical because a great deal of formal education depends upon being able to read with understanding. Reading difficulties will inevitably create educational difficulties, which in turn, are a major source of economic and social disadvantages" (Hulme & Snowling, 2011). Wise (2010) avowed that literacy is the foundation of all student achievement regardless of grade level. It is undeniable that a child's reading skills are essential for their success. Even when you begin reading aloud to your child, it essentially provides them with background knowledge of their young world which helps them to make sense of what they see, hear, and read (Children's Bureau, 2017). Reading is essential, especially for young children, to improve their cognitive skills and help them with cognitive development (Health of Children.com, 2021). It is the responsibility of educators to ensure student success, regardless of the various strengths and challenges each child brings to school every day. Now more than ever, elementary schools are committing time, money, and resources to early intervention programs and instruction to catch students at risk of failing in the initial years of school. In this age of accountability, educators are especially staunch in their efforts to explore and implement the most effective, efficient avenues to accelerate students who fall behind their peers in reading. Time is of the essence in this endeavour as students' processing habits become instilled by second grade. It becomes much more challenging to elucidate proper reading strategies; therefore, the gap continues to widen if learning needs are not addressed by first grade. By second grade, a longer-term intervention becomes necessary compared to

shorter-term interventions in kindergarten and first grade (Allington, 2008).

Many children have difficulty learning to read and often fall behind, struggling with reading and other academic subjects throughout childhood and well into adulthood. An essential task of schooling is to ensure that children become confident readers and writers, prepared for the demands of adult life. If good reading habits have not been established by second grade, the gap widens, students lose confidence and motivation, and they become further out of the educator's reach. The long-term effects may lead to a dismal future for all stakeholders. Early reading and writing problems frequently persist into late teens and adulthood (Blachman et al., 2014). Adults with poor literacy or qualifications earn less and are more susceptible to unemployment and ill health (Desjardins et al., 2013). As a response to addressing the long-term consequences of inadequate reading skills, it is widely considered that children with reading difficulties should be offered early Intervention, and this is supported by the evidence of its short-term effectiveness (National Reading Panel, 2000; Torgesen, 2000).

This paper explored the effectiveness of the cost-effective reading intervention program in improving the K-to-3 learners in public schools in the City of Malolos, Bulacan. The findings of the study will be used to propose measures that would strengthen the implementation of the cost-effective reading intervention program in improving learners' reading comprehension levels. The proposed reading intervention program is intended to help at-risk first-grade learners through an intensive reading intervention in which the tools and materials are not costly and viable to be used and reproduced by other teachers in other schools.

### **Statement of the Problem**

This study aimed to determine the effectiveness of cost-effective reading intervention for at-risk learners at one public elementary school for the School Year 2023-2024.

Specifically, it sought to answer the following research questions:

1. What is the reading profile of the learners based on the Early Grade Reading Assessment (EGRA) before the cost-effective early reading intervention in terms of:
  - 1.1 Phonemic awareness
  - 1.2 Fluency
  - 1.3 Text vocabulary
2. What is the reading profile of the learners based on the teacher-made test equivalent to EGRA after the cost-effective early reading intervention in terms of the identified key areas?
3. Is there a significant effect of cost-effective early reading intervention on the reading performance of at-risk pupils?

## **Methodology**

### **Research Design**

The researchers utilized the quasi-experimental design to determine the effectiveness of the cost-effective reading intervention. According to Poole (2012), an experimental design is an efficient method of optimizing the experimental conditions to maximize the amount of useful information obtained with the minimum number of experiments. In the collection of the data, the researchers did three steps, they were pre-test, treatment, and post-test.

### **Research Locale**

The study was conducted in the City of Malolos, Bulacan public schools. The City of Malolos is the province of Bulacan. The researchers chose this local because most of the researchers were connected in the said city as public-school teachers.

### **Research Participants**

The total population sampling was utilized in the study. It is a type of purposive sampling where the whole population of interest is studied. It is most practical when the total population is of manageable size, such as a well-defined subgroup of a larger population. Hence, the researchers chose 173 Grade 1 pupils, 170 Grade 2 pupils, and 176 Grade 3 pupils at one public elementary school in the City of Malolos, Bulacan. The participants in the study underwent intervention since they were also ex-

pected to answer the Early Grade Reading Assessment tool (EGRA) successfully. Likewise, the data from EGRA served as the pretest in the study. After being exposed to cost-effective reading intervention, the participants were post-tested to measure the same variables.

### **Research Instrument**

The instruments employed in this study were the Early Grade Reading Assessment tool for the pretest and the teacher-made equivalent test for EGRA for the post-test. The Early Grade Reading Assessment (EGRA) is a diagnostic tool designed to quickly assess the literacy skills of learners in the first grades of elementary school. EGRA is administered to pupils in their local language and English specifically designed for data collection. This instrument is administered by teachers in one-to-one sessions with individual students and takes approximately sixty seconds. EGRA tools include tests created by teachers are usually prepared and run to assess student performance in the classroom, the teaching methodology used by the teacher, and other school curricula.

Tests created by teachers are usually prepared and run to assess student performance in the classroom, the teaching methodology used by the teacher, and other school curricula. A teacher-made test is one of the most valuable tools the teacher has in solving his or her purpose, intended to solve the problem or requirements of the class for which he is prepared. It is ready to measure the results and content of the local curriculum, it is very flexible so that it can be adapted to any method and material, and it does not require a sophisticated technique for its preparation.

### **Data Gathering Procedure**

This study used specific steps to impose the collection of data needed for the study. The researcher sought the permission of the school principal together with the Office of the District Supervisor for the implementation of the data

collection procedure. After the documentation of necessary procedures, the research instrument was disseminated to the target respondents. Before they participated in the study, they signed an informed consent attesting to their voluntary participation in the study. After the dissemination of the research instrument, the researcher checked all the indicators if all of the boxes were answered.

### **Ethical Considerations**

To establish and safeguard ethics in conducting this study, the researcher firmly observed the following actions towards research ethics: the teacher participants' names, and identities will not be declared in any part of the study and the researcher used codes for them; teachers as the respondents were not emotionally or physically harmed during the conduct of data collection. The study's participants were not forced to participate, and thus, they had the right to refuse their participation. They had the right to refuse to answer the question if they felt that they were not comfortable with the given question/s. The researcher cited and observed proper referencing of literature and promoted copyright laws. All participants of the study signed informed consent before their participation. Observance of all ethical principles was done during the conduct of the study. Lastly, the researcher declared no conflict of interest in conducting this study.

### **Results and Discussion**

This section presents, analyses, and interprets the data collected in the study. For an organized presentation and consistent discussion, the data are presented following the order or sequence, to wit: (1) a reading profile of the learners based on the Early Grade Reading Assessment (EGRA) and based on the post-test of the implemented reading intervention (2) effect of cost-effective early reading intervention on the reading performance of learners' at-risk.

Table 1. Percentage Scores Reading per Class as Described through EGRA

Participant Groups	Phonemic Awareness		Fluency		Text Vocabulary	
	Letter Sound Knowledge in %		Familiar Word Reading in %		Invented Word Decoding in %	
	Before	After	Before	After	Before	After
1A	75	80	30	34	35	37
1B	56	58	25	30	23	25
1C	63	65	26	30	23	25
1D	50	56	28	31	26	27
1E	49	51	29	32	27	29
2A	50	58	35	36	37	38
2B	65	68	32	35	27	29
2C	48	52	35	39	37	39
2D	82	86	44	50	45	47
2E	79	82	36	38	34	36
3A	73	82	37	39	36	38
3B	51	67	25	32	25	27
3C	74	79	48	50	37	39
3D	36	55	21	26	20	23
3E	90	94	47	55	45	49
<b>Total</b>	<b>941</b>	<b>1033</b>	<b>498</b>	<b>557</b>	<b>477</b>	<b>508</b>

Based on the table, the overall percentage scores of classes in Grades 1 to 3 increased after the intervention which implied that the learners in the early grades had improved their reading profiles.

In terms of phonemic awareness, characterized by the letter sound knowledge, the highest score recorded in the pretest is 90. It increased to 94 in the post-test. Moreover, the total accumulated percentage scores in the pretest which is 941 for all Grades involved increased to 1033.

In terms of fluency, characterized by the familiar word reading, the highest score recorded in the pretest was 47 which went up to 55 in the post-test. Moreover, the total

accumulated percentage scores in the pretest which is 498 for all Grades involved increased to 557.

In terms of text vocabulary, characterized by the invented word decoding, the highest score recorded in the pretest is 45 which is a little lower than 49 in the post-test. Moreover, the total accumulated percentage scores in the pretest which is 477 for all Grades involved increased to 508.

Furthermore, the significant difference between percentage scores in each sub-variable was determined using inferential statistics. Since all the assumptions for the paired samples t-test were met. The data were analysed using the parametric statistical treatment.

Table 2. Significant Differences in the Reading Profiles of Early-Grade Learners Before and After the Cost-Effective Intervention

		M	SD	Std. Error Mean	95% Confidence Interval of the Difference		t-value	p-value
					Lower	Upper		
Pair 1	Phonemic Awareness Before Intervention - Phonemic Awareness After Intervention	-6.133	5.083	1.312	-8.948	-3.318	-4.673	.000

Pair 2	Fluency Before Intervention - Fluency After Intervention	-3.933	1.981	.511	-5.030	-2.836	-7.690	.000
Pair 3	Text Vocabulary Before Intervention - Text Vocabulary After Intervention	-2.067	.704	.182	-2.456	-1.677	-11.374	.000

As shown in the table, under the paired samples tests, the computed Sig. (2- tailed) scores were all .000 which was less than 0.01 level of significance. Therefore, there were significant differences between the percentage scores of the pretests and the percentage scores of the post-tests. The negative sign of t-values indicates that the percentage scores of the post-tests were higher than the percentage scores of the pretests. Thus, the null hypothesis of no significant difference was rejected.

### ***The Proposed Cost-Effective Reading Intervention Program***

The effective and efficient utilization of resources is critical especially in the current education paradigm in improving literacy in the basic education. Hence, the researchers, even in the required intervention for early Grade learners, attempted to formulate a scheme to promote better reading profiles with due considerations to school resources.

The cost-effective reading intervention includes the following key tasks:

1. Utilization of readily available materials in school such as reams of papers from donations of various stakeholders.
2. Conduct of the reading intervention online which required less paper for printing of the EGRA tool.
3. Making printed copies of EGRA tool more economical by reducing the blank spaces and margins without sacrificing the size of fonts and figures.
4. Conduct of the intervention by batch that allowed resource materials to be reused after disinfection.
5. Better management of schedule for the intervention to maximize the utilization of time-related resources such as internet connectivity and battery by posting updates on Facebook groups and chats.

### **Conclusion**

This study aimed to answer and determine the following: the reading profile of the learners as resulted in EGRA in terms of phonemic awareness, fluency, and text vocabulary, the effectiveness of reading intervention in improving the reading performance of the learners in terms of phonemic awareness, fluency, and text vocabulary, and lastly, the significant effect of a cost-effective early reading intervention on the reading performance of learners. Based on the findings of this study, it could be concluded that learners' reading profiles in terms of phonemic awareness, fluency, and text vocabulary varied.

According to the National Reading Panel, teaching phonemic awareness to children significantly improves their reading more than instruction that lacks any attention to phonemic awareness.

Fluent readers can read orally with appropriate speed, accuracy, and proper expression. Fluency is the ability to read as well as we speak and to make sense of the text without having to stop and decode each word. The National Reading Panel's research findings concluded that guided oral reading and repeated oral reading had a significant and positive impact on word recognition, reading fluency, and comprehension in students of all ages.

Based on the result of this study, it can be inferred and concluded that early reading intervention in improving the learners' reading performance in terms of phonemic awareness, fluency, and text vocabulary is highly effective.

The null hypothesis stating that there is no significant difference in the percentage scores of the reading profile of learners is hereby rejected. The study proved that the proposed cost-effective early reading intervention was effective.

## Recommendation

The researchers would like to forward the following recommendations.

1. Early childhood teachers should incorporate phonemic awareness in games and school activities.
2. Teachers' proper training is vital. Teachers should strive to improve their teaching skills by attending various seminars and trainings.
3. It is highly recommended for future study to design an early childhood program focusing on phonemic awareness, fluency, and text vocabulary.
4. Parents should have greater involvement in reading programs for their children.
5. The reading program and intervention should be appropriate to the age and grade level of the learners.
6. Reading materials should be filtered based on the learners' reading profile.
7. The teacher must have good preparation in selecting the reading materials, and activities in terms of phonemic awareness, fluency, and text vocabulary for the pupils.
8. The use of reading programs/intervention and other innovative strategies helps teachers become classroom researchers by understanding the needs of learners and support for learners' phonemic awareness, fluency, and text vocabulary development.
9. The use of engaging reading activities, and collaborative activities in teaching phonemic awareness, fluency, and text vocabulary must be considered by teachers, curriculum planners, and school heads as an important aspect of the teaching and learning process. Future research must be conducted to have further knowledge about the effectiveness of the reading program.
10. The critical features of the intervention can be utilized to promote better learning achievements among learners in other Grades.
11. The teachers must follow strictly the schedule of activities to ensure the maximum utilization of resources.

## References

- Allington, D. (2008). Discourse and the reception of literature: problematizing' reader response'.
- Auld, S. (n.d). *Australian Christian College*. Retrieved from Australian Christian College: <https://www.acc.edu.au/>
- Baker, L., & Scher, D. (2002). Beginning readers' motivation for reading in relation to parental belief and home reading experiences. *Reading psychology*, 23(4), 239-269.
- Barwasser, A., Lenz, B., & Grünke, M. (2021). A Multimodal Storytelling Intervention for Improving the Reading and Vocabulary Skills of Struggling German-as-a-Second-Language Adolescents with Learning and Behavioral Problems. *A Multimodal Storytelling Intervention for Improving the Reading and Vocabulary Skills of Struggling German-as-a-Second-Language Adolescents with Learning and Behavioral Problems*, 29-51.
- Blachman, B. A., Schatschneider, C., Fletcher, J. M., Murray, M. S., Munger, K. A., & Vaughn, M. G. (2014). Intensive reading remediation in grade 2 or 3: Are there effects a decade later?. *Journal of educational psychology*, 106(1), 46.
- Chen, A.-H., Buari, N. H., & Jufri, S. (2017). *The Development of SAH Reading Passage Compendium: A Tool for the Assessment of Reading Performance Related to Visual Function*. Malaysia: Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).
- Children's Bureau. (2017, March 03). *The Importance Of Reading to your Children*. Retrieved from children'sbureau: <https://www.all4kids.org/>
- Desjardins, R., Thorn, W., Schleicher, A., Quintini, G., Pellizzari, M., Kis, V., & Chung, J. E. (2013). OECD skills outlook 2013: First results from the survey of adult skills.
- Garnes, D. C., & Wichowski, C. P. (2004). Facilitator guidebooks for reading strategy workshops in: reciprocal teaching, scaffolding, journaling. *Philadelphia, PA: The*



- Temple University Center for Development in Career and Technical Education.
- Hulme, C., & Snowling, M. J. (2011). Children's reading comprehension difficulties: Nature, causes, and treatments. *Current Directions in Psychological Science*, 20(3), 139-142.
- Hurry, J. Fridkin L., Holliman A. (2021). *Reading Intervention at age 6: Long-term effects of Reading Recovery in the UK on qualifications and support at age 6* (<https://bera-journals.onlinelibrary.wiley.com/doi/epdf/10.1002/berj.3752>).
- Maletic, V., Robinson, M., Oakes, T., Iyengar, S., Ball, S. G., & Russell, J. (2007). Neurobiology of depression: an integrated view of key findings. *International journal of clinical practice*, 61(12), 2030-2040.
- Murphy, K. A., Justice, L. M., O'Connell, A. A., Pentimonti, J. M., & Kaderavek, J. N. (2016). Understanding risk for reading difficulties in children with language impairment. *Journal of Speech, Language, and Hearing Research*, 59(6), 1436-1447.
- National Reading Panel (US), National Institute of Child Health, & Human Development (US). (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. National Institute of Child Health and Human Development, National Institutes of Health.
- Organisation for Economic. (2021). *Reading performance (PISA)*. Brazil: OECDiLibrary.
- Pawliszyn, J. (2012). *Comprehensive sampling and sample preparation: analytical techniques for scientists*. Academic Press.
- Pitcher, S. M., Martinez, G., Dicembre, E. A., Fewster, D., & McCormick, M. K. (2010). The literacy needs of adolescents in their own words. *Journal of Adolescent & Adult Literacy*, 53(8), 636-645.
- Schwartz, R. M., Hobsbaum, A., Briggs, C., & Scull, J. (2009). Reading Recovery and Evidence-based Practice: A response to Reynolds and Wheldall. *International Journal of Disability, Development and Education*, 56(1), 5-15.
- Smith, B. (2015). *A Case Study of the Impact of Reading Intervention in Early Elementary School Grade Levels* ([https://digitalcommons.gardner-webb.edu/cgi/viewcontent.cgi?article=1146&context=education\\_etd](https://digitalcommons.gardner-webb.edu/cgi/viewcontent.cgi?article=1146&context=education_etd))
- Snow, C., & Biancarosa, G. (2003). *Adolescent literacy and the achievement gap: What do we know and where do we go from here?* (pp. 1-36). New York: Carnegie Corporation of New York.
- Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning disabilities research & practice*, 15(1), 55-64.
- Wise, J. C., Sevcik, R. A., Morris, R. D., Lovett, M. W., Wolf, M., Kuhn, M., ... & Schwanenflugel, P. (2010). The relationship between different measures of oral reading fluency and reading comprehension in second-grade students who evidence different oral reading fluency difficulties.