

# Reading Proficiency Level of Grade 1 Pupils Using Text-to-Speech

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## Abstract

*The study was conducted to determine the reading proficiency level of the Grade 1 Learners during the S.Y. 2019 - 2020. The quasi-experimental design was used and the questionnaire was the main data gathering instrument. The data were statistically analyzed using frequency, percentage, and serial correlations in the treatment of data.*

*The study reveals that the number of male and female was almost the same. Most of them have an average grade within very satisfactory in the MTB-MLE subject. They speak Pangasinan at home and use coloring books as their reading material. Their parents are mostly college graduate and with a modest family income. It shows that majority has cellphone available at home as their media-gadget.*

*The study further reveals that the learners' reading proficiency levels after exposure to text-to-speech show improvement to their word recognition and comprehension that step –up to instructional and independent level. Thus, the level of reading proficiency after exposure to their respective teaching strategy is statistically significant as such that there is an effect in teaching the learners using text-to-speech than those taught in conventional way.*

*This study recommended that considering the contemporary world that we are now living in, technology should be made available on an equitable basis like the use of text-to-speech in improving pupils' learning and reading development. Teachers need to adopt new strategies like text-to-speech for teaching reading comprehension in order to support struggling learners to improve their achievement since it is a significant indicator of learners' academic success. Also, provide opportunities to reading teachers for professional development by sending them in trainings, seminars, workshops and symposia especially designed to enhance teacher's skills in teaching reading using technology and uplifting the reading proficiency of the pupils.*

**Keywords** – comprehension, reading proficiency, text-to-speech, word recognition

## INTRODUCTION

Reading is necessary in all learning. It is the primary means by which all ideas and information were taken in by people in school; instruction largely depends on the ability of learners to read well. Unfortunately, lacking a motivating and interesting approach to teaching is a problem.

The Philippines scored the lowest when it comes to reading comprehension based on the 2018 Programme for International Student Assessment (PISA). According to this study conducted by the Organization for Economic Co-  
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operation and Development (OECD), the Philippines scored 340 in reading comprehension. This is below the OECD average of 487 [1]. Students with very basic reading skills highlights the challenge countries, including those in the developed world, face in achieving the United Nations Sustainable Development Goals for 2030 (SDGs), particularly in relation to ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all [2].

According to Dr. Guevara, president and CEO of Synergeia Foundation, for the last three years

among 91 local government units in the country of Grades 1-6 students, 53 percent of the learners were in frustration and 23 percent are independent readers. Thus, twenty-three percent could not comprehend, and 7 percent could not read at all. In the wake of Phil-IRI's findings, the Department of Education regional office has directed all teachers and school heads to give more emphasis on their reading proficiency program [3].

Imam stated that the low performance of students in national and international achievement tests for the last decades have been a real challenge to Philippine educational system [4]. The researchers further stated that the Department of Education attributed this problem to students' poor reading comprehension. This clearly indicates that poor reading comprehension affects performance in other subjects.

Clearly, the major goal of all learning is for the learners to be able to keep as much knowledge of the topic as possible, particularly the main points. With today's situation in the classrooms, it appears that the learners' reading comprehension levels come out very disappointing. Likewise, the researcher found that there is less attention in learners to language proficiency, aptitude and needs. However, learners who have different levels of reading proficiency are often placed in the same class. Some teaching techniques or materials may or may not be suitable for students with individual differences.

Learners, however who spend the same amount of time reading texts that they cannot read accurately are at a disadvantage in several important ways. First, they read less text; it is slow going when they meet many words they do not recognize instantly. Also, struggling readers are less likely to understand (and therefore enjoy) what they read. They were likely to become frustrated when reading difficult texts and therefore lose confidence in their word-attack, decoding, or word-recognition skills. Thus, a struggling reader and successful reader who engage in the same 10-minute independent reading session do not necessarily receive equal practice and are likely to experience different outcomes [5].

On the other hand, the Mother Tongue-Based Multilingual Education (MTB-MLE) was institutionalized through Department Order No. 74 series of 2009. The aim of MTB-MLE is to develop the following areas, namely: (1) language

development which establishes a strong education for success in school and life-long learning; (2) cognitive development which concentrates on higher order thinking skills; (3) academic development which prepares the learner to obtain mastery on the competencies of different learning areas; and (4) sociocultural awareness which enhances the pride of the learner's heritage, language and culture [6].

The use of the Mother Tongue-Based instruction has caused a lot of apprehensions to school managers and teachers. One of these is the inadequacy of locally grounded instructional materials/resources. In primary level, mother tongue is used as a language of instruction. The pronunciation and decoding of words are likely the struggle of first graders because it is their beginning to read stage.

Such fact led the researcher to realize that learning to read and being motivated to do so are important in the modern world since very common instructional materials that interfere with learning have become drab due to changing times. There had been many innovations that were introduced on approaches, strategies and other techniques in the teaching. This has been the knowledge by the researcher in knowing for a fact that the study is to test how far intervention materials used by teachers have gone through the evaluation of instruction.

In this regard, teachers should not only focus on word recognition skills but also children's listening comprehension skills. With the occurrence of information and communication media, development of reading skills is not only dependent on the use of print materials. Children must be provided with interactive and interesting materials. The use of audio-visual instructional materials is a new learning mode in which children get engaged and arouse their motivation about what is to be learned.

Moreover, Warschauer & Healy have confirmed the claim that correct and proper application of learning technology in teaching can effectively improve learning [7]. General education teachers are therefore seeking ways to support students struggling with decoding and comprehension, especially as they access content area curricular materials which include the use of a combination of both new and old equipment and tools that are useful in meeting the need for the lack of instructional materials. Others are in terms

of textbooks, test evaluative strategies and finally the subject under study: the use of text-to-speech technology.

According to Anderson-Inman and Horney, content area texts can improve their reading comprehension by using technology to have texts read aloud [8]. They will provide an accurate visual image and make learning easier for the student. Another, instructional aid is to clarify the relationships between material objects and concepts.

Therefore, when relationships presented visually and auditory, they are often are much easier to understand. Elder-Hinshaw states that computer technology helps the teachers to have access in general curriculum which motivates and encourages students in reading [9].

However, from the start of the year of using mother tongue as an instruction about reading comprehension levels of Grade I learners, only a few were independent readers or in instructional level making the remaining pupils belong in frustration level category. Some pupils do not even have any insight of what they read that they need vivid images for a better understanding and text to speech technology is what comes to mind as a solution.

To this end, the researcher intended to help learners enhance their word recognition and comprehension skills using text-to-speech.

#### **OBJECTIVES OF THE STUDY**

This research study was conducted to enhance the word recognition and comprehension skills of Grade I learners of Central I Elementary School using text-to-speech.

Specifically, it sought to answer to the following sub problems:

1. To determine the profile of Grade 1 pupils in terms of sex, average grade in Mother Tongue for the last three quarters, Pangasinan reading materials available and used at home, language/s spoken at home, parents' educational attainment, family average monthly income and availability of multimedia gadgets at home.
2. To determine the reading proficiency levels of the Grade I learners before and after exposure to text-to-speech and conventional strategy.

3. To determine the significant difference in the reading proficiency levels of the Grade I pupils after exposure to their respective teaching strategy.

4. To determine the significant relationship between the learners' profile and the reading proficiency levels.

#### **Null Hypotheses**

The following null hypotheses were tested at the 0.05 level of significance.

1. There is no significant difference in the reading proficiency levels of the two groups after exposure to their respective teaching strategy.
2. There is no significant relationship between the pupils' profile and their reading proficiency levels.

#### **MATERIALS AND METHODS**

The aim of this study which was to determine the effectiveness of text-to-speech to enhance word recognition and comprehension skills of Grade 1 learners suggests the use of the two-group pre-test-posttest design. It is a quasi-experimental research design in which the same dependent variable is measured in experimental and control group. A pretest and posttest were used to determine the reading proficiency of the learners. The experimental group was exposed to the text-to-speech while the control group was exposed to the conventional strategy.

#### **Subjects of the study**

The subjects of this study were the 33 Grade 1 pupils who were enrolled at Central I Elementary School, San Carlos City, Pangasinan, School Year 2019-2020. These learners were exposed to text to speech. This was done first, by arranging pupils' names according to their grades in MTB-MLE, from highest to lowest. From the list, learner 1 was assigned to Group 1, learner 2 was assigned to Group 2, learner 3 was assigned to Group 2, learner 4 was assigned to Group 1, and learner 5 was assigned to Group 1, and so on. There were 16 learners in control group using a conventional teaching strategy and 17 learners in the experimental group.

#### **Research Instrument**

A questionnaire checklist was used to get the profile of the respondents.

A Phil-IRI test was used by the researcher as pre-test and post-test. It measured the reading proficiency of learners through word recognition and reading comprehension.

The test was evaluated by five experts in MTB-MLE for content validity. This was done through a questionnaire with a five-point rating scale. Comments and suggestions were considered for the finalization of the items included in the test. Based on their evaluation, the pre-test and post-test was highly valid.

## RESULTS AND DISCUSSION

The Table 1 was a summarized of the profile variables such as sex, average grade in Mother Tongue, Pangasinan reading materials available and used at home, language/s spoken at home, parents' educational attainment, family average monthly income, availability of multimedia gadgets at home.

Table 1  
Profile of Learners (n=33)

Profile	Category	Frequency	Percentage
Sex	Male	17	51.5
	Female	16	48.5
Average Grade in Mother Tongue	Outstanding (90-100)	1	3.0
	Very Satisfactory (85-89)	15	45.5
	Satisfactory (80-84)	6	18.2
	Fairly Satisfactory (75-79)	4	12.1
Pangasinan reading materials available and used at home*	Textbooks	28	84.8
	Bigbooks	13	39.4
	Storybooks	26	78.8
	Picturebooks	9	27.3
	Coloringbooks	30	90.9
	Workbooks	15	45.5
Language spoken at home	Pangasinan	29	87.9
	Filipino	4	12.1
Father's educational attainment	High School Graduate	5	15.2
	College Undergraduate	10	30.3
	College Graduate	18	54.5
Mother's educational attainment	High School Graduate	3	9.1
	College Undergraduate	10	30.3
	College Graduate	20	60.6
Family average monthly income	Less Than Php 5,000	14	42.4
	Php 5, 000 - Php 9, 999	14	42.4
	Php 10, 000 - Php 14, 999	1	3.0
	Php 20, 000 - 24, 999	4	12.1
Availability of multimedia gadgets at home*	Cellphone	33	100.0
	Personal Computer/Laptop	15	45.5
	Psp	1	3.0
	Tablets	11	33.3
	I-Pod	1	3.0

**Sex.** It could be gleaned from Table 1 that out of the 33 respondents, there were 17 (51.5%) male and 16 (48.5%) female. This shows that Grade 1 class for the S.Y. 2019-2020 is almost equal in number.

**Average grade in Mother Tongue.** The table shows that there are 15 (45.5%) among the learners under very satisfactory category and there were 6 (18.2%) under satisfactory category. There were 4 (12.1%) among the learners under fairly

satisfactory category and only 1 (3.0%) under outstanding category. This shows that the Grade 1 class was mostly average in the subject Mother Tongue.

**Pangasinan reading materials available and used at home.** The table also shows that the highest reading material available and used at home were coloring books wherein 30 (90.9%) and 28 (84.8%) in textbooks. There were 26 (78.8%) storybooks and 15 (45.5%) in workbooks. And the least available were big books with 13 (39.4%) and 9 (27.3%) have picture books.

**Parents' Educational Attainment.** It could be gleaned from Table that both the father and mother of the respondents registered the highest percentage of educational attainment under the college category with 18 (54.5%) and 20 (60.6%) respectively, it was followed by being a college undergraduate for both the father and mother with 10 (30.3%), while 5 (15.2%) and 3 (9.1%) for both their father and mother have graduated high school. This shows that most of the parents in Grade 1 class were mostly college graduate.

**Family Average Monthly Income.** The table also shows that most of the familys' average monthly income falls under less than PHP 5, 000 category which is 14 (42.4%) and the same percentage of responses fall within the bracket PHP 5, 000 – PHP 9, 999 category which is also 14 (42.4%). While 4 (12.1%) of them were within PHP 20, 000 – 24, 999 category and only 1 (3.0%) under PHP 10, 000 – PHP 14, 999 category. According to the website [www.SalaryExplorer.com](http://www.SalaryExplorer.com), salaries in Philippines range between 6,843 PHP per month (minimum salary) to 223,867 PHP per month (maximum salary). In our country, salaries are on the rise in

the year 2019 based on recent submitted salaries and reports. Salaries in 2019 are 4 percent higher than those of 2018. These numbers differ slightly based from the said percentage of familys' average monthly income of the Grade 1 class.

**Availability of Multimedia Gadgets at Home.** As the table shows, all the 33 (100%) learners have cellphone available at home. There were 15 (45.5%) of them who have a personal computer or laptop, while there was only 1 (3.0%) having PSP and iPod. According to the study of Statista Research Department (2019), mobile-phone users in the Philippines comprised about 65.3 percent of the total population in 2015 and accelerated to 70 percent in 2020, according to forecasts. This result is a significant share of the total population, considering that the entire population in the country has grown substantially and forecasted to reach around 110 million in 2020. This collaborates with the number of Grade 1 class that use cellphone as their media-gadget available at home.

### Reading Proficiency Levels of the Grade 1 Learners

Table 2 and Table 3 shows the reading proficiency level of the grade 1 learners in word recognition and comprehension under experimental group and control group.

Table 2

Reading Proficiency Levels in Word Recognition and Comprehension in Experimental Group Profile of the Grade 1 Pupils  
n=17

Experimental	Pretest				Posttest			
	Word Recognition		Comprehension		Word Recognition		Comprehension	
Proficiency Level	f	%	f	%	f	%	f	%
Frustration	11	64.71	10	58.82	2	11.76	0	0
Instructional	6	35.29	7	41.17	6	35.29	6	35.2
Independent	0	0	0	0	9	52.94	11	64.71

The pretest shows greater number of frustration in the experimental group under word recognition (f=11; 64.71%) and comprehension (f=10; 58.82%) which denotes that learners score

89% below in word recognition and 58% below in comprehension. After exposure to text-to-speech, the experimental group shows a greater number of independent under word recognition (f=9; 52.94%) and comprehension (f=11; 64.71%) compared to the pretest which denotes that learners score 97% to 100% in word recognition and 80% to 100% in comprehension. This means that learners in experimental group improved their word

recognition and comprehension skills. This concurs to the study of Dalton that text-to-speech can help improve comprehension and vocabulary skills [10]. Same with the study of Joshi that through the interaction with multimedia, the students become increasingly familiar with academic vocabulary and language structure. He concluded that multimedia instruction develops the reading comprehension of pupils [11].

Table 3  
Reading Proficiency Levels in Word Recognition and Comprehension in Control Group  
(n=16)

Control	Pretest				Posttest			
	Word Recognition		Comprehension		Word Recognition		Comprehension	
Proficiency Level	f	%	f	%	f	%	f	%
Frustration	1	6.25	1	6.25	0	0.0	0	0.0
Instructional	8	50.0	8	50.0	8	50.0	8	50.0
Independent	7	43.75	7	43.75	8	50.0	8	50.0

The control group shows greater number of instructional level (f=8; 50%) in both word recognition and comprehension in pretest which reflects a computed value of word recognition of 90%-96% and comprehension of 59%-79%. However, after exposure to conventional strategy, the control group shows same number of instructional (f=8; 50%) and independent (f=8; 50%) in both criteria.

This means that the learners in control group remain within instructional and independent level. The results show that the proficiency levels of the

experimental group in word recognition and comprehension have shown improvement than those in control group. This concurs to the study of Kennedy that text-to-speech can help improve pupils' recognition of words and comprehension [12]. Same with the study of Dowdle (2014) that through interactive instructional technique, learners can be taught effectively and can lift up students' comprehension than conventional teaching methods [13]. Moreover, Taj (2017) indicates that there is a significant improvement of technology incorporation in language learning process [14].

Table 4  
Summary of Reading Proficiency

a. Text-to-speech (n=17)

Reading Proficiency	Pretest		Posttest	
	f	%	f	%
Frustration	11	64.7	2	11.8
Instructional	6	35.3	9	52.9
Independent	0	0.0	6	35.3

b. Conventional strategy (n=16)

Reading Proficiency	Pretest		Posttest	
	f	%	f	%
Frustration	1	6.3	0	0.0
Instructional	8	50.0	8	50.0
Independent	7	43.8	8	50.0

As shown in the table 4, there were greater number in frustration level (f = 11 or 64.7%) and a lesser number in the instructional level (f = 6 or 35.3%) in the experimental group while in the control group, they were in the instructional level (f = 8 or 50.0%) and in independent level (f = 7 or 43.8%) in pretest.

After exposure to text-to-speech, there was an increased number in the experimental group wherein a step-up number in instructional level (f = 9 or 52.9%) and in independent level (f = 6 or 35.3%). As shown in the table, the number in frustration level has lessen (f = 2 or 11.8%) compared to the result in the pretest. On the other hand, after exposure to conventional strategy, the number in instructional level (f = 8 or 50.0%) and in independent level (f = 7 or 43.8%) show less difference.

Most of the learners in the experimental group were less proficient in terms of their reading proficiency. This can be viewed on the data that they had greater number in frustration and a lesser number in the instructional level which is based on the computed average score in word recognition and comprehension.

The results appeared that the reading proficiency level of the learners was within the

frustration and instructional level in the pretest. Imam (2013) stated that the low performance of students in national achievement tests for the last decades proved to be a real challenge to Philippine educational system.

After exposure to text-to-speech, the results show improvement of the learners in their posttest after weeks of using text-to-speech strategy. The results disclosed a notion that the reading proficiency level of the learners after exposure to text-to-speech was within the instructional and independent level. This is similar to the study of Stodden that the use of TTS software with content reading materials for a minimum of 30 minutes per week improves subjects' reading performance [15]. The results indicated that study participants had significantly improved reading skills through the use of the TTS software.

Furthermore, most of the learners in control group were average in terms of their reading proficiency based on the computed average score in word recognition and comprehension. The results appeared that the reading proficiency level of the learners was within the instructional and independent level in the pretest.

After exposure to conventional strategy, the results show less difference in their posttest. This conforms to the study of Abrera (2014) that E-learning material should be used to improve performance in reading comprehension of students. He stated that administrators should at least encourage their teachers and students in the use of

**Difference in the Reading Proficiency Levels in the Grade 1 Learners after Exposure to their Respective Teaching Strategy**

Table 5 unveiled the significant difference in the reading proficiency levels of

modern technology as teaching aids to supplement the traditional way of teaching. E-learning was deemed effective based from his study.

Grade 1 learners. The test on significant difference in the levels of reading proficiency of Grade 1 learners analyzed after exposure to their respective teaching strategy is presented below.

Table 5

Difference in the reading proficiency levels of the Grade I pupils after exposure to their respective teaching strategy

<b>Teaching Strategy</b>	<b>Mean</b>	<b>F</b>	<b>Sig.</b>
<b>Conventional</b>	<b>2.031</b>	<b>16.046</b>	<b>&lt;.001</b>
<b>Text to speech</b>	<b>2.677</b>		

As reflected in the table, the control group has a posttest mean of 2.031, while the experimental group has a posttest mean of 2.677. The F-value is 16.046 with a p-value of less than 0.001. As the p-value is less than 0.05, it can be concluded that there is significant difference on the levels of reading proficiency after exposure to their respective teaching strategy in favor of the text-to-speech. This means that the text-to-speech is more effective than the conventional way of teaching pupils in enhancing their proficiency levels. This conforms to the study of Ragasa that there is a significant difference in the effects of treatment (computer-assisted instruction) and control groups

(traditional method) on achievement of students [16].

The result adheres to the study of Park and Takahashi indicated that the TTS intervention had a significant, positive effect on student reading vocabulary and reading comprehension after the use of TTS software [17].

Although text-to-speech and conventional strategy is related, the levels of reading proficiency are different. This imposed the study of Allington that a struggling reader and a successful reader who engage in the same reading session do not necessarily receive equivalent practice, and they are likely to experience different outcomes [18].



### Relationship Between Pupils' Profile and Reading Proficiency Levels

This part shows the relationship between the profile of Grade 1 learners and their reading

proficiency levels. Table 6 shows the relationship between the learners' profile and their reading proficiency levels in the next page.

Table 6

Relationship Between Pupils' Profile and Reading Proficiency Levels

Profile	Post Spearman rho	p-value
Sex <sup>a</sup>	.215 <sup>ns</sup>	.055
Average grade in Mother Tongue	<b>.456**</b>	<b>.008</b>
Pangasinan reading materials available and used at home	.340 <sup>ns</sup>	.053
Language/s spoken at home <sup>a</sup>	<b>.737**</b>	<b>&lt;.001</b>
Father's educational attainment	.309 <sup>ns</sup>	.080
Mother's educational attainment	.306 <sup>ns</sup>	.083
Familys' average monthly income	-.185 <sup>ns</sup>	.303
Availability of multimedia gadgets at home	.221 <sup>ns</sup>	.216

ns – not significant, \*\*Significant at 1% level  
a-Point Biserial

As seen in table 6, the profile variables of Grade 1 learners have significant relationship on average grade in Mother Tongue ( $r=.456$ ,  $p=.008$ ) in posttest proficiency levels. This means that there is a significant positive correlation between average grade in Mother Tongue and the reading proficiency levels based on the significance value that is lower than 0.05 level. This shows that grades have several explicit functions such as to give information of learners' attainment and to increase their motivation to learn. It only proves the study of Imam (2013) that reading comprehension affects performance in other subjects. The researcher further stated that the Department of Education attributed this problem to students' poor reading comprehension. Studies (Baker 2001) show that when struggling readers are not motivated to read, their opportunities to learn decrease significantly [19].

Based on the table, there is a significant positive correlation between languages spoken at

home and levels of proficiency in posttest based on the p-value that is lower than 0.05 level. This means that there is a positive effect of the first language spoken at home. Clearly, literacy skills development in the native language should start early and at home. According to Morake (2018), the importance of a child being taught in their home language is that they will understand better at school and will be more comfortable when learning. Learners who go to school with a solid foundation of their mother tongue language develop literacy abilities in the language of instruction at school.

## CONCLUSIONS AND RECOMMENDATIONS

### CONCLUSIONS

1. The number of male and female was almost the same. The respondents use coloring books as their

reading material, speak Pangasinan at home, parents are college graduates, have mobile phones available at home, have a very satisfactory average grade and with a modest family income.

2. The learners' reading proficiency levels improved after being exposed to text-to-speech.

3. Text-to-speech improved the word recognition and comprehension skills better than learners taught using conventional strategy.

4. Average grade in Mother Tongue and languages spoken at home influence the pupils' reading proficiency levels.

### RECOMMENDATIONS

1. Considering the contemporary world that we are now living in, technology should be made available on an equitable basis like the use of text-to-speech in teaching MTB-MLE to incorporate wide range of reading comprehension strategies that will suit learner levels.

2. Teachers may use text-to-speech strategy to pupils' learning and reading development.

3. Provide opportunities to reading teachers for professional development by sending them in trainings, seminars, workshops and symposia especially designed to enhance teacher's skills in teaching reading using technology and uplifting the reading proficiency of the pupils.

4. Similar studies may be done with a larger sample size of struggling readers or learners in frustration level.

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