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The Influence of Phonological Awareness on the Reading Comprehension Level of Elementary School Children in Surakarta

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ABSTRACT

Background: Reading comprehension is a cognitive process that involves extracting meaning from a text. Previous research has shown that children's reading comprehension skills remain inadequate. Reading comprehension is influenced by many factors, one of which is phonological awareness. Phonological awareness refers to the capacity to recognize, alter, and work with phonemes in spoken language of different complexities. Research Purpose: to determine whether or not there is an influence between phonological awareness and reading comprehension levels among primary school student in Surakarta. Research.

Method: This study adopted an observational strategy using a cross-sectional design. A purposive sampling technique was applied, based on defined inclusion and exclusion criteria. Research.

Result: The result of the research showed an influence between the two variables with a Spearman-Rank p = 0.000 and r value = 0.345, that indicating a weak influence between the two variables. The influenced was also calculated using linear regression analysis with the same result.

Conclusion: Phonological awareness contributes to improvements in reading comprehension. A one-point increase in phonological awareness is associated with an increase of approximately 0.068 points in reading comprehension.

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INTRODUCTION

The ability to read includes being able to form mental images, convert written text into words and sentences, develop effective reading strategies, and comprehend the content (Putri et al., 2023). Reading comprehension is the activity of reading to draw conclusions and identify implied meanings from the text (Jamal & Wahyudi, 2022).

Reading comprehension is a cognitive process that seeks to derive meaning from a text, influenced by reading fluency, vocabulary comprehension, the reading techniques employed, and mastery of foundational knowledge (Brilliananda et al., 2021). Reading comprehension can be influenced by the implementation of reading strategies that require students to be active participants. The chosen strategies must be adapted to the students' needs, and the implementation of these strategies should be continuously evaluated (Pamungkas et al., 2023).

Phonological awareness is the skill of recognizing and working with phonemes, the smallest units of sound in words. This phonological awareness ability is vital for a child's future reading skills, as it helps improve and accelerate reading development. Phonological awareness is a fundamental element that supports reading skills (Sutfin, 2025). Another study by Moreno Yépez et al., (2025) also shows that phonological awareness significantly contributes to language skills and reading development.

According to several studies, reading comprehension levels of elementary school in Indonesia remain low. A 2011 survey by PIRLS indicated that Indonesia ranked 45th out of 48 countries with low reading literacy. Meanwhile, according to the Chair of the Indonesian Literacy Culture Development Forum, Indonesia ranked 62nd out of 70 countries with low literacy rates. Results from the PISA (Programme for International Student Assessment) study show that 70% of students in Indonesia have low reading proficiency (Vetrisya et al., 2023).

Based on these facts and background, the author conducted a study titled "The Influence of Phonological Awareness on the Reading Comprehension Level of Elementary School Children in Surakarta" to investigate the effect of phonological awareness on the reading comprehension of elementary school students in the region**.**

An observational method with a cross-sectional design was used in this study. The study employed purposive sampling, applying specific inclusion and exclusion criteria. The study found that phonological awareness affects reading comprehension. The Spearman-Rank correlation showed $p = 0.000$ ($p < 0.05$) and $r = 0.345$, indicating that phonological awareness has a minimal effect on reading comprehension among elementary school children. Linear regression analysis was used to assess the strength of this relationship, and it likewise indicated a weak influence.

METHOD

This study employs a quantitative research method, which is intended to test the hypotheses that have been formulated. The study uses a cross-sectional observational design to investigate the relationship between two variables or whether one predicts the other. This is done by collecting data at the same time without any intervention.

The study population includes students in the fourth grade of elementary school in the city of Surakarta, with data sourced from the official website of Surakarta there are 8,831. But, due to limitations in time, budget, and manpower, the minimum sample size was set at 100 fourth-grade elementary school students.

This study applied a non-probability approach, with purposive sampling as the selected method. The inclusion and exclusion criteria used to select the sample are as follows, Inclusion: Criteria 1) Fourth-grade elementary school students; 2) Able to follow instructions well; 3) Children

who can already read; 4) Willing to participate as respondents. Exclusion Criteria:1) Children who cannot yet read and 2) Children who are unwilling to participate as respondents

RESULTS AND DISCUSSION

In this study, the sample comprised 100 respondents, including 23 from Sekolah Dasar Negeri Slembaran, 25 from Sekolah Dasar Muhammadiyah 19 Kemlayan, 29 from Sekolah Dasar Negeri II Banyuagung, and 23 from Sekolah Dasar Negeri Nusukan, all located in Surakarta. The results of the study are as follows:

Univariate Analysis

Table 1. Frequency Distribution Overview by Gender

Gender	Frequency	Percentage
Male	56	56%
Female	44	44%
Total	100	100%

Source: Primary data, analyzed using SPSS 21 (2025)

From a total sample size of one hundred respondents in this study, fifty-six were male students, and the remaining forty-four were female students.

Table 2. Frequency Distribution Overview by Age

Age	Frequency	Percentage
9 years old	29	29%
10 years old	69	69%
11 years old	2	2%
Total	100	100%

Source: Primary data, analyzed using SPSS 21 (2025)

Although the respondents were selected from the same grade level—fourth grade—not all students were the same age. The respondents were between 9 and 11 years old, with 29 aged 9, 69 aged 10, and 2 aged 11. The homeroom teacher noted that the eleven-year-old students were those who had repeated the grade the previous year; however, since they already possessed reading comprehension skills, they met the criteria for inclusion in the study.

Table 3. Frequency Distribution of Phonological Awareness Skills

Number	Class (Data Range)	Frequency	Percentage
1.	126 – 138	1	1%
2.	139 – 151	1	1%
3.	152 – 164	0	0%
4.	165 – 177	2	2%
5.	178 – 190	5	5%
6.	191 – 203	16	16%
7.	204 – 216	28	28%
8.	217 – 229	47	47%
	Total	100	100%

Source: Primary data, analyzed using SPSS 21 (2025)

The phonological awareness assessment comprises 230 items divided into 6 subsections. This assessment was administered to respondents using a scaled scoring system, yielding a lowest score of 126, a highest score of 229, and an average of 211.25. From these scores, the score range is 103. The data were subsequently divided into eight classes with a class width of 13. After the data were divided into 8 classes, the results showed the highest frequency in the highest class (scores 217 to

229), with 47 (47%). Therefore, from this data, it can be inferred that the phonological awareness abilities of primary school children in Surakarta are classified as good.

Table 4. Frequency Distribution of Reading Comprehension Skills

Number	Class (Data Range)	Frequency	Percentage
1.	6 – 7	5	5%
2.	8 – 9	6	6%
3.	10 – 11	5	5%
4.	12 – 13	5	5%
5.	14 – 15	16	16%
6.	16 – 18	32	32%
7.	19 – 21	26	26%
8.	22 – 24	5	5%
	Total	100	100%

Source: Primary data, analyzed using SPSS 21 (2025)

The reading comprehension assessment consists of 25 questions: 22 multiple-choice and 3 short-answer. According to Murfiana et al. (2022), reading comprehension among fourth-grade students can be measured by their capacity to address 5W+1H questions, identify key sentences and main ideas, and formulate conclusions. From the data obtained, the lowest score was 6 and the highest was 24. This data was then divided into 8 classes, with class intervals of 2 to 3. The highest frequency was in the average data group (16 to 18), comprising 32 respondents (32%). This result falls into the moderate category, as more than 50% of respondents scored within the average range. This aligns with studies carried out by Brillianandа et al., (2021)and Budiawan et al., (2021), who stated that the reading comprehension skills of fourth-grade elementary school students in Surakarta are still relatively low.

Data Prerequisite Check

These preliminary tests are conducted as a prerequisite for performing bivariate tests or data analysis. These preliminary tests include tests of data normality and linearity. A normality test is required before conducting Pearson's bivariate product-moment correlation test. For datasets with more than 50 observations, the Kolmogorov-Smirnov test is used. The results are as follows:

Table 5. Normality Test

Variable	Sig
Phonological Awareness	0.000
Reading Comprehension	0.000

Source: Primary data, analyzed using SPSS 21 (2025)

The data in Table 5 indicates that the normality test produced a significance value of 0.000, which is below 0.05. This suggests that the data are not normally distributed, as the significance value is below 0.05. Consequently, the Pearson Product-Moment correlation test cannot be performed, and an alternative test using Spearman's rank correlation must be used.

Table 6. Linearity Test

Test	Sig
Linearity Test	0.007

Source: Primary data, analyzed using SPSS 21 (2025)

A linearity test is conducted as a prerequisite for regression and correlation analyses. The test results yielded a significance value of 0.07; as a result, it can be concluded that the two variables are linearly related.

Bivariate Analysis

Because the data were not normally distributed, the bivariate analysis employed the Spearman rank test to analyze the relationship between the two variables. This was followed by a regression analysis to determine the extent to which variable x influences variable y.

Table 7. Spearman Rank Test

Test	Sig	*Correlate Coefficient*
Spearman Rank Test	0.000	0.345

Source: Primary data, analysed using SPSS 21 (2025)

A significance value of 0.000 was obtained, indicating that it is less than 0.05. Thus, the null hypothesis (H_0) is rejected, while the alternative hypothesis (H_1) is accepted. Hence, the analysis suggests a relationship between the two variables, with a correlation coefficient (r) of 0.345. This coefficient falls into the weak category, with a positive correlation. Regression analysis is used to determine how independent variables affect or influence the dependent variable.

Table 8. Simple Linear Regression Analysis

R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate (SEE)*
0.272	0.074	0.065	4.067

Source: Primary data, analyzed using SPSS 21 (2025)

The table indicates that the correlation coefficient (R) is 0.272, which is considered weak. The R-squared value indicates that the independent variables account for 7.4% of the variation in the dependent variable, with the remaining 92.6% attributable to other variables or factors.

DISCUSSION

The purpose of this study is to examine phonological awareness, reading comprehension levels, the existence of an effect of phonological awareness on reading comprehension, and the degree of that effect. Fourth-grade students were selected for several reasons, including cognitive maturity; specifically, at ages 9–10, the final stage of the concrete operational phase, where memory retention skills begin to develop Marinda, (2020) and the transition from concrete to abstract thinking occurs. This is further supported by Murfiana et al., (2022) who argue that reading comprehension is a fundamental language skill that elementary school students, particularly those in the upper grades (grades 4–6), need to master. The results of the data analysis are explained as follows:

An Overview of Phonological Awareness Skills Among Primary School Children in Surakarta

The test consists of 230 assessment items divided into 6 subsections. The assessment is scored on a scale, with a lowest score of 126, a highest score of 229, and an average of 211.25. From the scores obtained, the score range is 103. The data is then divided into 8 classes with a class interval of 13. The highest frequency is in the highest class (scores 217 to 229), with 47 (47%). Thus, from this data, it can be concluded that the phonological awareness skills of elementary school children in Surakarta are considered good.

This is confirmed by a study conducted by Fitri & Setyaningsih, (2025) and Asri nuraini et al., (2025), which states that children's phonological awareness skills are generally good. Students with high early reading skills possess strong phonological awareness; the two are positively correlated.

An Overview of Reading Comprehension Skills Among Elementary School Students in Surakarta

The reading comprehension test consists of 25 questions, including 22 multiple-choice and 3 short-answer items. The questions consist of items incorporating the 5W+1H elements. According to Murfiana et al., (2022), The reading comprehension of fourth-grade elementary students can be evaluated through their ability to respond to 5W+1H questions, identify the main sentence and main idea, and draw conclusions.

The data indicates that it is divided into 8 classes, with a class interval width of 2 to 3. The highest frequency is in the average data group (16 to 18), comprising 32 respondents (32%). This result falls into the moderate category, as more than 50% of respondents scored within the average range. In agreement with the findings of Brillianandaet al., (2021) and Budiawan et al., (2021), the reading comprehension of fourth-grade students in Surakarta is still considered fairly low.

The Influence of Phonological Awareness on Reading Comprehension Levels Among Elementary School Students in Surakarta

Based on the analysis, an effect of phonological awareness on reading comprehension levels was observed, with the Spearman rank test yielding a p-value of 0.000 ($p < 0.05$), indicating that the significance level is less than 0.05; Therefore, rejecting the null hypothesis (H_0) and accepting the alternative hypothesis (H_a) indicate that the two variables are correlated, with a correlation coefficient (r) of 0.345. The regression analysis produced a correlation coefficient (R) of 0.272, suggesting a weak relationship. The contribution of variable X (phonological awareness) to variable Y (reading comprehension) is reflected in the R-squared value of 7.4%. This indicates that PA accounts for 7.4% of reading comprehension, with the remaining 92.6% attributable to other factors. Phonological awareness contributes such that each 1-point increase in PA ability leads to a 0.068-point increase in reading comprehension relative to its previous level.

CONCLUSION

Based on the findings of a study investigating the effect of phonological awareness on the reading comprehension of elementary school children in Surakarta, the following conclusions were drawn; Overview of Phonological Awareness Skills Among Elementary School Children in Surakarta The results of this study indicate that phonological awareness skills fall into the "good" category. This is based on the research findings, which showed phonological awareness scores ranging from a low of 126 (1 student, 1%) to a high of 229 (4 students, 4%). The data was divided into 8 groups, with the highest frequency occurring in the top group (217 to 229), comprising 47 respondents. The reading comprehension data groups were divided into 8, with the highest frequency in the 16 to 18 range, comprising 32 respondents.Furthermore, the comprehension level falls within the inferential reading comprehension category, with an average score of 60. The effect of phonological awareness on reading comprehension levels, based on the Spearman rank test, showed a p-value of 0.000. Therefore, it can be concluded that an influence exists between the two variables, with the strength of the relationship indicated by the correlation coefficient ($r = 0.345$) The magnitude of the contribution of variable X (Phonological Awareness) to variable Y (reading comprehension) is 7.4%.

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