# THE CORRELATION BETWEEN PHONOLOGICAL AWARENESS AND READING FLUENCY (ACCURACY AND SPEED) IN ALBANIAN-SPEAKING STUDENTS: A PILOT STUDY

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**Abstract**

Reading requires important cognitive skills, including phonological awareness. This study aimed to assess phonological awareness and reading fluency, in terms of accuracy and speed, among 40 third-grade students from Tetovo, as well as to examine the relationship between these variables. The results indicated a high level of phonological awareness (M = 4.80), particularly in word segmentation (M = 5.10). The mean reading accuracy scores within 60 seconds were 90.42 for letters, 42.52 for words, and 53.52 for text. Positive and statistically significant correlations were found between phonological awareness and letter-reading accuracy ($\rho = .611$, $p < .001$), word-reading accuracy ($\rho = .574$, $p < .001$), and text-reading accuracy ($\rho = .676$, $p < .001$). Phonological awareness was also negatively correlated with letter-reading time ($\rho = -.581$, $p < .001$) and text-reading time ($\rho = -.568$, $p < .001$). Among the assessed subdomains, rhyme completion showed strong correlations with letter-reading accuracy ($\rho = .570$, $p < .001$), word-reading accuracy ($\rho = .595$, $p < .001$), and text-reading accuracy ($\rho = .637$, $p < .001$). Furthermore, phoneme blending, addition, and substitution tasks were significantly associated with text-reading accuracy. The findings highlighted the importance of phonological awareness in the development of accurate and fluent reading among Albanian-speaking third-grade students.

*Keywords: phonological awareness, reading fluency, reading accuracy, reading speed, third-grade students.*

## 1. Introduction

Reading is a complex process that requires the development of linguistic and cognitive skills. It involves several interconnected processes that enable children to identify, decode, and understand words accurately and quickly. In this context, phonological awareness is considered one of the key prerequisites for the development of reading skills, as it is associated with children's ability to recognize and manipulate the sounds of spoken language. According to Chard and Dickson (1999), phonological awareness involves the ability to recognize and manipulate the sound structures of language, while its development plays an important role in reading acquisition.

Phonological awareness refers to the ability to identify and manipulate small sound units in spoken language. It encompasses various skills, such as rhyme identification, syllable segmentation, and the identification, blending, or manipulation of phonemes. These skills help children understand the sound structure of words and establish connections between spoken and written language. Therefore, the development of phonological awareness is particularly important during the early years of schooling, when children acquire fundamental reading skills.

Reading fluency involves speed, accuracy, and intonation during reading. It is not limited to pronouncing words correctly but is also related to the ability to read text continuously and understand its content. Reading accuracy and speed are particularly important for the development of academic skills, as difficulties in decoding words may affect how students engage with school texts. In this regard, the relationship between phonological awareness and reading fluency represents an important issue to investigate in the process of children's linguistic and academic development.

Previous studies have examined the relationship between phonological awareness and reading skills. Pannell (2012) investigated the relationship between phonological awareness at

preschool age and reading skills in third grade, while Hogan et al. (2005) examined the relationship between phonological awareness and reading. These studies support the importance of examining phonological skills in relation to reading development and provide a basis for further research in this field.

The importance of this topic is particularly related to the period when children transition from "learning to read" to "reading to learn." In third grade, students increasingly encounter texts that require not only accurate word decoding but also faster and more fluent reading. Although phonological awareness and reading have been addressed in previous studies, the relationship between them among Albanian-speaking third-grade students in the context of Tetovo warrants further investigation. Understanding this relationship may help identify the skills associated with reading performance and contribute to the planning of appropriate educational support.

The aim of this study was to explore the relationship between phonological awareness and reading fluency among third-grade students. The research sought to assess the level of phonological awareness, analyze reading performance in terms of accuracy and reading time, and examine whether a relationship existed between phonological skills and reading performance. To achieve this aim, the study was conducted with 40 Albanian-speaking third-grade students in Tetovo. Phonological awareness skills and reading performance were assessed, and the data were analyzed to examine the relationships between the results in these two areas.

## 2. Aim of the Study

The aim of this study is to analyze the relationship between phonological awareness and reading fluency among third-grade students. To this end, the study seeks to assess students' level of phonological awareness, measure reading fluency by focusing on speed and accuracy, and explore the relationship between these two components in order to better understand the association between phonological awareness and fluent reading. In accordance with this aim, the study seeks to answer the following research questions:

1. What is the level of phonological awareness among third-grade students?
2. Are there differences in the level of phonological awareness based on gender?
3. How many words do third-grade students read correctly per minute?
4. What is the level of reading fluency among third-grade students in terms of reading accuracy and speed?
5. Are there differences in reading speed and accuracy based on gender?
6. Is phonological awareness associated with reading speed and accuracy among third-grade students?

## 3. Methodology

### 3.1. Instruments and Techniques

Phonological awareness was assessed using a phonological awareness test adapted from the Phonological Awareness Skills Test (P.A.S.T.), based on the instructions of David Kilpatrick (Kilpatrick, 2024). The test contains 16 subdomains, each comprising 6 tasks. For each task, students can provide between 0 and 6 correct responses. The reliability of the test was assessed using Cronbach's alpha coefficient, which was 0.88.

**Table 1.** Reliability Test (Cronbach's Alpha)

| Cronbach's Alpha | Number of items |
|---|---|
| 0.88 | 16 |

Reading fluency was assessed using the standardized Early Grade Reading Assessment (EGRA), developed by RTI International (2016), with the support of the World Bank and the United States Agency for International Development (USAID). The test was used to measure reading speed and accuracy. The tasks included reading 100 letters, 50 words presented in random order, and 59 words in connected text, with performance measured within 60 seconds.

### 3.2. Participants and Sampling Method

A total of 40 third-grade students from two primary schools participated in the study. Participants were selected through purposive sampling, based on the willingness and availability of the schools to participate in the study.

### 3.3. Data Analysis

The data were analyzed using descriptive statistics, including the mean, standard deviation, minimum, and maximum values. The Mann–Whitney U test was used to compare performance between groups, while the relationship between phonological awareness and reading fluency was analyzed using Spearman's rank correlation.

## 4. Results

### 4.1. Level of Phonological Awareness

**Table 2.** Descriptive Statistics for Overall Phonological Awareness

| | N | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|---|
| Mean Phonological Awareness Score | 40 | 3 | 6 | 4.80 | 0.82 |
| Number of valid cases | 40 | | | | |

The mean overall phonological awareness score was 4.80 (SD = 0.82). The highest mean score was recorded for initial phoneme isolation (M = 5.85), while the lowest was recorded for rhyme production (M = 3.35).

### 4.2. Gender Differences in Phonological Awareness

**Table 3.** Comparison of Phonological Awareness Between Male and Female Groups Using the Mann–Whitney Test

| | Mean Phonological Awareness |
|---|---|
| Mann-Whitney U | 190.50 |
| Wilcoxon W | 361.50 |
| Z | -0.20 |
| Asymptotic Significance (Two-Tailed) | 0.84 |
| Exact Significance [2 × (One-Tailed)] | 0.84 |

No statistically significant differences in phonological awareness were found according to gender (U = 190.50, p = .84).

### 4.3. Reading Speed and Accuracy

**Table 4.** Descriptive Statistics for Reading Speed Results

| | | Letter reading time | Word reading time | Text reading time |
|---|---|---|---|---|
| Number of cases | Valid | 40 | 40 | 40 |
| | Missing | 0 | 0 | 0 |
| Mean | | 55.75 | 49.82 | 43.48 |
| Minimum | | 40 | 22 | 18 |
| Maximum | | 60 | 60 | 60 |
| Sum | | 2230 | 1993 | 1739 |

The mean reading times were 55.75 seconds for letters, 49.82 seconds for words, and 43.48 seconds for text.

**Table 5.** Descriptive Statistics for Reading Accuracy

| | | Letters read correctly | Words read correctly without context | Words read correctly in connected text |
|---|---|---|---|---|
| N | Valid | 40 | 40 | 40 |
| | Missing | 0 | 0 | 0 |
| Mean | | 90.42 | 42.52 | 53.52 |
| Minimum | | 53 | 11 | 15 |
| Maximum | | 100 | 81 | 59 |
| Sum | | 3617 | 1701 | 2141 |

The mean number of units read correctly was 90.42 letters, 42.52 words, and 53.52 words in connected text, respectively.

### 4.4. Gender Differences in Reading

**Table 6.** Comparison of Reading Skills Between Groups Using the Mann–Whitney Test

| | Letter reading time | Letter reading accuracy | Word reading time | Word reading accuracy | Text reading time | Text reading accuracy |
|---|---|---|---|---|---|---|
| Mann-Whitney U | 188.00 | 165.00 | 192.50 | 177.50 | 183.50 | 159.50 |
| Wilcoxon W | 441.00 | 418.50 | 445.00 | 430.50 | 436.50 | 330.50 |
| Z | -0.30 | -0.88 | -0.16 | -0.56 | -0.39 | -1.06 |
| Asymptotic Significance (Two-Tailed) | 0.76 | 0.37 | 0.87 | 0.57 | 0.69 | 0.29 |
| Exact Significance [2 × (One-Tailed)] | 0.79 | 0.38 | 0.88 | 0.58 | 0.70 | 0.30 |

No statistically significant gender differences were found in the measures of reading speed and accuracy (all $p > .05$).

## 4.5. Relationship Between Phonological Awareness and Reading

**Table 7.** Correlations Between Reading Subdomains and Phonological Awareness According to Spearman's Rank Correlation

| | Letter reading time | Letter reading accuracy | Word reading time | Word reading accuracy | Text reading time | Text reading accuracy |
|---|---|---|---|---|---|---|
| Sentence segmentation | -0.24 | 0.45** | -0.04 | 0.28 | -0.25 | 0.41** |
| Rhyme recognition | -0.32 | 0.30 | -0.29 | 0.34* | -0.29 | 0.44** |
| Rhyme completion | -0.44** | 0.57** | -0.37* | 0.59** | -0.52** | 0.64** |
| Rhyme production | -0.21 | 0.26 | -0.23 | 0.38* | -0.35* | 0.39* |
| Syllable blending | -0.19 | 0.10 | -0.22 | 0.19 | -0.19 | 0.31 |
| Syllable segmentation | -0.43** | 0.43** | -0.27 | 0.28 | -0.25 | 0.39* |
| Syllable delection | -0.33* | 0.28 | -0.22 | 0.19 | -0.27 | 0.25 |
| Initial phoneme isolation | 0.52 | 0.15 | 0.12 | 0.10 | 0.04 | 0.29 |
| Final phoneme isolation | -0.19 | 0.24 | 0.04 | 0.14 | 0.03 | 0.21 |
| Initial phoneme blending | -0.34* | 0.43** | -0.37** | 0.49** | -0.47** | 0.56** |
| Blending all phonemes | -0.25 | 0.19 | -0.21 | 0.25 | -0.34* | 0.27 |
| Phoneme segmentation | -0.28 | 0.33 | -0.30 | 0.34* | -0.31 | 0.43** |
| Initial phoneme deletion | -0.40** | 0.35* | -0.48** | 0.33 | -0.49** | 0.48** |
| Final phoneme deletion | -0.29 | 0.28 | -0.17 | 0.34* | -0.22 | 0.20 |
| Phoneme addition | -0.33* | 0.37* | -0.23 | 0.40** | -0.33* | 0.52** |
| Phoneme substitution | -0.43** | 0.40* | -0.38* | 0.45** | -0.44** | 0.58** |
| Total Phonological Awareness | -0.58** | 0.61** | -0.47** | 0.57** | -0.57** | 0.68** |

**Note:** *$p < 0.05$, **$p < 0.01$.

Phonological awareness was negatively correlated with reading time ($r_s = -.47$ to $-.58$) and positively correlated with reading accuracy ($r_s = .57$ to $.68$). All these relationships were statistically significant ($p < .01$).

## 5. Discussion

The findings of this study provide an overview of the relationship between phonological awareness and reading performance among third-grade students. The discussion focuses on the level of phonological awareness, gender differences, reading performance, and the relationship between these skills.

Regarding the level of phonological awareness, the results showed that students had an overall mean score of 4.80, with the highest performance in initial phoneme isolation and syllable blending, while rhyme production was the most challenging component. This variation across tasks indicates that students did not demonstrate the same level of performance in all aspects of phonological awareness. The results may be examined in relation to the study by Goswami and Bryant (2016), which you included in the original paper, as well as the findings of Anthony (2004), which were used to discuss difficulties in rhyme production. However, to determine more precisely whether the results of the current study are consistent with these studies, their specific content must be taken into account rather than relying solely on the general similarity of their topics.

Regarding gender differences, the statistical analysis did not reveal significant differences in overall phonological awareness between girls and boys ($p = .84$). This means that, in the sample

included in the study, no statistical evidence of gender differences in this ability was found. Such a result does not necessarily mean that gender differences cannot occur in other groups of students; rather, it indicates that they were not identified in this sample. This finding may be compared with the study by Mohamed (2016), which you cited in the original paper.

Regarding reading speed and accuracy, the descriptive results presented students' performance in reading letters, words, and text. These two dimensions are important for assessing reading fluency because they indicate not only how much time students need to complete a reading task but also how accurately they perform it. Their interpretation should be based on the measurement procedures used in the study. In particular, a shorter reading time indicates faster task completion, whereas a greater number of units read correctly indicates higher accuracy. In the original paper, Hasbrouck (2017) was mentioned in relation to the measurement of reading fluency through timed tasks. This source may be used to situate the study's methodology within the relevant literature, provided that its alignment with the specific method used is confirmed by the source.

Regarding gender differences in reading, the results of the Mann–Whitney test did not reveal statistically significant differences in the measures of reading speed and accuracy. This suggests that the girls and boys included in the study demonstrated comparable performance on these tasks, according to the analyses conducted. The findings are consistent with the direction of the results reported in the original paper in relation to the study by Fonseca et al. (2023). However, the absence of statistically significant differences should be interpreted cautiously, taking into account the sample size and the fact that the study included 40 students from two schools.

The main finding of the study concerns the relationship between phonological awareness and reading performance. Spearman's correlation analysis revealed negative associations between the overall phonological awareness score and letter-reading time ($r_s = -.58$), word-reading time ($r_s = -.47$), and text-reading time ($r_s = -.57$). This means that higher phonological awareness scores were associated with shorter reading times. At the same time, positive associations were found between phonological awareness and letter-reading accuracy ($r_s = .61$), word-reading accuracy ($r_s = .57$), and text-reading accuracy ($r_s = .68$). These results indicate that students with higher phonological awareness scores tended to read more accurately.

These relationships are important because they indicate that phonological awareness is associated with both aspects of reading assessed in the study: task completion time and accuracy. The relationship was observed across all reading tasks, although the magnitude of the correlations varied. The strongest positive correlation was found between phonological awareness and text-reading accuracy ($r = .68$), while the strongest negative correlation with reading time was observed for letters ($r = -.58$). These findings are consistent with the importance attributed to phonological awareness in research on reading skills and may be compared with the study by Hogan et al. (2005), which was included in the original paper. However, it should be emphasized that correlations indicate statistical associations and do not establish that phonological awareness is the direct cause of faster or more accurate reading.

Overall, the findings of this study highlight the relationship between phonological awareness and reading among third-grade students. In particular, the observed associations with reading speed and accuracy emphasize the importance of examining these skills together in order to better understand students' reading performance.

## 6. Conclusions and Recommendations

The results of this study showed that third-grade students demonstrated a generally good level of phonological awareness, although performance varied across the components assessed. Rhyme production was the most challenging task for the students. The study also found no

statistically significant gender differences in either phonological awareness or reading speed and accuracy.

The main finding was the statistically significant relationship between phonological awareness and reading performance. Students with higher phonological awareness scores tended to read faster and more accurately. These results highlight the importance of examining phonological awareness when studying the development of reading skills among third-grade students.

Based on these findings, it is recommended that teaching practices include structured activities aimed at developing phonological awareness, such as word segmentation exercises, rhyme recognition and production, syllable blending, and phoneme identification. Furthermore, regular reading practice, accompanied by assessments of speed and accuracy, may help teachers identify skills that require additional support.

Collaboration between teachers and parents may support the development of these skills through shared reading and language games at school and at home. Finally, considering that the study included 40 students from two schools, further research involving larger samples and more schools is recommended to investigate the relationship between phonological awareness and reading in greater depth.

## 7. Limitations of the Study

One of the limitations of this study concerns the number of participants, as the research included 40 third-grade students from two schools in Tetovo. For this reason, the results should be interpreted in light of the limited sample size, and their generalization to broader student populations should be approached with caution. Future studies involving a larger number of participants and additional schools may provide a broader understanding of the relationship between phonological awareness and reading skills.

Despite this limitation, the study provides data that may serve as a starting point for further research into the relationship between phonological awareness and reading skills among primary school students.

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