

PHONEMIC FLUENCY AMONG ENGLISH MEDIUM AND KANNADA MEDIUM PRIMARY SCHOOL STUDENTS



Psychology

KEYWORDS : Phonemic fluency, Medium of Instruction, Gender

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ABSTRACT

The study examined the effects of medium of instruction (English & Kannada) and gender on phonemic fluency in primary school students. The sample consisted of 30 boys and 30 girls studying in Class II and III, aged between 8 and 9 years. Simple Random sampling procedure was used for the study. The sample was administered the Controlled Oral Word Association Test (COWAT). The obtained data were subjected to statistical analysis. Descriptive statistics, 't' test of statistical significance and Two-Way Analysis of Variance (Two-way ANOVA) were performed to study the interactive effect of gender and medium of instruction on phonemic fluency. The findings reveal that, English medium primary school students have higher phonemic fluency than Kannada medium students and there is no significant gender difference in phonemic fluency with respect to primary school students. The findings also reveal that, the interaction of gender and medium of instruction has no significant effect on phonemic fluency in primary school students; however, English medium girls have higher phonemic fluency than Kannada medium girls.

Introduction:

Fluency refers to intrinsic generation of responses or alternatives, typically within a set of constituents. It is a measure of the capacity to generate alternatives in a regulated manner. (Spreen & Strauss, 1998). It is an aspect of mental flexibility and exhibits a spontaneous flexibility that requires a ready flow of ideas and answers, often in response to a single question. (Eslinger & Grattan, 1989). All languages are made of basic sounds called *phonemes*. A phoneme can be defined as any single change in the sound of a word that also makes a difference in meaning; *pin* versus *bin*, for example.

Verbal fluency refers to the capacity to generate new words in a regulated manner. Asking the subject to generate words beginning with a consonant or to generate words belonging to a category imposes the regulation. The former is known as *phonemic fluency* and the latter as *category fluency*. There are two basic measures of verbal fluency; phonemic and semantic. Phonemic verbal fluency is a test where words are generated for a letter in a set time limit, while semantic verbal fluency is a test where words are generated from a particular category within a set time limit. This study focuses on the measure of phonemic verbal fluency.

Most children gather some level of phonemic awareness and fluency in their younger years. However, if phonemic awareness and fluency have not been fully developed and implemented in primary school, students may have difficulty when they encounter unfamiliar words in middle school and high school. Difficulties with phonemic fluency and word-level reading have been found to be a major influence on reading comprehension and speaking skills (Jenkins et al., 2003; Stanovich, 1991). Phonemic fluency reflects a child's language learning process, as well as the teaching and pedagogical method used. Poor phonemic awareness and fluency could be one of the indicators of Learning Disabilities.

Although, conventional tests and exams in schools measure language abilities in children, the spontaneous production of words or fluency is not accurately measured. Hence, there exists a need to study the phonemic fluency in children to assess the fluency and to find out reasons for deficits in fluency, if any; and to test whether the medium of instruction has any effects on phonemic fluency.

Phonemic fluency varies across age, gender and education background. The present study is an exploratory endeavour that con-

siders the variable of phonemic fluency, and aims to identify the effects of medium of instruction and gender on it, among primary school students of class II and III within 8-9 years of age, hailing from Bangalore-Urban.

Objectives:

- To study the effects of medium of instruction (English and Kannada) on phonemic fluency in primary school students
- To study the gender differences in phonemic fluency
- To study the interactive effect of gender and medium of instruction on phonemic fluency.

Hypotheses:

- There is no significant difference in phonemic fluency between English medium and Kannada medium primary school students.
- There is no significant difference in phonemic fluency between primary school boys and girls.
- There is no significant difference in the interactive effects of gender and media of instruction on phonemic fluency.

Research Design:

Ex-post facto design, which is exploratory in nature.

Variables:

Dependent Variable: Phonemic fluency

Independent variable: Medium of instruction, i.e., English medium and Kannada medium

Sample:

The sample consisted of 30 English medium and 30 Kannada medium primary school children (15 boys and 15 girls from each medium) from urban setting between the age group of 8-9 years from Class-II and Class-III. Simple Random Sampling procedure was used to draw the sample for the study.

Test:

The Controlled Oral Word Association Test (COWAT, Benton & Hamsher, 1989) is a measure of phonemic fluency. The subject generates words based on the phonetic similarity of words. The subject generates words beginning with the letters F, A, S. Proper nouns and names of numbers are excluded. The same word is not repeated with a different suffix. Subjects who do not know the English Language are asked to generate words in their mother tongue (or Kannada, in the present study), commencing with the consonants "Ka", "Pa", "Ma". These consonants were chosen as they were effective in eliciting words in an earlier study car-

ried out in NIMHANS (John, 1998). The test-retest reliability of the FAS Test of phonemic fluency in 8 year old children is reported to be .54. Concurrent validity has also been established indicating validity for letter fluency than for category fluency (Lezak, 1995).

Procedure:

The principals/heads of six different schools (Three English medium and three Kannada medium) were approached to obtain the authorization to conduct the study. After obtaining the permission, five boys and five girls from each school were randomly selected. The purpose of the study was briefed and rapport was established. Socio-demographic details were collected in the data sheet prepared, and was followed by the instructions to perform the test and simultaneously the responses were obtained. The subjects and the principals of the respective schools were thanked for their co-operative participation.

Results and Discussion:

The data collected were scored and a master sheet was prepared. The scores were analyzed using SPSS v.14 to compute mean, S.D., and 't' scores to find out the differences in gender and medium of instruction on phonemic fluency. In addition, Two-Way Analysis of Variance (Two-Way ANOVA) was performed to study the interactive effects of gender and medium of instruction on phonemic fluency. To test the various hypotheses stated, the following analyses are made.

Table-1

Two-Way ANOVA for phonemic fluency among male and female English medium and Kannada medium primary school students

Source Type	Sum of Squares	df	Mean Square	F
Gender	10.417	1	10.417	.436 ns
Medium of Instruction (MI)	156.817	1	156.817	6.557 **
Gender * MI	3.750	1	3.750	.157 ns

** P < 0.01; ns: Not Significant

An inspection of the above table reveals that, for gender, the 'F' ratio is .436, which is not statistically significant at 0.05 levels of significance. Hence, the null hypothesis stated, "there is no significant difference in phonemic fluency between primary school boys and girls", is proved and accepted. For medium of Instruction, the 'F' ratio is 6.557 which is statistically significant at 0.01 levels of significance. The hypothesis which states, "there is no significant difference in phonemic fluency between English medium and Kannada medium primary school students", is disproved. Hence, the null hypothesis is rejected. On the interaction between gender and medium of instruction, the 'F' ratio is 0.157, which is not statistically significant at 0.05 levels of significance. The null hypothesis which states, "there is no significant difference in the interactive effects of gender and medium of instruction on phonemic fluency", is proved. Hence, the null hypothesis is accepted.

Table-2

Mean, S.D. and 't' value of phonemic fluency for gender and medium of instruction

Phonemic Fluency	N	Mean	S.D.	't' value
Gender				
Boys	30	11.37	5.372	.635 ns
Girls	30	12.20	4.781	
Medium of Instruction				
English	30	13.40	5.922	2.592*
Kannada	30	10.17	3.405	
English Medium				
Boys	15	12.73	6.397	.610 ns
Girls	15	14.07	5.548	
Kannada Medium				
Boys	15	10.00	3.854	.264 ns
Girls	15	10.33	3.016	
Boys				
English Medium	15	12.73	6.397	1.417 ns
Kannada Medium	15	10.00	3.854	
Girls				
English Medium	15	14.07	5.548	2.290*
Kannada Medium	15	10.33	3.016	

* P < 0.05; ns: Not Significant

To make a detailed analysis of the effects of gender and medium of instruction on phonemic fluency, independent 't' tests were performed.

An observation of Table-2 reveals that, for phonemic fluency among Boys and Girls, the 't' value obtained is .635 which is not statistically significant at 0.05 level of significance. Hence, the null hypothesis stated, "there is no significant difference in phonemic fluency between primary school boys and girls", is proved and accepted. For phonemic fluency among the two Media of Instruction, the 't' value obtained is 2.592 which is statistically significant at 0.05 level of significance. Therefore, the hypothesis, "there is no significant difference in phonemic fluency between English medium and Kannada medium primary school students", is disproved and rejected. The 't' value obtained for phonemic fluency among English medium boys and English medium girls is .610, which is statistically not significant at 0.05 level of significance. The null hypothesis, "there is no significant difference in phonemic fluency between English medium boys and English medium girls", is proved, and hence it is accepted. For phonemic fluency among Kannada Medium boys and Kannada medium girls, the 't' value obtained is .264 which is not statistically significant at 0.05 level of significance. Hence, the null hypothesis, "there is no significant difference in phonemic fluency between Kannada medium boys and Kannada medium girls", is accepted.

Figure-1. Mean scores of Phonemic fluency for Gender and Medium of Instruction

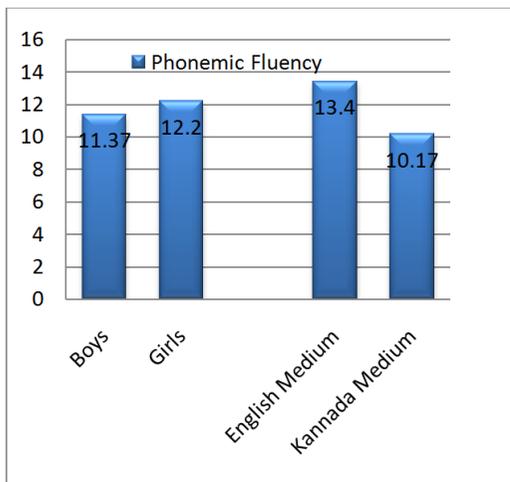


Figure-2. Mean Scores of Phonemic fluency for Medium of Instruction

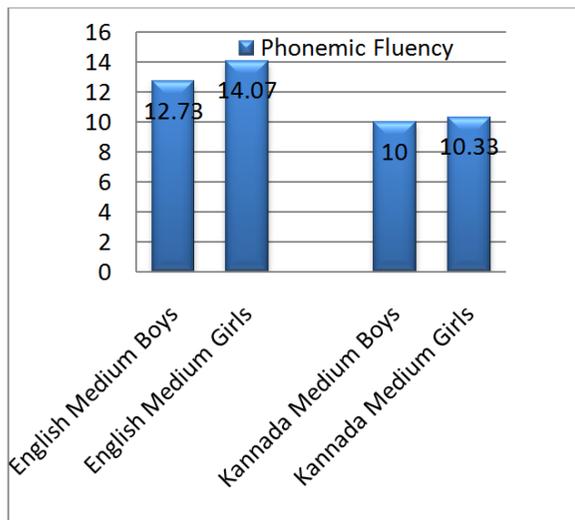
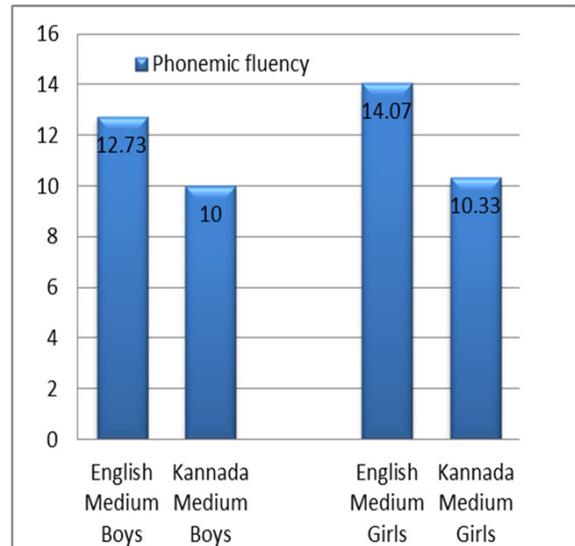


Figure-3. Mean scores of Phonemic fluency for Gender



The 't' value obtained for phonemic fluency among Boys of English medium and Kannada Medium, is 1.417 which is not statistically significant at 0.05 level of significance. Hence the null hypothesis, "there is no significant difference in phonemic fluency between English medium boys and Kannada medium boys", is proved and accepted. For phonemic fluency among Girls of English medium and Kannada Medium, the 't' value obtained is 2.290 which is statistically significant at 0.05 level of significance. The null hypothesis, "there is no significant difference in phonemic fluency between English medium girls and Kannada medium girls", is disproved and it is not accepted.

The findings of the present study, with respect to gender differences, are similar to the past studies of Brickman et al. (2005), and Tombaugh, Kozak & Rees (1999), whose results revealed that the gender of the participants had no significant effect on the performance in phonemic fluency tasks.

In the studies by Aronoff (2003), and Burton, Henninger, & Hafetz (2005), the results of phonemic fluency test revealed that female participants performed significantly better than male participants. The findings of the present study, however, are in contradiction as there is no significant gender difference existing in the performance of phonemic fluency. This can be substantiated by the studies of Rodriguez-Aranda & Martinussen (2006), Tallberget. al. (2008), and John & Rajashekhar (2013) which indicate that phonemic fluency increases with age and level of education.

Conclusions:

The results indicate that there is a significant difference between the two media of instruction on phonemic fluency. English medium students have higher level of phonemic fluency when compared to Kannada medium students. The results also indicate that there are no significant gender differences in phonemic fluency, and the interaction of gender and medium of instruction has no significant effect on phonemic fluency among primary school students. However, English medium girls have higher phonemic fluency than Kannada medium girls.

Implications:

The findings can be used to investigate the method of teaching and classroom learning atmosphere, for both high and poor performance in phonemic fluency in English medium and Kannada medium schools. The findings can also be applied to develop communicative modules of language teaching, focusing on learner centric approach at primary school level.

Scope for further research:

The study can be widened to examine the relationship between teaching methodology, parental education level and phonemic fluency in children. It can also be conducted to compare the differences in phonemic fluency and phonemic awareness between first language (L1) and second language (L2) among children, adolescents and young adults.

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