



ISSN: 0975-833X

## RESEARCH ARTICLE

### PHONOLOGICAL AWARENESS, READING FLUENCY AND READING ACCURACY AMONG TYPICALLY DEVELOPING KANNADA MEDIUM CHILDREN

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#### ARTICLE INFO

##### Article History:

Received 17<sup>th</sup> June, 2016  
Received in revised form  
23<sup>rd</sup> July, 2016  
Accepted 05<sup>th</sup> August, 2016  
Published online 30<sup>th</sup> September, 2016

##### Key words:

Akshara, Alphasyllabary, Reading fluency, Word reading accuracy.

#### ABSTRACT

The study investigates the relationship between components of phonological awareness and reading measures (reading fluency and word reading accuracy), and also differences in performance on reading fluency and reading accuracy across grades. A total of 110 school going children (31 of 4<sup>th</sup>, 41 of 5<sup>th</sup> and 38 of 6<sup>th</sup> grades) participated in the study; all participants were studying in Kannada medium and Kannada as their mother tongue. The results indicate that there is a positive relationship between components of Phonological awareness (PA) and reading measures in general. Specifically, there is a strong association between components of phonological awareness and word reading accuracy (KVP) across the grades, followed by sight word reading efficiency (SWRE) showing a high correlation with more components of PA than phoneme decoding (PDE) across the grades. Furthermore, performances of 5<sup>th</sup> and 6<sup>th</sup> graders on reading measures were significantly better than 4<sup>th</sup> graders.

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Citation: Karibasappa C. Nagaraja and SampathKumar, 2016. "Phonological awareness, reading fluency and reading accuracy among typically developing Kannada medium children" *International Journal of Current Research*, 8, (09), 39163-39169.

## INTRODUCTION

Reading is one of the basic requirements, that the present society expects from its members, without which a person may face many limitations in today's information-loaded world. Reading is a learnt act which needs formal instruction to master. It is a process involving decoding and comprehension of written text. Learning to read is influenced by the innate cognitive abilities, linguistic features of language and reading instruction. In finding the nature of reading acquisition and its development and reasons for reading failures, an abundance of research studies have been carried out for more than three decades, and have produced a significant theoretical and practical implication in the process of learning to read, and its development. Most of the research findings affirm that phonological processing skills are directly connected to reading (Bruck, 1992; Rack, Hulme, Snowling, & Wightman, 1994; Stanovich & Siegel, 1994). Further, research show, among many factors, phonological awareness is one of the most significant factors which predict reading ability in typically developing children (Rack, Hulme, Snowling & Wightman, 1994; Wagner & Torgesen, 1987), which reflects an ability to identify and manipulate sound structure of the spoken language (Anthony & Francis, 2005).

According to the simple view of reading proposed by Gough and Tunmer (1986) decoding and linguistic comprehension predict reading comprehension, where decoding refers to efficient recognition of words, where Harris & Hodges (1995) define the meaning of the word recognition as "the process of determining the pronunciation and some degree of meaning of a word in written or printed form." (p. 283). LeBerge and Samuels (1974) debate that when children decode, lower-level skill, the text easily and effortlessly in turn it helps them to focus on higher-level skills of comprehension. Furthermore, much research recommends that fluency in reading helps comprehension, by reducing the cognitive effort and attention given to text decoding (Perfetti, 1985; Posner & Snyder, 1975). Therefore, oral reading fluency might be one of the indicators of reading competency in elementary school students (Good, Simmons & Kame'enui, 2001; Fuchs, Fuchs, Hosp & Jenkins, 2001). In learning to read in a different orthography, the features of the particular orthography influence the word reading and reading accuracy, as Seymour (2005) mentions that it would take longer time to attain word reading fluency and accuracy in deep orthography compared to more shallow orthography. Decoding is a more influential factor in reading comprehension for English language learners than for other language learners (Florit & Cain, 2011); however, research also confirmed that decoding is also important in shallow languages (Sánchez, García, & Gonzalez, 2007) Research works with monolinguals on early graders on development of

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reading fluency show that there is a powerful correlation between reading fluency and reading comprehension (e.g., Fuchs, Fuchs, & Maxwell, 1988; Hosp & Fuchs, 2005; Riedel, 2007; Shinn, Good, Knutson, Tilly, & Collins, 1992; Wiley & Deno, 2005). Reading fluency includes word reading fluency, reading rate and prosody (Torgesen, Rashotte, & Alexander, 2001). Phonological awareness is one of the most important components related to the decoding ability and predicts reading. Reading fluency is one of the important features of skilled readers (Kuhn & Stahl, 2000). Skilled readers recognize words automatically; decode unfamiliar words effortlessly and read words accurately and rapidly. Research studies show that oral reading fluency is often measured as the number of words read aloud correctly in one minute (Shinn, Good, Knutson, Tilly, & Collins, 1992; Fuchs & Fuchs, 1999; Torgesen, Rashotte, & Alexander, 2001). It develops steadily over the elementary years (Biemiller, 1977-1978; L. S. Fuchs & Deno, 1991). Further research suggests that the developmental aspect of oral reading fluency reaches its greatest growth in the primary grades (L. S. Fuchs, Fuchs, Hamlett, Walz, & Cerman, 1993). Studies in transparent orthographies, the development of oral reading fluency in Finnish children of 1<sup>st</sup> and 2<sup>nd</sup> graders, show high stability of reading fluency over four measurement sessions, a longitudinal assessment (sample size of 197), given short text to read as quickly as possible, 4 assessments were done, 2 assessments per year (Parrila *et al.*, 2005) and another study done by de Jong and van der Leij (2002) on word reading fluency (number of correct words read in one minute) of Dutch children (sample size of 141) also show the same results. Research studies in phonologically more transparent orthographies show, that children often scored to or a maximum on reading accuracy tasks, after a few months of formal instruction (Cossu, Giuliotta, & Marshall, 1995; Oney & Goldman, 1984; Wimmer & Hummer, 1990). Further, in an 8 year follow up study, German children showed that their reading accuracy scores were close to a maximum in all reading assessments, reading accuracy did not closely influence the reading fluency and high stability was observed on development of word reading fluency (Landerl & Wimmer, 2008). Further research studies mainly conducted in orthographically regular languages have showed that phonological awareness is not a good predictor of reading fluency when compared to reading accuracy (Aro, 2006; Holopainen, Ahonen, & Lyytinen, 2001; Wimmer & Mayringer, 2002; see also de Jong & van der Leij, 1999; Goswami, 2002; Seymour, 2005). There are no studies found in alphasyllabary languages on fluency and accuracy in typically developing children. Kannada being an alphasyllabary language, which falls between alphabetic and syllabary languages, belongs to Dravidian language group, spoken in Karnataka state. The present study is to explore the developmental aspects of phonological awareness, reading fluency and word reading accuracy across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade children going to Kannada medium school. The present study restricts the meaning of fluency to rapid and accurate reading of words.

### Objectives

The present study explores the pattern of correlation between PA and reading measures (reading fluency and word reading

accuracy) across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> graders and also to examine how reading measures develops across the grades in typically developing children going to Kannada medium school.

## MATERIALS AND METHODS

### Participants

Two schools, one is government aided and government school, participated in this study. The government aided school is from an urban area and the government school is from a semi urban area in Mysore district, Karnataka state. A total of 113 students participated in the study and were selected randomly; 31 students from 4<sup>th</sup> grade, 43 from 5<sup>th</sup> grade and 39 from 6<sup>th</sup> grade children.

### Exclusion Criteria

The study does not include the children with sensory impairments, developmental disabilities, very high inconsistency in school attendance, severe health problems, children who speak more than one language and children whose mother tongue is not Kannada.

### Measures

The Phonological Awareness test in Kannada language was developed by Ananda Siddiah (unpublished data) is used in this study. This measure includes six different component tasks mentioned below and the test-retest reliability was established for each component from the original author.

**Table 1. Test-retest reliability scores on phonological awareness tasks (Siddiah & Venkatesh, 2014)**

Measures	Reliability scores
Rhyme Generation (RG)	0.805
Phoneme Deletion (PD)	0.695
Phoneme Reversal (PR)	0.786
Syllable Deletion (SD)	0.719
Syllable Reversal (SR)	0.728
Spoonerism (Spo)	0.726

Each phonological awareness task consists of 13 items, of which 3 items were used for demonstration and other ten items are test stimuli. Kannada Vaachana Pareekshe (KVP), a word reading test, was administered to find the reading accuracy of the children. Kannada Vaachana Pareekshe was developed by Padakannaya (1999) and it has a test-retest reliability of 0.92.

Test of Word Reading Efficiency (TOWRE) in Kannada (Saldanha *et al.*, 2014) was also administered. The test contains two components; phoneme decoding efficiency with test retest reliability of .98 and sight word efficiency with test retest reliability of .91.

### Procedure

The assessment and administration was done in a quiet and well-lit room. Each child was seated comfortably on a chair or a bench. The testing was done for one child at a time in order to prevent distraction due to the presence of other children. The tests were administered in two sessions. In the first

session, the phonological awareness test was presented. TOWRE was administered in second session. TOWRE is a timed test where children have got 45 seconds on each component test. Children were asked to read as many as non-words in Phoneme Decoding Efficiency (PDE) component and in the same way on Sight Word Reading Efficiency (SWRE) component.

The Number of correct responses was noted down in a response sheet. Each correct response was given one point.

### Analysis

One-way ANOVA was performed to investigate the significant mean difference between the grades on PA, components of TOWRE and KVP measures. Correlation of PA, components of TOWRE and KVP were examined grade wise using Pearson's correlation coefficient. Tukey's post-hoc was performed to determine which groups in the sample differ significantly on the different measures.

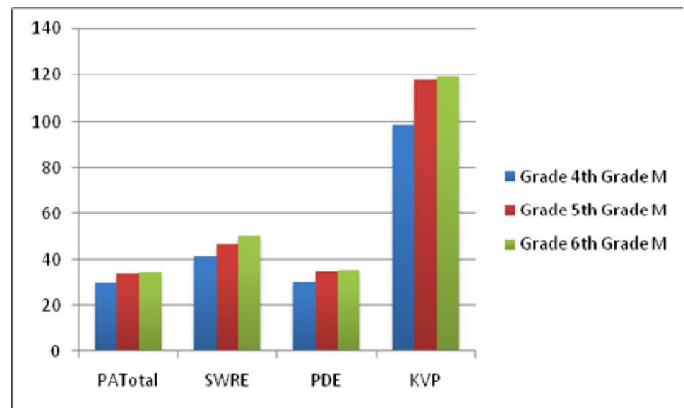
### RESULTS

The main objective of the study was to investigate the correlation between components of PA and reading measures (reading fluency and word reading accuracy) in 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade children. Table 1 presents mean and standard deviations of experimental measures. It is very evident that all the experimental measures show increasing mean scores across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade. For example, PATotal mean scores, across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades, of 29.48 < 33.93 < 34.68, of SWRE 41.19 < 46.78 < 49.89, of PDE 30.35 < 35.04 < 35.34 and of KVP 99.03 < 118.00 < 119.00. The increasing trend can be observed graphically in the Figure 1. Among the components of phonological awareness, the mean scores on RG, SD and SR are higher than PD, PR and Spo tasks across the grades.

**Table 1. Summary of descriptive statistics shows mean and standard deviation of 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> graders**

Measures	Groups					
	4 <sup>th</sup> Grade (N = 31)		5 <sup>th</sup> Grade (N = 41)		6 <sup>th</sup> grade (N = 38)	
	M	SD	M	SD	M	SD
Rhyme generation (RG)	7.68	1.45	7.88	1.67	8.03	1.44
Phoneme deletion (PD)	4.13	2.14	4.59	2.54	5.00	2.51
Phoneme reversal (PR)	1.48	1.98	2.66	2.97	2.68	3.04
Syllable deletion (SD)	7.90	1.27	8.34	1.24	8.40	1.35
Syllable reversal (SR)	6.00	1.59	7.24	1.85	7.34	1.94
Spoonerism (Spo)	2.29	2.88	3.22	3.55	3.24	3.19
PATotal	29.48	8.52	33.93	11.28	34.68	11.45
SWRE	41.19	9.10	46.78	8.84	49.89	10.21
PDE	30.35	8.15	35.04	7.39	35.34	9.15
KVP	99.03	26.83	118.00	20.87	119.26	21.78

PATotal = Total score of phonological awareness, SWRE = Sight Word Reading Efficiency, PDE = Phoneme Decoding Efficiency, KVP = Kannada Vachana Pareekshe



**Figure 1. Mean scores of PATotal, SWRE, PDE and KVP 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades**

PA Total = Total score of Phonological Awareness, SWRE = Sight Word Reading Efficiency, PDE = Phoneme Decoding Efficiency, KVP = Kannada Vachana Pareekshe

Pearson Correlation was performed to find out the relationship between components of phonological awareness and reading measures including SWRE, PDE and KVP. Table 2 summarizes the correlation matrices for PA components and reading measures grade wise. The results indicated on 4<sup>th</sup> graders that, the relationship between components of PA and reading measures, SR is highly correlated with SWRE ( $r = .56, p < 0.01$ ), PDE ( $r = .47, p < 0.01$ ) and KVP ( $r = .67, p < 0.01$ ). SD was significantly correlated with SWRE ( $r = .42, p < 0.05$ ) and highly correlated with KVP ( $r = .55, p < 0.01$ ). PD was significantly correlated with SWRE ( $r = .36, p < 0.05$ ), PDE ( $r = .41, p < 0.01$ ) and KVP ( $r = .39, p < 0.05$ ) and PATotal was significantly correlated with SWRE ( $r = .44, p < 0.05$ ), PDE ( $r = .42, p < 0.05$ ) and highly correlated with KVP ( $r = .55, p < 0.01$ ). Further SWRE was highly correlated with both PDE ( $r = .85, p < 0.01$ ) and KVP ( $r = .73, p < 0.01$ ) and KVP was highly correlated with PDE ( $r = .60, p < 0.01$ ).

On 5<sup>th</sup> grade, word reading accuracy (KVP) was highly correlated with all the five components of PA (i.e., PR, PD, SR, SD and Spo) but not RG. For example the correlation coefficient of RG and KVP was .26, of PR and KVP was .57, of PD and KVP was .55, of SD and KVP was .60, of SR and KVP was .62 and of Spo and KVP was .53. And PATotal was also highly correlated with KVP ( $r = .65, p < 0.05$ ). For the relationship between sight word reading efficiency (SWRE) and components of PA, SWRE is highly correlated with three components (i.e., PR, SD and Spo) and not with other components (i.e., RG, PD and SR). It was also highly correlated with PATotal ( $r = .42, p < 0.01$ ). For PDE, only Spowas highly correlated with PDE ( $r = .37, p < 0.05$ ), none of the component of PA showed any significant correlation with PDE. Further SWRE was highly correlated with both PDE ( $r = .85, p < 0.01$ ) and KVP ( $r = .52, p < 0.01$ ), however there was no significant relationship between PDE and KVP ( $r = .30$ ). On 6<sup>th</sup> grade, all the components of PA (i.e., RG, PR, PD, SD, SR and Spo) and PATotal were highly correlated with word reading accuracy (KVP) and sight word reading efficiency (SWRE). For the relationship between components of PA and phoneme decoding efficiency (PDE), PDE was highly correlated with PD, SD, SR and Spo but not with RG

and PR components. It also highly correlated with PATotal ( $r = .46, p < 0.01$ ). Further SWRE was highly correlated with both PDE ( $r = .86, p < 0.01$ ) and KVP ( $r = .75, p < 0.01$ ) and KVP was highly correlated with PDE ( $r = .72, p < 0.01$ ). We are interested to see any pattern of correlation across the grade between PA components and reading measures. SD and PATotal were highly correlated with SWRE and KVP across the grades. And KVP was highly correlated with PD, SR and Spo across the grades not with other components of PA. Further, the association between components of PA and KVP was increasing across the grades. The association between PA components and KVP was higher compared to SWRE and the association between PA components and SWRE was higher when compared to PDE. The other objective was to explore the performance on reading measures across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades.

A one way analysis of variance (Table 3) revealed significant difference between groups on sight word reading efficiency,  $F(2, 107) = 7.391, p < 0.01$ , phoneme decoding efficiency,  $F(2, 107) = 3.837, p < 0.05$  and Kannada vachanapareek she,  $F(2, 107) = 7.391, p < 0.001$  measures. Whereas no significance mean difference between groups on PATotal was observed. Means and standard deviations are presented in Table 1. Further Tukey's post-hoc multiple comparison was performed to find out which means are significantly different from other. Table 4 presents the summary of the Tukey's post hoc results for the reading measures. On SWRE the mean scores for the 4<sup>th</sup> grade ( $M = 41.19, SD = 9.10$ ) was significantly different than 5<sup>th</sup> grade ( $M = 46.78, SD = 8.84$ ) and 6<sup>th</sup> grade ( $M = 49.89, SD = 10.21$ ). On PDE the mean scores for the 4<sup>th</sup> grade ( $M = 30.35, SD = 8.15$ ) was significantly different than 5<sup>th</sup> grade ( $M = 35.04, SD = 7.39$ ) and 6<sup>th</sup> grade ( $M = 35.34, SD = 9.15$ ).

**Table 2. Correlation between components of phonological awareness and reading measures of 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade children**

	4 <sup>th</sup> Grade (n=31)			5 <sup>th</sup> Grade (n=41)			6 <sup>th</sup> Grade (n=38)		
	SWRE	PDE	KVP	SWRE	PDE	KVP	SWRE	PDE	KVP
RG	.26	.36*	.34	.21	.06	.26	.38*	.19	.56**
PR	.15	.22	.26	.40*	.21	.57**	.39*	.23	.55**
PD	.36*	.41*	.39*	.22	.05	.55**	.65**	.56**	.71**
SD	.42*	.20	.55**	.34*	.18	.60**	.51**	.46**	.66**
SR	.56**	.47**	.67**	.30	.21	.62**	.60**	.52**	.61**
Spo	.32	.27	.39*	.46**	.37*	.53**	.53**	.41*	.68**
PATotal	.44*	.42*	.55**	.42**	.25	.65**	.60**	.46**	.74**
PDE	.85**	-	-	.85**	-	-	.86**	-	-
KVP	.73**	.60**	-	.52**	.30	-	.75**	.72**	-

Note. \*\* $p < .01$  and \* $p < .05$

RG = Rhyme Generation, PD = Phoneme Deletion, PR = Phoneme Reversal, SD = Syllable Deletion, SR = Syllable Reversal, SPO = Spoonerism, PATotal = Total score of phonological awareness, SWRE = Sight Word Reading Efficiency, PDE = Phoneme Decoding Efficiency, KVP = Kannada Vachana Pareekshe

**Table 3. Summary of ANOVA results of 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade children on PATotal and reading measures**

Measures		Sum of Squares	df	F	Sig
PATotal	Between Groups	525.822	2	2.322	.103
	Within Groups	12112.733	107		
	Total	12638.555	109		
SWRE	Between Groups	1308.822	2	7.391	.001**
	Within Groups	9473.442	107		
	Total	10782.264	109		
PDE	Between Groups	522.166	2	3.837	.025*
	Within Groups	7281.552	107		
	Total	7803.718	109		
KVP	Between Groups	8562.755	2	7.391	.001**
	Within Groups	56580.336	107		
	Total	65143.091	109		

Note. \*\* $p < .01$  and \* $p < .05$

PATotal = Total score of phonological awareness, SWRE = Sight Word Reading Efficiency, PDE = Phoneme Decoding Efficiency, KVP = Kannada VachanaPareekshe

**Table 4. Summary of Post hoc Tukey's multiple comparison lists of significant measures from ANOVA**

Measures	Grades		
	Grades	4	5
SWRE	4		
	5	.037*	
	6	.001**	.309
PDE	4		
	5	.048*	
	6	.037*	.986
KVP	4		
	5	.002**	
	6	.001**	.968

\*\* $p < .01$  and \* $p < .05$

SR = Syllable Reversal, PATotal = Total score of phonological awareness, SWRE = Sight Word Reading Efficiency, PDE = Phoneme Decoding Efficiency, KVP = Kannada VachanaPareekshe

However, mean scores of 5<sup>th</sup> grade was not significantly different than 6<sup>th</sup> grade. Further, on KVP the mean scores for the 4<sup>th</sup> grade ( $M = 99.03, SD = 26.82$ ) was significantly different than 5<sup>th</sup> grade ( $M = 118.00, SD = 20.87$ ) and 6<sup>th</sup> grade ( $M = 119.26, SD = 21.78$ ). However, mean scores of 5<sup>th</sup> grade was not significantly different with 6<sup>th</sup> grade on any of the reading measures (SWRE, PDE and KVP).

## DISCUSSION

The study explores the relationship between phonological awareness and reading measures and also examines the performance on SWRE, PDE and KVP tasks across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades in typically developing children who were studying in Kannada medium school. The results, Table 2, showed that components of PA and reading measures SWRE and KVP were positively related. The PA components are strongly correlated with word reading accuracy, and it progressed through 4<sup>th</sup> grade and showing all components were highly correlated to reading accuracy by 6<sup>th</sup> grade when compared to reading fluency. Research studies in phonologically regular orthography, Landerl & Wimmer (2008) mentioned that there is no strong relationship between PA and development of reading fluency, and phonological based programs have a positive influence on children with low reading accuracy but no influence on children with low reading fluency (Torgesen, Rashotte, & Alexander, 2001). The correlation between components of PA and SWRE showed no observable pattern of correlation across the grades, however in 6<sup>th</sup> grade level all components of PA highly correlated with SWRE. Correlation among components PA and SWRE, increased across the grades. A plausible explanation might be of acquisition of ligaturing rules assisted in increased knowledge about the sub-syllabic features of aksharas and specific sounds connected to it. Indeed reciprocal relationship between literacy experience and phonological awareness skills would contribute to increased accuracy and fluency in reading Kannada language at 5<sup>th</sup> and 6<sup>th</sup> grade level. Further, the correlation between components of PA and PDE on 6<sup>th</sup> grade, all components of PA except RG and PR highly correlated. However in 4<sup>th</sup> and 5<sup>th</sup> grade no observable pattern of correlation was observed across the grades. Further observation across grades, suggested that components of PA were not strongly related to PDE as strongly with SWRE and KVP. On reading fluency including SWRE and PDE tasks, 4<sup>th</sup> graders showed significantly low performance when compared to 5<sup>th</sup> and 6<sup>th</sup> grade. The plausible explanation was drawn from the previous research on Kannada readers. Regarding orthography, research studies mentioned that the extensive symbol set of Indian alphasyllabary would take longer time to master, furthermore the children of 3<sup>rd</sup> and 4<sup>th</sup> grade still need to master less frequent symbols (Nag, 2007; Tiwari, Nair & Krishnan, 2011) and mastering of orthographic knowledge in Kannada language will extended over at least 4 years. Mastery of different levels of aksharas, symbol units of Kannada language, (consonants with vowel, simple and complex consonant cluster with vowel) continue to Grade 4 (Nag, 2007). On phonological awareness, Nag (2007) mentioned that among Kannada children phoneme awareness develops slowly when compare to syllable and, level of phoneme sensitivity of grade 3-4 Kannada children are comparable to grade 1, English

speaking children. These findings indicate that phonological skills are still in the progress, which plays a major role in decoding fluency. On word reading accuracy (KVP) the performance difference exists after 3 years of formal instructions across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades. Research shows that orthographic knowledge is directly related to reading accuracy (Thomson *et al.*, 2005). As mentioned above orthographic and phonological aspects of language were still in progress in children of grade four. Further, many research studies, in Arabic and Hebrew (Abdelhadi, Ibrahim, & Eviatar, 2011) and in Urdu (Rao, Vaid, Srinivasan, & Chen, 2011) suggested that delayed development of reading accuracy and fluency is because of the visually more complex nature of orthographies. Further, Nag (2014) mentioned that learning Kannada is influenced by the visual complexity of symbols, and density of visual features influence the rate of learning. In contrast, the studies in transparent orthographies, mention that children scores were close to or at maximum on word reading accuracy tasks after few months formal instruction (Cossu, Giuliotta, & Marshall, 1995; Oney & Goldman, 1984; Wimmer & Hummer, 1990). Increasing exposure, across 4<sup>th</sup> 5<sup>th</sup> and 6<sup>th</sup> grade level, of different levels of akshars and words in formal instruction, practice and mastery of complex akshars and words, grade and age might be influencing factors on increased performance on reading fluency measures (SWRE and PDE) and word reading accuracy (KVP) across grades.

## Conclusion

Over all, there was a positive relationship between components of PA and reading fluency and word reading accuracy across grades. The reading fluency and word reading accuracy scores of 5<sup>th</sup> and 6<sup>th</sup> grade children were significantly better than that of 4<sup>th</sup> grade children. Relationship between components of PA and word reading accuracy showed that increase in number of components of PA are significantly correlated with reading accuracy across the grades. By 6<sup>th</sup> grade KVP and SWRE were highly correlated with PA components compared to PDE. Increased literacy experience across 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grade children will influence orthographic processing ability. Improved literacy experience with different levels of aksharas (consonants with vowels, consonant cluster with vowels) and akshara combination words influence the understanding of ligaturing rules. This increases the knowledge of sub-syllabic features of the akshara and facilitates the development of phonemic awareness (Nag, 2007) and it might support effective word specific orthographic knowledge in children. In addition, teaching and learning experiences, exposure of different level of text, practice, grade and age would also influence learning of language.

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