

The Role of Proficiency in Kashmiri Language in Phonological Processing Skills: A Cognitive-Linguistic Approach

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Abstract. Language reflects the general aspects of human cognition and it works in terms of generalities, i.e. in terms of categories (Cruse, 2000). So, any of the linguistic expressions, whether it's a phone, word, syllable or a sentence ends up in the representation of a category referring to a something that is usually aimed at sufficing the need for communication. These categories are conceptual or can be referred to as the abstract mental constructs. However, language is not an autonomous cognitive faculty which implies that language is not exactly an innate cognitive module and is not separated from non-linguistic cognitive abilities (Craft & Cruse, 2004). This study reports on the role of proficiency of Kashmiri language in phonological processing of illiterate native Kashmiri speakers. A total number 40 participants (20 Literate; 20 Illiterate), divided into two groups; were tested for Lexical Decision, Random Automated Naming, Initial Phoneme Deletion, and Final Phoneme Deletion. The results suggested that the performance of both the groups was affected by Literacy and Proficiency in their native language i.e. Kashmiri. The effect of literacy on phonological processing was in consistence with the available literature however, the performance by illiterates was not worked out. This study attempted to find out the reasons for the performance of illiterates, and it was found that the illiterates can perform almost similar to those of literates on phonological awareness tasks because the proficiency in their native language enhances their phonemic and phonological awareness skills. Hence, the proficiency in Kashmir language has a role in phonological processing of illiterates.

Keywords: phonological processing, Kashmiri native language, phonemic awareness, reading, literates, illiterates.

Мір Фарук Ахмад, Хан Азізуддин. Роль володіння кашмірською мовою у застосуванні фонологічних умінь під час обробки: когнітивно-лінгвістичний підхід.

Анотація. Мова відображає загальні аспекти людського пізнання, і вона функціонує в термінах узагальнень, тобто в термінах категорій (Cruse, 2000). Тому будь-який мовна одиниця, чи-то фон, слово, склад чи речення, репрезентує категорії, яка стосується чогось,

що зазвичай спрямоване на задоволення потреби в спілкуванні. Ці категорії є концептуальними або їх можна назвати абстрактними розумовими конструктами. Однак мова не є автономною когнітивною здатністю, а отже мова не є вродженим когнітивним модулем і не є відокремленою від нелінгвістичних когнітивних здатностей (Craft & Cruse, 2004). У цьому дослідженні йдеться про роль володіння кашмірською мовою під час фонологічної обробки неписьменними носіями кашмірської мови. Загальну кількість учасників 40 (20 грамотних; 20 неписьменних), розділених на дві групи, було протестовано на лексичні рішення, випадкові автоматизовані найменування, початкові видалення фонем та остаточні видалення фонем. Результати засвідчили, що на продуктивність обох груп вплинула грамотність і рівень володіння рідною мовою, тобто кашмірською. Факт впливу грамотності на фонологічну обробку був суголосний наявним дослідженням, однак результати обробки неписьменних не було описано. У цьому дослідженні було зроблено спробу з'ясувати причини успішності неписьменних, і було виявлено, що неграмотні можуть виконувати завдання на фонологічну обізнаність майже так само, як і грамотні, оскільки володіння рідною мовою покращує їхні навички фонематичного чуття. Отже, володіння кашмірською мовою відіграє у неписьменних певну роль у їхній фонологічній обробці мови.

Ключові слова: фонологічна обробка, кашмірська мова як рідна, фонематичне чуття, обізнаність, читання, письменні, неписьменні.

Introduction

Phonological processing refers to the overall manipulation of sounds used by an individual in order to achieve the purposes of listening and speaking. Phonological processing operates on many components or cognitive linguistic abilities such as attending to speech, phonological awareness, selection between sounds, and holding sounds in memory for later retrieval and use. Phonological processing is studied as a combination of three processes *phonological awareness*, which refers to an individual's access and awareness of the phonology (Mattingly, 1972) *phonological recoding in lexical access* i.e. recoding written symbols into a sound-based representational system (Coltheart, Davelaar, Jonasson, & Besner, 1979; Crowder, 1982) and *phonetic recoding in working memory*, i.e. recoding the written symbols into a sound-based representational system to maintain them efficiently in working memory (Baddeley, 1982; Conrad, 1964; Burton, Small & Blumstein, 2000). These three parts of phonological processing work on the principle of manipulation of phonological information of a language and thus every linguistic information is recoded to a sound-based representational system in order to be processed phonologically prior to any semantic processing.

Nonetheless, the earlier studies claim that acquisition of literacy helps in acquisition of phonological awareness which assists in phonological processing and to substantiate such claims valid results have been provided (see, Peterson, Reis, & Ingvar, 2001; Matarazzo, 1979; Pizzolo, 1985). So, a literate can supposedly have learned the skill of reading and even writing which leads to a logical presupposition that the ability of phonological awareness among literates is put to exercise while learning to read and write but for an illiterate it is not tasked in this way. Therefore, an illiterate person who never attended a school and have never learned the skill of reading or writing shall not be expected to perform better or alike a literate counterpart on any of the phonological processing tasks.

With a view to measure the ability of phonological awareness among illiterate, various experiments have been carried out from time to time which, suggest the interference of phonological processing in affecting some cognitive processes. In all the experiments carried out so far, illiterates have been observed performing lower than those of literates which lays basis for the argument that phonological awareness fosters reading and also overcomes the problems and difficulties in reading. Among literate, the researches support the idea of, a sort of, permanence and consistency in phonological awareness skills (see Rosselli et al., 1990).

Moreover, some studies have shown that some cognitive abilities are significantly influenced by acquisition of literacy, and some studies have also shown that educational values may affect the degree of hemispheric dominance for language (Ardiela et.al., 1993). Some researchers applied certain neuropsychological test batteries to subjects in order to find the results suggesting the effect of schooling background on test performance (see Peterson, Reis. & Ingwar, 2001; Matarazzo, 1979; Pizzolo, 1985). Apart from some brain damage studies the analysis of performances of illiterates has shown its effect not only on neuropsychological test performance but also provides insights leading to understanding of the cerebral organization of cognitive activity. Cameron et. al. (1971) conducted a study on illiterate subjects for neuropsychological test performances which lead them to conclude that cognitive abilities are significantly influenced by schooling background. Adding to this list of studies is Ostrosky et al. (1985, 1986) who concluded from their neuropsychological experiment on subjects from two different socio-educational levels (high and low) showed that high socio-educational subjects performed better than low socio-educational subjects in all sections which supports the view that the educational background has its effect on cognitive performances of individuals. The experiments conducted by (Reis et al., 1994) suggest that literacy influences the performance when naming 2D pictorial representations of objects as, the naming of objects is part of the visual attention or visual memory coupled with language processing.

Peterson et al. (2001) performed naming tests for three categories of stimuli i.e. Objects (O), Photos (P) and Drawings (D) and found that the illiterates have lower naming scores compared to the literate subjects when naming visually presented drawings of common everyday objects. These results suggest that the schooling, or to be precise, the acquisition of reading and writing affects the cognitive processing. Conclusively therefore, such a varied group of studies suggest that the Phonological awareness, phonological processing, language, and other cognitive abilities of an individual are significantly influenced by literacy.

The phonological processes in Kashmiri language constitute a very important part of the phonology of the language. The processes such as Palatalization, Cluster reduction, Anaptyxis, Paragoge form the group of modification processes in Kashmiri Phonology (Mir, Hasnain, & Khan, 2018). In addition to these processes there exist deletion processes also such as Aphesis, Apocope, and Syncope. Furthermore, the processes of homophony also forms the part of phonological processes in Kashmiri (Koul & Wali, 2006).

Nonetheless, the role of proficiencies such as oral proficiency in Kashmiri language predicting reading among literate or determining any epistemic aspect of

phonological processing among the illiterates has not been studied so far hence, there is non-availability of literature on such topic. However, this study explores the idea of proficiency being part of the embedded or implicit linguistic knowledge of an individual to execute language processes such as phonological processing. Because, in the current study the illiterate individuals performed well on the tasks given to them and that forms the substantial reasoning for proficiencies to have a role in phonological processing. Nevertheless, the role of implicit structural knowledge of language determines the language processing of an individual which is referred to as the metalinguistic awareness. Such metalinguistic awareness arises from the imbedded linguistic structures universal to human natural language (Chomsky,1965; Hauser, 1996), and it encompasses the syntax or grammar of the language, semantic knowledge and the way the language is being articulated. Such an implicit knowledge forms the base of language proficiencies in humans, which are realized as the skills of reading, writing, listening, and speaking. Yeung & Chan (2012) studied Mandarin speaking population for learning English as second language and confirmed that the role of oral proficiency during the development of the second language acts as general competence for phonological awareness of L2. However, a similar study in Spanish speaking children by Durgunoğlu et al. (1993) could not confirm the role of oral proficiency in predicting language skills such as reading, and therefore concluded that the role of oral proficiency did not correlate significantly with phonological awareness.

After going through all the studies mentioned above, it was found that that the role of native language of the participants was not worked out although the test batteries given were language-based tasks. Therefore, we conducted this study to find out if Kashmiri native language of the informants has a role in cognitive performance of an individual, and if the performance of illiterates is predicted by their mother tongue proficiency. It is hypothesized that there is role of language proficiency in predicting phonological processing among Kashmiri speaking illiterates. Nonetheless, we carried out this study in literate and illiterate Kashmiri speakers in order to ascertain if there is an effect of literacy on the phonological processing of individuals and if the proficiency in native language predicts phonological processing of illiterate individuals. Therefore, this study was designed to examine the performances of literate and illiterate Kashmiri speakers on four types of tasks viz. Lexical Decision, Random Automatized naming (Letters), Initial phoneme deletion, and Final phoneme deletion.

Method

Participants

The total population of the location Sopore in district Baramulla is reported 71,292 individuals with a literacy of 67.77% (Census, 2011) and the illiterate population which sums up to some 6,824 individuals constitutes the rest of 9.57% for

illiteracy. The illiterate population mostly consists of, as a matter of observation, adults who are above an average age of 35 years. Among this whole population of 6,824 illiterate individuals in Sopore a total number of twenty persons were selected as participants by *simple random sampling* technique. These twenty participants were selected from a single location in order to partake a similar dialectal variety or a sociolect for that matter. Likewise, at Aligarh Muslim University, Aligarh at least 900 adult native Kashmiri speaking students are enrolled in various courses and among all of them twenty students were selected as participants. The students were selected particularly hailing from the same district i.e. Baramulla of Jammu and Kashmir, again for the same reason to avoid any differences in their dialectal and sociolectal patterns.

The participants were carefully divided into two groups, Group-A and Group-B. Group A, consisted of the participants who were illiterate and have never attended and Group B consisted of the participants who were literate and have pursued a formal schooling. A total of forty participants were selected as the target population for this study; twenty each for Group A and Group B. The participants in Group A were selected from Sopore in district Baramulla of Jammu and Kashmir and the participants of Group B consisted of the students enrolled in different departments at Aligarh Muslim University, Aligarh of Uttar Pradesh India. All the participants were adults and the mean value of their ages in Group-A was 56.0 years and that of the Group-B was 27.7 years. The gender variable was kept constant (Table 1):

Table 1
Demographic Information of Participants

	Literate	Illiterate
Number of participants (N)	20	20
Gender (number)	20/M	20/M
Age (mean)	27.70	56.00
Socio-economic profile	20/ Middle Class	20/ Middle Class

All the participants in target population were essentially the native speakers of Kashmiri. Moreover, Kashmiri adopts Persio-Arabic script for orthographical purposes. It is written from right to left and bears the resemblance to Urdu in its orthography. It was ensured that the illiterate participants i.e. participants in Group-A cannot read and write Kashmiri. However, the participants in Group-B can read and write Kashmiri.

Procedure

All the tasks were given in Kashmiri language (written and oral), primarily because such a research has not been conducted in Kashmiri before and Kashmiri is the mother tongue of all the participants. Kashmiri is classified as Dardic language of Indo-Aryan family with nearly 5.6 million native speakers (Census, 2011). It adopts the Persio-Arabic alphabetic script and is written from right to left in *Nasta'liq* style.

The participants (N=40) were asked to perform a total of four different tasks and it was directed for each task that they shall perform as quickly as possible while being as accurate as possible. In lexical decision task a 4x15 matrix of words (correct and incorrect) was given printed on paper and only the correct words were orally presented to the literate participants over the headphone within a time gap of 10 seconds for each word making it to a total of 600 seconds or 10 minutes task. They were directed to encircle the word they listened over headphone in this time only. After every 10 seconds a new word would be presented to them. The illiterate participants were given the same words in string (correct and incorrect). Over the headphone they would listen to four words in one string (for six seconds) in which only one word was the correct response and they were asked to say the correct response aloud.

A task of Random Automatized Naming task (RAN) containing six consonant letters in Kashmiri alphabet was given to all the participants for six repetitions to have 36 instances of letter recitation. For literate participants the task was given printed on paper and for illiterate the letters were orally administered over a headphone. The literate participants were required to read the letters and the illiterate participants were asked to repeat the letters. The phoneme deletion task was given for initial and final phoneme deletions. The participants were asked to say aloud the correct response after hearing a word over the headphone. In case of initial phoneme deletion (IPD) the participants were directed to respond without the initial sound of the word they hear and in case of final phoneme deletion (FPD) task they were directed to respond with the final sound deleted in the word they hear. A total of sixteen (16) words were given in each of the task.

Data Acquisition and Analysis

The study employed quantitative research approach to collect data from the participants by administering them with four different tasks (Table 2). The instructions were given in English as well as in Kashmiri language and each participant was asked to perform the task as directed through the instructions.

Table 2
Tasks provided to Participants

S. No.	Name of the Task	Abbreviation
1	Lexical Decision Task	LD
2	Rapid Automatized Naming (letters)	RAN-L
3	Initial Phoneme Deletion Task	IPD
4	Final Phoneme Deletion	FPD

The tasks were provided as audios over headphones for both literate and illiterate participants however, the literate participants were required to respond by encircling the response printed on the paper while as illiterate participants were required to respond verbally. All the participants required to respond as quickly as they could and as accurate as they might. The participants would mount headphones on their skull and listen to the audios. Before the commencement of each task the participants were explained all the procedure in their native language i.e. Kashmiri.

The total time utilized was recorded for each audio or orthographical response and the time was recorded by using digital stopwatch (XIOMI-A1) mobile phone. The responses of the participants were digitally recorded using Sony IC (ICD-UX523F) recorders were all the recordings were saved as 32-bit Linear Pulse Code Modulated (LPCM) bearing Wave format (.wav). The recorded data was processed by the Sound Forge 11.0 software.

The collected data was analyzed using IBM SPSS 20.0 software. General Linear Model (GLM) for Multivariate Analysis was followed and computed for F-Statistic at $\alpha = .5$. Tests Between-Participants Effects were computed for Type III Sum of Squares and Observed power. Pillai's trace and Wilk's lambda were computed and applied to justify the hypothesis test, for Pillai's Trace = .934, $F(5.34) = 96.17$, $p = .00$, partial $\eta^2 = .93$; and for Wilk's $\Lambda = .70$, $F(5.34) = 96.17$, $P = .00$, partial $\eta^2 = .93$.

Results

The scores for Mean and Standard deviation (SD) were calculated for the performance of each task. In these scores, given in Table 3 below for literate and illiterate participant performances each variable is sampled independently. Moreover, the low Standard Deviations against each task suggest that there is not much dispersion of the values from the averages, and the values computed for Mean are slightly higher in case of literate participants than those for illiterate participants.

Table 3

Mean and Standard Deviations of Task Performances (variables/composite scores)

Measures	N	Literate		Illiterate	
		Mean	Std. Deviation	Mean	Std. Deviation
Lexical Decision	20	7.171	.188	6.485	.179
Rapid Automatized Naming (letters)	20	.653	.052	.491	.048
Initial Phoneme Deletion	20	.699	.046	.487	.057
Final Phoneme Deletion	20	.691	.072	.533	.058
Valid N (list-wise)	20				

The participants of this study share certain essential virtues pertaining to their social, cultural and linguistic background. It cannot be ignored that all the participants share a common socio-cultural arena and a common language which necessarily substantiates their linguistic demands and performances. Kashmiri being the native language of all the participants adds to the idea of socioeducational influence on their cognitive linguistic performance. Table 4, given below, reads the composite scores of Mean and Standard Deviations of performances by participants measured for the tasks with respect to their proficiency levels in Kashmiri.

Table 4

Mean and Standard Deviations for Proficiency in Kashmiri and Task Performances (variables/composite scores)

Task	Proficiency in Kashmiri	Mean	Std. Deviation	N
Lexical Decision	Speaking and Listening	7.096	.303	20
	Speaking, Listening and Reading	6.492	.189	15
	Speaking, Listening, Reading and Writing	6.521	.167	5
	Total	6.828	.391	40
Rapid Automated Naming	Speaking and Listening	.639	.066	20
	Speaking, Listening and Reading	.500	.063	15
	Speaking, Listening, Reading and Writing	.469	.013	5
	Total	.572	.096	40
Initial Phoneme Deletion	Speaking and Listening	.477	.054	20
	Speaking, Listening and Reading	.494	.088	15
	Speaking, Listening, Reading and Writing	.679	.022	5
	Total	.593	.118	40
Final Phoneme Deletion	Speaking and Listening	.573	.073	20
	Speaking, Listening and Reading	.537	.077	15
	Speaking, Listening, Reading and Writing	.643	.082	5
	Total	.612	.102	40

The number of participants (N) is highest i.e. N=20 for the proficiency category of *Speaking & Listening* because of the fact that (N=20) of the number of illiterate participants who could only speak in and listen to Kashmiri. Among literate participants N=15 were able to speak, listen, and read but are not good at writing. Being not good at writing Kashmiri for the literate participants presumes of not being accurate in writing or having a poor handwriting. However, five participants (N=5) among literate participants could speak, listen, read as well write. Thus Table 4 shows that even illiterate have performed better on tasks such as Lexical Decision and Rapid Automated Naming while they have been little slower on performing Initial and Final Phoneme Deletion tasks. It is because of the lack of phonemic strategies among illiterate participants while as literate participants could use both phonemic and orthographic strategies to perform these two tasks.

A correlation was obtained for whole of the sample (N=40) were the control variable is a categorical independent variable with two categories designated for

literate and illiterate. The values of the control variable (see Table 5) are treated as measures of literacy of the participants. The correlation matrix thus obtained has remarkably significant values computed at $p \leq .01$, and $p \leq .05$.

Table 5
Correlations of Dependent Variables and Literacy

Control Variable		Lexical Decision	Rapid Automated Naming	Initial Phoneme Deletion	Final Phoneme Deletion
Literacy	Lexical Decision	-			
	Rapid Automated Naming		-		
	Initial Phoneme Deletion	.121	.318*	-	
	Final Phoneme Deletion	-.089	.246	.390*	-
		535**			

The control variable i.e. literacy, depicts the values of literate and illiterate categories. It can be concluded that with a ‘no significant’ $r = -.089$, the effect of literacy on both the variables is negligible and do not differ. The absence of such a difference under the effect of literacy reveals that the two variables operate in different ways. It will not be wise to assume that both the tests operate in same manner for the cognitive performances of the participants. However, Rapid Automated Naming (RAN) positively correlates with all the variables of Phonological Awareness tasks and none of the correlations are statistically significant.

Nonetheless, another correlation matrix was obtained between the control variable and the test performances. However, the control variable was changed to *Proficiency in Kashmiri* and the values were computed for the responses of the four tasks given to the participants (see Table 6).

Table 6
Correlations of Dependent Variables and Proficiency in Kashmiri

Control Variable		Lexical Decision	Rapid Automated Naming	Initial Phoneme Deletion	Final Phoneme Deletion
Proficiency in Kashmiri	Lexical Decision	-			
	Rapid Automated Naming	.726**	-		
	Initial Phoneme Deletion	.741**	.829**	-	
	Final Phoneme Deletion	.698**	.846**	.869**	-

** $p \leq .01$.

It is observed that the correlation between tasks is positive and statistically significant at $p \leq .01$. The correlation coefficient ($r = .73$) computed between the variables Lexical Decision and Rapid Automatized Naming (RAN) is statistically significant at $p \leq .01$. This type of relationship in which both the variables correlate positively show that the effect of the control variable is almost same. Thus, in this case, the effect of Proficiency in Kashmiri is observed affecting the performance of the participants. The correlation tending towards positive direction suggests that there are almost similar cognitive linguistic strategies being applied by the participants for the performance on these tasks. Again, the correlation coefficient ($r = .87$) significant at $p \leq .01$ between IPD and FPD is a positive correlation. The relation between these two variables for Phonological Awareness tasks (i.e. IPD, and FPD) correlate in same direction and thereby, the cognitive linguistic strategies applied by the literate and illiterate participants need to be almost similar.

Discussion

An important assumption of cognitive approach is that the knowledge of language emerges from language use. This is to say that the conceptual structures or categories in phonology (sound) and semantics (meaning) are build up from cognition of specific utterances on specific occasions of use. Nonetheless, communication that is the salient function of language occurs orally, in writing, and by reading. The writing and reading modalities are realized as the script which describes a canonical sequence of events. These events can be understood as a certain ‘significantly sequential’ occurrence of images, letters or symbols which in turn give rise to different orthographies such as logographic, symbolic or alphabetic systems for writing languages. However, an unwritten language is language without any script and is performed orally by its speech community.

Most of the earlier conducted studies show the results in favor of literacy affecting the acquisition of phonological awareness and phonological processing. Thus, a literate individual is supposed to have learned the skill of reading and writing and therefore, there is always a logical presupposition that the ability of phonological awareness among literates is put to exercise while learning to read and write. On the other hand, an illiterate individual who will/may have never attended a school and never learned the skill of reading or writing is not expected to have phonological awareness as good as that of a literate person.

With a view of measuring the ability of phonological awareness among illiterate, various experiments have been carried out from time to time which, suggest the interference of phonological processing in affecting some cognitive processes. In all the experiments carried out so far, by various researchers, illiterates have been observed performing lower on the given tests than those of literates. However, among literates, the researches support the idea of, a sort of, permanence and consistency in phonological awareness skills.

Nonetheless, it has been observed that because of literacy there exist changes in perceptual and logical reasoning of an individual and the changes in the strategies

adopted to access lexical storage, phonological processing and improved working memory (Kosmidis et al., 2006). Schooling is observed therefore, to influence the formal operational thinking of an individual and influences the cognitive categorization of socio-cultural environment. Nonetheless, it's not only the formal schooling that's observed affecting the cognitive performances of an individual but it is also the socioeducational and socioeconomic levels that affect the cognitive and the linguistic processing of an individual.

Scribner and Cole (1981), however, claimed the association of cognitive skills and literacy is definite but, not necessarily with formal schooling or classroom learning. The cognitive skills are also dictated by culture and situation. Language as a socioeducational tool forms the important part of human cognitive development because, it is the language that lies at the heart of any culture. Proficiency in language, therefore, shall aid the cognitive performance of an individual. Learning of language as part of cultural and social education forms the set of idiosyncrasies of an individual and subjectivity to deal with the situations of reasoning and logic.

Hence, the formal schooling and socioeducational levels of individuals comprise the important reasons of learning a language and its modalities like those of reading and writing etc. In case of illiterate individuals, it is mostly the socioeducational levels that help shape up the information processing system of an individual. While a literate learns the alphabet of a language, an illiterate masters the learning of sounds by channeling acoustic reflex actions. Thus, a literate and an illiterate speaker differ only in specialized skills of reading and writing but possess similar skills of speaking and listening regarding their native language.

Given to the correlation results obtained in Table 5 it is evident that the task performance strategies under the effect of literacy are different for literate and illiterate participants and also there is not any strong correlation among the variables. The significant correlation between Lexical decision (LD) and Rapid Automatized Naming (RAN) under the effect of Literacy demonstrates the use of different strategies by the participants in responding to similar task. The strategies can be linguistic and non-linguistic. Literate participants can supposedly use linguistic strategies, and the illiterate participants will have non-linguistic strategies to respond to the tasks of Lexical Decision (LD) and Rapid Automatized Naming (RAN). Also, there is not a single perfect correlation or strong correlations between the variables which, confirms that the effect of literacy cannot be the predictor of Phonological processing of the informants. Because of the results obtained in Table 5, it is obvious that literacy is not the only major factor affecting phonological processing of an individual. The proficiency in native language is similar an ability for both the types of individuals i.e. literate and illiterate and therefore the performance correlations were obtained for the variables under the effect of *Proficiency in Kashmiri* and is given in Table 6. The correlation matrix provided interesting results and based on these results it is quite evident that proficiency of a native language predicts Phonological processing in illiterate individuals. All the correlations are positive and strong with $r \geq .7$ The strength of the correlations suggest that both the literate and illiterate have performed better which means that the proficiency in their native

language has effect on their performance. Also, the better performance by the illiterate participants under the effect of native language predicts the phonological processing of the illiterate participants.

Conclusion

It was observed in all the earlier studies mentioned that the literacy is a strong predictor of phonological processing or phonological processing strongly predicts reading among the literates but the concrete reasons for the studies in which illiterates perform well on phonological processing tasks have not been described in detail. Therefore, what makes the skill of phonological processing among illiterate to be better enough to enable them to perform all linguistic functions essentially required by them as the consequence of communicative purposes was approached in this study and it was concluded that the proficiency in native language has a role in phonological processing among illiterate individuals. In this study it is the proficiency in Kashmiri language which illustrates its role for phonological processing in illiterate Kashmiri Speakers.

Recommendation

Nonetheless, the current study marks the first attempt to employ a cognitive-linguistic approach in order to study the role of proficiency in phonological processing skills among native Kashmiri illiterate individuals and tried to understand and explain the reason of illiterate individuals performing well on phonological awareness tasks. However, the study will be better performed by using softwares like E-Prime in which the time calculation for the performance of tasks is accurately being assessed to make results more reliable. Also, such studies need to be carried out on mono-, bi-, and multilingual individuals in the same time so that the results can be compared for better deductions

References

- Alves, U. K., & Silveira, R. (2009). *Pronunciation instruction for Brazilians: bringing theory and practice together*. Cambridge Scholars Publishing.
- Ardila, A., Bertolucci, P. H., Braga, L. W., Castro-Caldas, A., Judd, T., Kosmidis, M. H. Matute, E., Nitrini, R., Ostrosky-Solis, F., & Rosselli, M. (2010). Illiteracy: the neuropsychology of cognition without reading. *Archives of clinical neuropsychology*, 25(8), 689-712. <https://doi.org/10.1093/arclin/acq079>
- Baddeley A. (1979) Working Memory and Reading. In: Kolers P.A., Wrolstad M.E., Bouma H. (Eds.) *Processing of Visible Language*. Nato Conference Series, vol 13. Springer, Boston, MA. https://doi.org/10.1007/978-1-4684-0994-9_21
- Baddeley, A. (1982). Reading and working memory. *Bulletin of the British Psychological Society*, 35, 414–417.

- Baddeley, A. (1982). Domains of recollection. *Psychological Review*, 89(6), 708.
- Baron, J., & Strawson, C. (1976). Use of orthographic and word-specific knowledge in reading words aloud. *Journal of Experimental Psychology: Human Perception and Performance*, 2(3), 386–393. <https://doi.org/10.1037/0096-1523.2.3.386>
- Burton, M. W., Small, S. L., & Blumstein, S. E. (2000). The role of segmentation in phonological processing: An fMRI investigation. *Journal of Cognitive Neuroscience*, 12(4), 679–690. <https://doi.org/10.1162/089892900562309>
- Chomsky, N. (1965). *Aspects of the Theory of Syntax*. MIT Press, Cambridge, MA
- Coltheart, M., Besner, D., Jonasson, J. T., & Davelaar, E. (1979). Phonological Encoding in the Lexical Decision Task. *Quarterly Journal of Experimental Psychology*, 31(3), 489–507. <https://doi.org/10.1080/14640747908400741>
- Conrad, R. (1964). Acoustic confusions in immediate memory. *British Journal of Psychology*, 55, 75-84. <https://doi.org/10.1111/j.2044-8295.1964.tb00899.x>
- Crowder, R. G. (1982). The demise of short-term memory. *Acta Psychologica*, 50(3), 291-323. [https://psycnet.apa.org/doi/10.1016/0001-6918\(82\)90044-0](https://psycnet.apa.org/doi/10.1016/0001-6918(82)90044-0)
- Cruse, D. A. (1992). Cognitive linguistics and word meaning: Taylor on linguistic categorization1. *Journal of Linguistics*, 28(1), 165-183. <https://doi.org/10.1017/S0022226700015048>
- Cruse, D. A. (2000). Aspects of the micro-structure of word meanings. In Y. Ravin & C. Leacock, (Eds.). *Polysemy: Theoretical and Computational Approaches*, (pp. 30-51). Oxford: Oxford University Press.
- Durgunoğlu, A. Y., Nagy, W. E., & Hancin-Bhatt, B. J. (1993). Cross-language transfer of phonological awareness. *Journal of Educational Psychology*, 85, 453–465.
- Ehri, L. C., & Wilce, L. S. (1979). The mnemonic value of orthography among beginning readers. *Journal of Educational Psychology*, 71(1), 26–40. <https://doi.org/10.1037/0022-0663.71.1.26>
- Hauser, M. D. (1996) *The Evolution of Communication*. MIT Press, Cambridge, MA
- Justi, C. N. G., Roazzi, A., & Justi, F. R. D. R. (2014). São as tarefas de nomeação seriada rápida medidas do processamento fonológico? *Psicologia: Reflexão e Crítica*, 27, 44-54.
- Kleiman, G. M. (1975). Speech recoding in reading. *Journal of Verbal Learning & Verbal Behavior*, 14(4), 323–339. [https://doi.org/10.1016/S0022-5371\(75\)80013-2](https://doi.org/10.1016/S0022-5371(75)80013-2)
- Koul, O. N., & Wali, K. (2006). *Modern Kashmiri Grammar*. Springfield: Dunwoody Press.
- Lakoff, G. (1987). The death of dead metaphor. *Metaphor and Symbol*, 2(2), 143-147.
- Lopes, A. P. N., & Minervino, C. A. D. S. M. (2015). Phonological awareness in illiterate adults. *Revista CEFAC*, 17(5), 1466-1473.
- Mann, V. A., & Liberman, I. Y. (1984). Phonological Awareness and Verbal Short-Term Memory. *Journal of Learning Disabilities*, 17(10), 592–599. <https://doi.org/10.1177/002221948401701005>
- Mattingly, I. G., Kavanagh, J. F., & Mattingly, I. (1972). Reading, the linguistic process, and linguistic awareness.
- McCusker, L. X., Hillinger, M. L., & Bias, R. G. (1981). Phonological recoding and reading. *Psychological Bulletin*, 89(2), 217–245. <https://doi.org/10.1037/0033-2909.89.2.217>
- Meyer, D. E., Schvaneveldt, R. W., & Ruddy, M. G. (1974). Functions of graphemic and phonemic codes in visual word-recognition. *Memory & Cognition*, 2(2), 309–321. <https://doi.org/10.3758/BF03209002>

- Morais, J., & Kolinsky, R. (2000). Biology and culture in the literate mind. *Brain and Cognition*, 42(1), 47-49.
- Morais, J. & Kolinsky, R. (2002). Literacy effects on language and cognition. *Psychology at the Turn of the Millennium*, 1, 507-530.
- Petersson, K. M., Reis, A., & Ingvar, M. (2001). Cognitive processing in literate and illiterate subjects: A review of some recent behavioral and functional neuroimaging data. *Scandinavian Journal of Psychology*, 42(3), 251-267.
- Reis, A., Faisca, L., Ingvar, M. & Petersson, K. M. (2006). Color makes a difference: Two-dimensional object naming in literate and illiterate subjects. *Brain and Cognition*, 60, 49-54. <https://doi.org/10.1016/j.bandc.2005.09.012>
- Roazzi, A., Justi, C. N. G., Justi, F. R., Henriques, F. G., & Cançado, M. F. L. (2014). Três hipóteses sobre a natureza das tarefas de nomeação seriada rápida [Three hypotheses on the nature of rapid automatized naming tasks]. *Psicologia: Teoria e Pesquisa*, 30(4), 449-457.
- Rosselli, M., Ostrosky-Solis, F., Ardila, A., Lopez-Arango, G., & Uriel-Mendoza, V. (1998). Neuropsychological test performance in illiterate subjects. *Archives of Clinical Neuropsychology*, 13(7), 645-660.
- Stanovich, K. E. (1988). The Right and Wrong Places to Look for the Cognitive Locus of Reading Disability. *Annals of Dyslexia*, 38, 154–177. <http://www.jstor.org/stable/23773663>
- Verplanken B. (2006). Beyond frequency: habit as mental construct. *The British Journal of Social Psychology*, 45(3), 639–656. <https://doi.org/10.1348/014466605X49122>
- Wagner, R. K., & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin*, 101(2), 192-212. <https://doi.org/10.1037/0033-2909.101.2.192>
- Yeung, S. S., & Chan, C. K. K. (2012). Phonological awareness and oral language proficiency in learning to read English among Chinese kindergarten children in Hong Kong. *British Journal of Educational Psychology*, 83, 550-568. <https://doi.org/10.1111/j.2044-8279.2012.02082.x>