GENERAL DISCUSSION

The acquisition of biliteracy in Kannada-English was studied in the present doctoral research. The results of the study indicated the acquisition pattern in both Kannada (a transparent orthography) and English (opaque orthography) across listening, phonological awareness, rapid verbal naming, reading and written language skills. The study also determined a few important predictors for Kannada and English. While majority of the predictors emerged in the study were found to be different for Kannada and English (Tables 4.6.2 and 4.6.3 and Figures 4.6.1 to 4.6.3), a few common predictors such as listening comprehension also emerged through regression analysis for reading in Kannada and English. For example for reading in Kannada and English, listening comprehension served as the predictor, but for written language skills in Kannada and English, rapid verbal naming and phonological awareness were found to be the predictors, with the predictive power of phonological awareness being relatively low.

Wolf (1999) suggested naming speed (RAN) to be an important factor for reading. But, an important finding in the present study was that naming speed (RVN) was found to be a predictor for written language for both Kannada and English (see Tables 4.6.1 and 4.6.2). This could be because the rapid verbal naming task given to the older children in the present study is likely to involve several cognitive components such as general processing speed (Wolf & Bowers, 1999) and phonological processing (Torgesen, 1997), unlike, in other studies where rapid automatized naming is employed with pictures that requires speed sensitive visual and visual motion processes in addition to the other components (Eden & Zeffiro, 1998). All these componential skills may be relevant to the orthography-to phonology and orthography-to-semantics mappings that may be more crucial in the
development of writing for Indian biliterate children. The only difference in differential performance for rapid verbal naming seen is at the level of processing speed from where children are required to retrieve words from the phonological-orthographic-semantic lexicon in order to generate words for the same. Greater number of words generated for Kannada than English is indicative of faster processing speed for naming in Kannada than in English. This can be attributed to the language exposure and experience of these children which is relatively better for Kannada than for English. Findings also suggest that RVN is crucial to both Kannada and English indicative of common underlying linguistic and cognitive processes in the development of reading in biliterates (Geva, 2000) and also transfer of strategy or skills between the two languages. Studies in the clinical population also suggest the importance of rapid naming to literacy in various other languages like Finnish (Korhonen, 1995), Spanish (Escribano, 2007; Jimenez, 2008), German (Frith et al., 1998; Landerl, 2001; Wimmer, Mayringer & Landerl, 2000). These studies indicate that RVN is crucial for literacy in languages with regular scripts.

The findings of the study indicated the unique contribution of phonological awareness to reading as well as written language for English, while only to written language for Kannada. And that phonological awareness develops earlier at a coarse-grained level (as indexed by better scores on syllable related tasks in Kannada) in the early years and later at the fine-grained level (as indexed by the phoneme related tasks). However, neither syllable level nor phoneme level phonological awareness predicted reading in Kannada. This is attributed to the differences in the way spelling to sound consistencies are encoded for Kannada (transparent alphasyllabary) and English (opaque alphabetic). Review reports of such differences across alphabetic and non-alphabetic orthographies (Frost, Katz &
Bentin, 1987) have demonstrated that grapheme-phoneme recoding skills take longer to develop in less transparent orthographies like English compared to more transparent orthographies like Spanish, Greek, Finnish for which word and nonword reading (Seymor, Aro, & Erskine, 2003). The results of study conducted to investigate the relationship between phonological awareness and reading words-nonwords in biliterate children (Shanbal & Prema, 2007) revealed that while, phonological awareness in English significantly predicted reading non-words in English, that in Kannada did not reveal any potential predictors to reading words or non-words. The findings of the present study on correlation, regression and discriminant function analyses revealed that for writing to dictation, reading comprehension was significant in Kannada, while listening comprehension was a significant function in English (see Tables 4.6.6 to 4.6.11).

The findings of the present study are important because it is widely assumed that phonological awareness and its contribution is universal to all languages. Phonological awareness is well known to be highly predictive of children’s reading performances in the alphabetic languages such as English. However, this may not be true for all other languages which are non-alphabetic in nature such as Kannada (Karanth, 1998; Prakash, Rekha, Nigam & Karanth, 1993; Prakash & Rekha, 1992; Prakash, 2003; Prema & Karanth, 2003). While reading comprehension, rapid verbal naming and listening comprehension play a major role in acquisition of written language skills in Kannada (see Figure 4.6.18), reading nonwords, rapid verbal naming, listening comprehension, reading comprehension and phonological awareness contribute for acquisition of written language skills in English (see Figure 4.6.19). Therefore two different paths for acquisition of biliteracy in children for Kannada and English may be envisaged. These findings further emphasize use of
parallel tools when a biliterate child with literacy difficulties needs assessment. This is because skill like phonological awareness may not be a deciding factor for literacy difficulty in Kannada, whereas, a child who has difficulty in phonological awareness may show difficulties in English. Thus, the findings of the study does not support use of a common tool for either of the languages to assess a biliterate child with literacy difficulty but supports the use of parallel tools in the two languages of biliterates as proposed by Stuart-Smith and Martin (1999). The results suggest that a few skills such as written language, listening comprehension and reading comprehension are achieved in Kannada much earlier than in English.

The study also showed evidences of subgroups of children with literacy difficulties and a few children (Group LD1) who showed difficulty in both Kannada and English (see Figures 4.7, 4.7.1, 4.7.2, 4.7.3 and 4.7.8). However, there was one child who showed difficulty in English than in Kannada. Such children are referred to as children with differential dyslexia (Smythe & Everatt, 2000). These children may show difficulty in one language but not in the other language. These findings suggested existence of sub groups of learning disability. A few biliterate children with LD may show difficulty in processing a particular script (like English) which is different from the script of his/her native language (like Kannada). On the other hand, there may be few other children with LD who do not show difficulty in particular scripts as the deficit may be more at a central level of processing. These evidences further support the need for assessment of children with parallel tools in the two languages of Kannada-English biliterate child.

The correlation co-efficient values in Table 4.6.1 indicated a positive correlation between the skills in Kannada and English (LCK-LCE, PAK-PAE, RANK-RANE, RDK-RDE, RCK-RCE, WDK- WDE, and WSK-WSE). For
Kannada-English biliterate children, the findings suggest common underlying skills for the task and the likelihood of transfer of skills between languages. The findings suggest that there could be transfer of a few skills between languages Kannada and English. However, further studies are warranted to explain the phenomenon of cross-language transfer of skills in Kannada and English. Since, investigating transfer of skills in biliterate children was not within the scope of the study the findings are not elaborated in the present study.

Apart from the primary findings the present study also suggested that transfer of skills may be taking place between Kannada and English. For e.g., For reading single words-nonwords, children appeared to use the same orthographic rules to read irregular words and nonwords in English when they were required to use the grapheme-phoneme correspondence rules for English. This indicated that children may be transferring a few skills like reading words nonwords and writing to dictation from Kannada to English or vice versa. This is a question that needs to be explored with future research to explain the phenomenon of cross-language transfer in biliterate children and children with learning disability. The findings of the present study suggest that listening comprehension is not a script dependent phenomenon and as it emerged as a common predictor for reading in both the languages. Results on children with learning disability (LD) indicated that listening comprehension also aided in identifying subgroups of LD- Group LD 1 and Group LD 2. Though results of typically developing children indicated that listening comprehension was a central language problem, it could subgroup two types of LD, while LD Group 1 showed difficulties of listening comprehension in both Kannada and English, LD Group 2 with one child showed difficulty in English and not in Kannada is referred to as ‘differential dyslexia’. The results indicated that children
with differential dyslexia were successful to employ background knowledge and memory in both Kannada and English, however, they failed on text inference and text integration indicating deficits in higher level cognitive processes in both the languages.

The findings of the study on phonological awareness suggest that orthographic sensitivity is the guiding factor for phonological sensitivity in Kannada (refer to review section for phonological sensitivity, page no. 40) and English. Exposure to orthography appears to play a role contributing to phonological awareness as phoneme related skills are achieved by biliterate children only in the later grades (Grade VII in the present study) when children learn the principles through exposure to script. The findings are in support of various other studies (Frost, Katz & Bentin, 1987; Karanth, 2002, 2003, 2006; Patel, 2004; Posner & Kar, personal communication, 2010; Seymour, Aro, & Erskine, 2003) which stated that orthographic sensitivity is a crucial factor in reading and the nature of orthography, its transparency and form of representation is found to influence the pattern of reading development.

The findings are also in support of a series of studies conducted by Karanth (1998), Prakash (2003), Prakash and Rekha (1992), Prakash, Rekha, Nigam and Karanth (1993), Prema and Karanth (2003) in children and adults (monoliterates-those who learnt to read only alphasyllabary like Kannada or Hindi, biliterates-those who read Kannada and English or Hindi and English and nonliterates), with Kannada or Hindi as the primary language script. They viewed phonological awareness as being more concomitant than a pre-requisite to successful reading. They reported that biliterates outperformed the monoliterates and the nonliterates on phoneme segmentation tasks, while they performed equally well with the other two
groups on rhyme recognition and syllable deletion tasks. The results suggest that phoneme related tasks are learnt later by biliterates in India due to exposure of grapheme-phoneme rules which are not formally introduced, however, children somehow learn to employ the strategy at a later stage in school. The results of the present study are in consensus with the above studies that phonological awareness develops as a function of the characteristics of the writing system of a language and the stages at which different levels of awareness appear in alphabetic and nonalphabetic languages and their mastery vary according to the nature of the script. The findings of the present study also suggest a plausible transfer of phonological awareness skills between Kannada and English, due to the fact that Kannada-English biliterate children employed orthographic rules of Kannada rather than grapheme to phoneme (G-P-C) rules in English as evidenced by reading and writing nonwords and irregular words in English. Transfer of phonological awareness skills from L1 to L2 or L2 to L1, if any is yet another area open for investigation on biliteracy in India.

The findings on reading single words-nonwords suggest that performance was better in Kannada than English. Children made fewer errors while reading Kannada than English. In English, the error types that were commonly seen were those of regularizing irregular words. For e.g., ‘shield’ (/ʃi:lɖ/) was read as either /ʃailɖ/ or /ʃi:lɖ/. These errors were greater for irregular nonwords. For e.g., ‘pight’ (/paiʈ/) was read as /pigʈ/. The error types on irregular nonwords in Kannada were lesser than in English. These findings suggest that for reading nonwords children do not require the language knowledge as the nonwords do not carry any meaning. Children are required to learn the orthographic principles of a language. In the present study the phonological errors [For e.g., /ʃailɖ/ for ‘shield’ (/ʃi:lɖ/)] in English
indicated that children are familiar with the Kannada orthographic rules by Grade V itself and they appear to employ Kannada orthographic rules to decode English irregular nonwords. Lack of knowledge of G-P-C correspondence in English indicates that children are unable to read irregular nonwords in English. If we can assume that there is transfer of skills from Kannada to English causing errors in irregular nonwords, then transfer of skills from transparent to opaque language in biliterates is likely to have negative effect. This indicates that while teaching biliterates one should teach in a context in order to nullify the decontextualized reading effects.

While reading comprehension provides contextual knowledge through the text, reading single words-nonwords are more decontextualized. Unlike reading comprehension where context supports understanding a text with the contextual cues, reading or decoding words require mastery of phonological and orthographic rules of language. As mentioned earlier, inadequate mastery of grapheme-phoneme correspondence rule in English and influence of Kannada orthographic rules on English suggests difficulty in reading or decoding in English compared to Kannada.

The findings on writing to dictation suggested that the nature of reading strategies used for reading and writing is different for Kannada and English. Children in the lower grades were dependent and more sensitive to the orthographic rules in Kannada and children attempted to use similar orthographic rules in English as they did for Kannada (For e.g., word ‘night’ was written as ‘nit’ by a few children in Grade V. The findings suggest that strategies for reading and writing in Kannada and English are different and this needs attention for teaching Indian biliterate children. In spite of being biliterate, children have not acquired the P-G-C rules required for English and still adhere to orthographic rules of Kannada to English.
Hence, transfer of skills could be taking place from Kannada to English which seem to cause interference in English, similar to the findings reported for reading words-nonwords in the present study. However, further studies are warranted to strengthen this observation on transfer of skills in Kannada and English. The findings on expository writing revealed that difference in the structure of languages calls for specific measures for expository writing.