Acquired Dyslexia/Dysgraphia in Kannada-English Bilingual Stroke-Survivors

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It has been argued that in transparent orthographic systems (TOS) the high grapheme-phoneme correspondence (GPC) diminishes the dependence on the lexical-semantic route and thus “one would not expect cases of phonological or deep dyslexia” (Davies, Cueto, & Rodriguez-Ferreiro, 2010). However, a few recent studies in TOS have reported deep and phonological dyslexia with significantly impaired non-word reading as compared to word reading (Davies, Cueto, & Rodriguez-Ferreiro, 2010). Given the equivocal evidence, more studies are warranted to further understand acquired dyslexias/dysgraphias (Karanth, 2003). The TOS of Indian alphasyllabaries, such as Kannada, offer fertile ground for such research.

Kannada - a Dravidian language- has an extremely transparent semi-syllabic orthography with regular syllabic structures and high GPC. There are only a couple of exceptions to the syllabic rule formation in the use of the semivowel ‘/r/’ (‘arka’) and ‘/o/’ (anuswara) representing the nasals (Karanth, 2003). Therefore, it is possible for individuals to have difficulty with these irregularities, albeit minimal, in reading and writing.

The objectives are to determine:

(a) Whether Kannada-English bi-scriptal stroke-survivors would show similar/different reading/writing deficits in both scripts;

(b) If strengthening the GPC route in Kannada using grapheme-phoneme treatment approach with non-words would affect reading of both non-words and words.

Four stroke-survivors with aphasia were tested in detail for language and reading/writing deficits pre- and post-therapy (please see attached Table1). Three participants (P’s) reported first incidence of left-hemispheric cerebro-vascular accident (CVA) with no associated illnesses. P4’s medical-records showed a previous, but completely resolved transient-ischemic-attack. P1 and P4 received grapheme-phoneme strengthening treatment for reading in Kannada using the keyword approach (Beeson & Henry, 2008). A minimum of 40 treatment sessions (4-5 sessions/week) were conducted over 8-10 weeks. Baseline measures on 40 three-syllable non-words (equally grouped into 4 lists – two treatment, probe and generalization) were established pre- and post-therapy. Probe-list, measuring generalization, was used once-weekly and treatment list-2 was introduced once 80% accuracy was attained on treatment list-1.

Results

(a) Similar results in reading were noted in both languages for all participants. The same was true with writing, except P2 did better in English. P1 had occasional semantic-paralexias in Kannada outside of the testing-
environment. Excluding P1, others had greater difficulty reading the non-standard regular rendition of homophonous-arka-words than the standard irregular arka-words.

(b) Both participants who received therapy showed moderate-large treatment gains. Interestingly, they improved in Irregular word reading as well.

Conclusions

All participants showed characteristics of phonological dyslexia in both languages with P1 being closer to deep dyslexia. The results concur with studies that have reported phonological/deep dyslexia in other TOS. Strengthening the GPC route proved effective in Kannada also, which can be a viable treatment for individuals with phonologic dyslexia in TOS.

References

