

We present a case of a 40 year old woman CW who suffered a close head injury from a pedestrian traffic accident. She was a native speaker of Cantonese whose dominant language as an adult was English. We present the details of her third language learning of Arabic subsequent to brain damage.

After 6 months of coma, CW was found to have a left-sided hemiplegia. On evaluation one year post onset she was ambulatory, with a moderate hemiplegia of the left arm. No facial paralysis was evident. No aphasia, apraxia, acalculia, or alexia was noted after coma resolution. The major neuropsychological deficits evident were difficulties with recognition and naming of family members, word finding difficulties in the context of fluent unimpaired speech production, and severe phonological dysgraphia. Features of socio-pragmatic behavioural difficulties and altered and/or inappropriate affect was a significant management issue. Disinhibited, perseverative, and obsessive behaviour was notable.

Premorbidly, CW was a senior business woman who ran a successful international interior design consultancy. She was very active in sports and was an amateur painter. She was a native speaker of Cantonese, having been born in Hong Kong. Having emigrated to England at the age of 12, she attended secondary school in English and attended College in London. She graduated with a BA in Fine Arts. She is a fluent second language speaker of English. She used English both at work and home with her spouse but spoke Cantonese to her children.

One year post onset of injury, CW was evaluated for residual neuropsychological and language difficulties. On assessment, she was found to have a moderate anomia, particularly pronounced with respect to personal names of family members, and word finding difficulty. In addition there was a severe agraphia, characterized by the production of phonetically based spelling errors and word omissions in the production of written texts. Her spoken language production and comprehension as well as reading are unimpaired. There was initial evidence of mild left neglect of extra-personal space in paper and pencil tasks, which has now been resolved. Mild difficulty in geographical spatial memory is evident. However, her current environment is a city she had only recently taken up residence in, subsequent to her accident.

At one year post onset, there is still evidence of additional difficulties in other areas of cognitive function typical of closed head injury with major right temporal lobe involvement, such as inappropriate use of social/interpersonal pragmatics, perseveration, labile affect, and maintenance of personal care and hygiene. Orientation is unimpaired. Memory for events both before and after the accident appeared intact.

Subsequent to her accident, CW moved to Cairo to join her English spouse who was working there. She has shown a strong motivation to acquire Arabic (L3), a language she was unfamiliar with before her head injury. The pattern of her L3 language learning has been monitored over a 5

month period. She attends group classes at a Language School and has private tutoring in addition. She is learning Egyptian Spoken Arabic and Modern Standard Arabic which is the Classical written form of the language. She works intensively both in spoken and written language production. However, although she practices Arabic language writing using roman transliteration, she has not pursued acquisition of Arabic script which limits her reading material. Her Arabic language studies are currently 5 days a week.

Surprisingly, the agraphic problems demonstrated in her English (L2 dominant language) written productions are more pronounced than in her L3 Arabic acquired post-onset of brain damage. It should however be pointed out, that the orthography in Arabic is directly mapped from phonology, with completely regular grapheme phoneme correspondence. This is in contrast to English.

Her agraphic productions in English are characterized by over-regularization of irregularly spelled words, including high frequency words. Surprisingly, some phonemic categories in her L1 Cantonese appear to be influencing her phonetic spelling errors in English and Arabic. For example, 'carry' was written as CALI.

Her premorbid English was reported to be fairly free of Chinese accent while it has been noted that post onset her phonetic control is less precise. For example the name of her Arabic maid is •••• 'Shereen' but CW pronounces this as /s•lin/ and writes this as SELEN.

She receives therapy treatment in English with weekly one hour sessions. Work focuses on her written spelling and pragmatics. Within each session, spelling performance appeared to improve. However, over the treatment period no maintenance of treated spelling patterns was demonstrated from week to week. There was no evidence of new learning or improvement of her English spelling agraphia.

In contrast, her intensive study of Arabic, sometimes amounting to 5 hours a day, has resulted in significant learning of this previously unknown language. After 5 months she is now able to engage in conversation with house staff and carers. In addition, her written production in Arabic demonstrates the acquisition of well over a beginner's 500 word vocabulary. When she experiences word finding difficulties in written English production, she resorts to the successful strategy of writing the corresponding word in Arabic.

This paper will present the details of her written language impairment in English, and the pattern of her spoken and written acquisition of Arabic after head injury. There have been very few reports of adult second language learning subsequent to acquired brain damage. Successful L2 learning has been reported in small study of Schizophrenics (Bersudsky et al., 2005). Recently, one other case of language learning after head injury has been reported in a Polish college student

who was an L2 learner of English (Polczynska-Fischer, 2005). That case differs in that the Polish woman had begun her English language studies prior to her accident. In our case CW only began studying Arabic after she had suffered brain damage. This unusual case will be considered with respect to theories of adult foreign language learning and the role of the right hemisphere.

## References

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