

Hidden Dyslexia in Second Language Learners: A Case Study

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Background

Under the best of circumstances, learning a second language is not an easy task, particularly given challenges of large class sizes, and environmental, social, and emotional distractions (see Kharkhurin, 2008). In many cases, learning a second language is peripheral to a student's search for identity; learning is often an institutional means to a social developmental end.

When the second language is English, it is even more challenging as students need to process written language at the morpho-syntactic, semantic, and discourse levels and process conversation at the phonetic and phonological levels; words in English are often written differently from the way they are pronounced, and seemingly regular patterns of spellings frequently feature exceptions.

These differences are particularly troublesome to students whose native languages feature regular orthography, with words whose writing more closely and regularly reflect their pronunciation. German, Italian (see Zoccolotti, De Luca, Di Pace, Judica, & Orlandi, 1999), and Turkish (see Raman & Weekes, 2005) are three such languages, as are most, but not all, letter-based languages; a major exception is English.

. . . some languages have simple grapheme-phoneme codes in which there is a one-to-one mapping, making them easy to teach and learn, while others have more complicated structures and are more difficult for teachers and students. There is now an increasing number of studies which demonstrate that readers in more transparent orthographies such as Italian, Spanish, Turkish, Greek and German have little difficulty in decoding written words, while English children have many more problems. Increasingly, lack of orthographic transparency in English is seen as having a powerful negative effect on the development of reading skills in English-speaking children. (Spencer, 2000, p. 1)

The above is illuminative enough when seen from a native English speaker's perspective, yet all too telling when the situation is inverted, and non-natives are expected to learn this language, with its lack of orthographic transparency.

Forms of Dyslexia

Many students who are challenged with a wide variety of literacy difficulties in their own language (L1), often carry those problems with them when learning a second language (L2). However, one particular literacy challenge, Developmental Surface Dyslexia (DSD) is rarely, addressed in the L2 literature (see Siegel, 2008) and many language teachers, particularly English language teachers, do not have even a rudimentary understanding of what different forms of dyslexia entail, or how to screen or remediate a dyslexic student. In order to fully appreciate the complexities surrounding dyslexia, it is important to understand the basics of dyslexia and the processes which surround identifying and assisting an individual with dyslexia. Dyslexia is a spectrum disorder with many degrees of severity. Despite extensive research, the multiple causes of dyslexia are not clear and a much-cited analogy compares dyslexia to allergies, with disparate factors leading to similar symptoms. In one study, Bowey and Rutherford (2007) few cases of students who could be classified as being purely of one type or another.

Accordingly, there are a number of conflicting viewpoints on the symptoms, causes and treatments of dyslexia (see Fawcett, 2004). In some cases, the differences may even be due

to the agendas of those involved in dyslexia research. But a practical way of relating differing views of dyslexia is offered by the causal modelling framework, which looks at a phenomenon from biological, cognitive, and behavioural perspectives.

Frith (2004) uses the causal modelling framework to demonstrate how two potentially conflicting theories are compatible. One theory states that dyslexia is a phonological deficit, the other theory states that dyslexia is a magnocellular deficit; magnocellular pathways transfer packets of information between the eyes and the brain.

When placed within the framework, the phonological theory fits within the cognitive level, and the magnocellular within the biological. Both theories ultimately impact on the behavioural level, i.e., difficulties in reading and writing. The framework shows clearly how the magnocellular (biological level) deficit may be seen as the cause of the reading disability, but it is potentially also the cause for the speech processing (cognitive level) deficits.

The two deficits correspond with the two largest groupings of dyslexics. Developmental Phonological Dyslexia (DPD) is a form of dyslexia that affects the phonological representation of words; these dyslexics have difficulty in discriminating (segmenting and blending) sounds in context, which impairs their ability to use sound-letter correspondences when reading. On the other hand, DSD affects the visual processes, leading to the misidentification of words. Work by Castles, Datta, Gayan, and Olson (1999), suggests that DPD is more likely to have hereditary characteristics whereas surface dyslexia is more likely to be environmentally influenced.

A case study

It is the nature of language teaching that teachers observe and try to make sense of students' oral and written errors, much of which falls within the realm of the natural confusion of learning. However, careful, discrete, and ethical observation can lead to the interpretation of systematic errors as having an underlying problem that, in some cases, may be attributable to dyslexia.

The subject of this case study was a 32-year-old Austrian male taking an English course, his first post-secondary educational experience of education since leaving school at the age of 15. The subject was seen to display signs of anxiety when awaiting his turn to read aloud from the textbook. For example, he was often seen to be biting his lower lip as his eyes repeatedly scanned (in fact, trying to memorise) the portion of text he anticipated would fall to his turn to read aloud. This strategy, which the subject later admitted he had used throughout school, worked well for him until the teacher randomly picked students to read. It then became clearly apparent that this subject was exhibiting compensatory strategies for dealing with a reading difficulty. Later, having been picked at random to read aloud, the subject missed words, especially smaller pronouns or prepositions. In some cases, he substituted orthographically similar words (e.g., felt instead of feel), interpolated and dropped letters of orthographically similar words (e.g., nice instead of since), shifted the tense of words out of context (e.g., slept instead of sleep), substituted longer non-words for those with similar prefixes (e.g., *unfortunaily* [sic] instead of *unfortunately*) and misplaced inflectional suffixes (e.g., *news peoples name* instead of *new people's names*).

These and other initial observations led to the conclusion that the subject likely had a deeper difficulty with L2 literacy than his peers. The display of anxiety prior to reading and the compensatory strategy indicated that the subject not only had a reading deficiency, but was also on some level, aware of it. The overlooking of smaller words and generalisation of unknown words into non-words pointed to a visual deficit common in DSD (see Fawcett, 2004).

It is an easy assumption that surface dyslexics would initially have major difficulties learning

new words but, after these initial difficulties, they may have better chances in consolidating use, or *performance* (Chomsky, 1965), of the second language than Developmental Phonological Dyslexics. This would tie in with the theory of DPD as a true developmental deviancy, as opposed to DSD as a form of developmental delay (Stanovich, Siegel, Gottardo, Chiappe, & Sidhu, 1997; McDougall & Borowsky, 2005).

The important point in this phase of diagnostic assessment was to next determine whether the subject was indeed dyslexic and, if so, identify the subject's particular subtype of dyslexia (surface or phonological) or even address the possibility of a double deficit where the subject showed symptoms of both DSD and DPD.

Despite the widespread nature of dyslexia, professional tests for diagnosing dyslexia remain expensive. However, there are a number of free tests available on the Internet and some of these were reviewed and adapted to collect background information through a questionnaire on the subject's academic history from pre-school to present day. Liberal use was made of material adapted from Fawcett (2004) in order to anchor the questions in the appropriate theory. Next, the *Revised Adult Dyslexia Checklist* (Turner, 1999) was chosen as a general test of dyslexia. The test asks the subject to answer a range of questions designed to screen typical dyslexia traits, such as difficulties between right and left, or remembering phone numbers.

In testing, the subject produced a borderline score which did not reflect the observed assessment of the subject's performance in class. Establishing a dyslexia subtype was important as it would determine the most likely path to remediation. Visual memory deficits are implicated in DSD, particularly, "... the mastery of visual strategies . . . the ability to spell irregular (exception) words" (Singleton, 2004, p. 124) or that surface types are "... reliant on relationships between letters and sounds, and tend to show regularisation errors, such as reading *pint* as a rhyme for *mint*" (Everett, 2004, p. 88).

Such regularisation errors are commonplace at the pre-intermediate EFL level and so, such a test to establish the dyslexia subtype was not an option. In German, the subject's native language, these kinds of irregular spellings and pronunciations are rare (Firth, 2004), creating a dilemma as how to formally assess visual deficiencies.

Verbal memory and phonological skills, on the other hand, are implicated in the abilities to spell regular words and non-words. This led to the choice of a second test, The Nonword Decoding Test (Johanston & Thompson, 1989). It was chosen to identify grapheme-phoneme translation difficulties and whole-word guessing which, as Singleton (2004) explains, is "... the result of a developmental imbalance, with reliance upon visual information outstripping phonological – a hallmark of developmental phonological dyslexia" (p. 125).

The original test language of English was not a barrier as the word choices approximated non-words in German just as well as they did in English. The subject had no difficulties with any words of two or even three syllables. But four syllable words took the subject significantly longer to decode. When asked to repeat the test at a faster rate, it transpired that the longer words were merely scanned and approximated, leading to his missing out individual letters and even whole syllables.

This was closer to the behaviour observed in class and implied that the subject was reliant on recognising word wholes or *gestalts*. When faced with a word visually similar to another, he would simply read it as dictated by the suggestions of his memory, and not as the word itself was spelled. When asked to re-read, he would consistently read the word wrongly. However he showed no irregular problems in pronunciation. This suggested a visual memory deficiency in

keeping with DSD. In practice, this test, intent on localising phonological deficiencies, served to provide evidence that the subject was, if only slightly, a surface dyslexic.

Having tentatively identified the form of dyslexia, it was necessary to establish short term, medium term, and long term remediation goals, reconciling the conflicting information provided by observation where the subject appeared dyslexic, and the formal testing, where the subject seemed borderline dyslexic.

The long-term goal was based on personal information provided by the subject on issues such as his background and the contextual factors of his education, as well as institutional assessment. Of particular interest was the fact that the subject was identified at age seven (in 1982) as being potentially dyslexic. After this, he was referred to a specialist physician, who concluded the boy was not dyslexic, and sent back to school without further provision. Although he subsequently had fewer L1 literacy problems, he continued to have L2 (English) literacy problems. This becomes understandable if we assume that the subject's 1982 assessment was for general visual recognition impairment, a diagnostic tool that "fell into disfavour in the 1970s and early 1980s" (Everett, 2004, p. 87).

Using this tool, it is quite likely that the physician concentrated upon phonemic and verbal memory based testing, which the subject mastered effortlessly. The fact that the subject later experienced fewer problems could tie in with Ehri's (2005) thesis of transition to grapho-phonemic knowledge: "The three alphabetic phases – partial, full, and consolidated – are closely related and extend development from immature to mature forms of sight learning. . . The full phase characterises first graders who have acquired graphophonemic knowledge and can use it to read words" (Ehri, 2005, p. 178).

These phases are as follows: The *pre-alphabetic phase* is where "beginners learn how to remember sight words by forming connections between selected visual attributes of words and their meanings." The *partial-alphabetic phase* is where "beginners remember how to read sight words by forming partial alphabetic connections between only some of the letters in written words and sounds detected in their pronunciations. Because the first and final letters are especially salient, these are often the cues that are remembered." The *full-alphabetic phase* is where "beginners remember how to read sight words by forming complete graphophonemic connections. This is possible because readers know how the major graphemes symbolise phones in the conventional spelling system." The *consolidated phase* is where "readers are able to decode words by transforming graphemes into phonemes and they are able to retain sight words in memory by connecting graphemes to phonemes" (Ehri, 2005, pp. 174-179).

The above is of interest when considering that the usual transition from pre- to partial-alphabetic is identified as being at around the age of seven. Once the subject's mind had started to become more reliant on complex grapheme-phoneme decoding strategies, the visual impairment became less apparent. It was largely held in check until, as an adult, he was confronted with a new and more intensive language-learning situation in which there were highly increased demands for visual decoding strategies for the new and non-transparent English orthography forcing him to employ elaborate compensation strategies, such as the one mentioned when reading aloud. Recognizing this, on several occasions, the subject characterized himself as highly ambitious, having to simply work harder to achieve the same results of his peers.

There was a socio-psychological factor to the subject's concerns with ambition and achievement. In his own words, he noted that in his home town, dyslexia was synonymous with stupid. It is possible that the subject's parents were supportive of the view of him not being dyslexic. His compensation strategies allowed him to keep his self concept more or less intact, leaving his self esteem to develop in a normal way (see Riddick, 2004).

Remediation

This background information helps form the average surface dyslexic's long-term challenges and, in the case of the subject of this study, point to specific long term plans which, in turn, flow into the medium and short term plans.

In the long term, the subject and other dyslexics like him need to assess their strengths and weaknesses and recognize that DSD, while troubling, can be remediated over time given adequate and informed literacy support and tuition. If the subject has a personal aspiration or workplace requirement to further his or her studies, recognition of his or her DSD can allow him or her to proceed without the fear that the condition will necessarily impact on L1, maths, or employment skills other than a second language.

In the medium term, Johnson (2004) advocates multi-sensory approaches to developing phonological awareness, and an eclectic approach to teaching strategies as being likely to be of most benefit to a surface dyslexic student. Hence a multisensory approach will undoubtedly benefit both types. Communicative Language Teaching methodology employs such a multi-sensory approach for facilitating language learning, particularly through role-plays, mime games such as charades, as well as creative diagrams for vocabulary memorisation (Breen, 2001). Traditional methods of language facilitation, e.g., the Grammar Translation Method (Knight, 2004) rely upon visual (and cognitive) strategies, which are often disassociated from other senses. Individuals with a visual impairment will find visual strategies overly challenging, and will therefore profit from the use of other senses in language facilitation. It follows that non-visual senses may be developed in different ways, in order to compensate for the visual impairment. This poses a great opportunity to an educator able to implement multisensory teaching.

The setting of targets might include the acquisition of a large vocabulary using the above methods. The multisensory methods would encourage ownership of words, and subjects may be able to move from a visual-based decoding strategy into a phonological one encompassing both strategies and thereby moving from breadth to depth in language. Then the subject could rely upon an expanded vocabulary in his word- or *gestalt* recognition. This would benefit the student, as the *gestalts* that unimpaired visual readers recognise are the foundation for a fluid and comprehensive reading ability. It is the failed attempt to 'sort' words into *gestalts* that are then misrecognised, which still forms the crux of surface dyslexia's developmental delay. Therefore, *gestalt* recognition can be honed via multisensory teaching, reinforcing and scaffolding the words.

What benefits the dyslexic students, also benefits the non-dyslexic student. An example of this strategy was when the whole class was encouraged to develop a *vocabulary comic book*. Students drew cartoons of new vocabulary, attempting to involve the letters in some of the drawings. Non-artistic types were encouraged to write short examples instead. The dyslexic subject excelled in this exercise, even to the point where he developed an ongoing narrative, joining the pictures of his new vocabulary. When the course finished, he had a beautifully illustrated body of work, a record of his learning, and creative potential. It was a truly moving and rewarding experience. His self concept surged ahead, and he was inspired. We all were!

In addition, this multisensory progress would benefit from regular self- or teacher-led assessment strategies such as rhyme-vocabulary tests. This is a simple concept where for example, the word "best" is asked for in a test by asking students for a word that rhymes with test, and begins with a 'B,' a word that rhymes with fawn and begins with an l, a word that rhymes with stencil, and begins with a 'P' etc. This simplistic game not only introduces new words outside the student's comfort zone, but also trains rhyming proficiency which is a key weak point in dyslexics, and tests the vocabulary in question.

Short term, day-to-day planning could benefit from the incorporation of a progressive vocabulary program, by setting the student a task of learning a set number of new words a day. These would ideally be incorporated into picture dictionary style diagrams, offering a multi-sensory approach and avoiding the need for translation. Any opportunities for a teacher or family member to follow up such daily vocabulary acquisition, both through review and oral/aural training, would help avoid fossilization of errors.

It is generally the English speaking, developed countries that are equipped and prepared to provide primary level screening of students, and subsequent remediation. In the United Kingdom, for example, the mechanisms are all in place, and the dyslexic is well catered for. In contrast, dyslexia remains an enigmatic “phenomenon” elsewhere, with a few experts, but little to no blanket coverage. In Arabic speaking countries, issues of left to right, right to left reading, low literacy levels and literacy motivation aspects confuse the whole issue of dyslexia. Local students may display symptoms of dyslexia, although really they are simply challenged with literacy in general.

Conversely, many students will be undiagnosed dyslexics, failing, and under the impression they are simply ‘bad’ at school. The fact is there is no blanket screening in United Arab Emirate schools, or any other educational institution. Dyslexics are rarely recognised as such, and if they are, then the options are limited. Private institutions offer some provision, but the authors question whether knowledgeable profit-making organisations are always the best place for those in the dark. It is after all in their own interest to diagnose and treat dyslexia, even if it is a simple case of mirror writing, a phenomenon quite common in Arabic speakers.

In the case of the subject of this study, the institution’s examining board was made aware of his DSD, and he was allowed more time for the test in general, and in particular, was helped with the reading comprehension part, having the text read aloud twice, before he read it himself. The subject achieved a grade representative of his true ability in English; he passed. There is no reason why teachers in the Arab context cannot do the same.

Reflection and conclusion

This case study has proven illuminative in the following ways:

1. DSD may not be identified in speakers of languages with regular orthography.
2. These unidentified students will experience literacy difficulties in an L2 context that they might not experience in an L1 context.
3. The consequences follow through into academic self-worth and global self-worth.
4. Educational bodies may be largely unaware of the finer points of dyslexia in an L2 context and their impact on teaching, learning, and assessment.

Few L2 teachers are trained in assessing dyslexia or other learning problems but a student who seems unusually nervous about reading out loud, swaps words, misplaces letters, and subverts syllables may possibly be exhibiting a dyslexic condition. If that student subsequently states that they do not have these problems in his or her first language, then it might indicate that the student has a DSD deficit.

A surface dyslexic can completely overcome the deficit through proper remediation. An unrecognised developmental surface dyslexic can, on the other hand, suffer a breakdown of academic self-worth, and resultantly, global self-worth (Riddick, 2002), which can affect behaviour and academic performance to the extent that a clever child will shy away from educational opportunities and perhaps even leave school at the first chance. In the context of Higher Colleges of Technology (HCT), with no known screening for dyslexia in place (either in schools or the tertiary system as a whole) we must assume that there are many dyslexics on

our campuses. These dyslexics may well have no idea of their developmental impairment or delay, and may seek other explanations to their predicament. However, as we have outlined in this paper, it is the authors' opinion that Surface Dyslexics will especially suffer. They are less likely to think of themselves as being potentially dyslexic. They are less likely to be identified at an early age, and they are more likely to suffer negatively in Global Self Image.

The awareness and remediation of DSD is an important issue that should concern every teacher. Until the primary and secondary schools can implement blanket entry screenings, it may well fall to the HCT to screen them. HCT is relied upon in so many other ways to make up for learning deficiencies, and so it must surely include this crucial element into its own support of the community. Only in this way can the youth here truly proceed towards excellence.

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