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The Impact of Morphological Intervention on Spelling and Self Esteem in Adolescents with Dyslexia

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Abstract

One of the key issues in dyslexia research is how can we remediate dyslexic children who do not respond to phonics intervention? Chomsky (1970) described English language as a morphophonemic language. There are a number of English words that are non-phonemic and cannot be represented by letter sound correspondence. This study aims to establish whether or not morphology should be integrated with phonics instruction to provide an effective intervention to dyslexic teenagers, thereby increasing their self-esteem. This is a qualitative case study of a group of three 15-year-old dyslexic learners who were attending after-school intervention program at the Dyslexia Association of Singapore. These learners showed little response to the current phonics based instruction based on the Orton-Gillingham teaching approach. The researcher developed specially designed morphological instruction adapted from Bowers (2010), into the established phonics intervention, to provide a compensatory strategy (Carlisle, 1987) for the atypical group of learners. The group of learners showed an increase in confidence and accuracy when attempting spelling tasks. All students' responses indicated that morphological instruction was their preferred way to spell as they remembered word parts visually more easily and they can rely on phonics (sounds) should they fail to identify any word part. This case study suggests that morphology should be incorporated earlier at secondary level as it helps them to see the relevance of the intervention program to their academic work in school, and provides deeper understanding of language and its structure.

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Keywords: Dyslexia, auditory processing deficit, post secondary intervention, Orton Gillingham, Morphology, spelling, self esteem

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Introduction

"If we teach today's students as we taught yesterday, we rob them of tomorrow."
John Dewey

Setting

Singapore is a multilingual society where it is compulsory for all primary and secondary school students to be bilingual since bilingual education was made mandatory by the Singapore government in 1966 for primary schools and 1969 for secondary schools (Goh et al., 1979). There also exists a colloquial form of English in Singapore, known as Singlish that is heavily influenced by Mandarin, Mandarin dialects, Malay and Tamil.

Learners' Profile

Participants being investigated in this study are all 15 year-olds who have been diagnosed by psychologists as dyslexics or to show symptoms of dyslexia. All participants did not show significant progress in their The British Ability Scales score after more than three years on the Orton-Gillingham programme. They did not respond well to the remediation and are observed to have poor auditory processing, with one known to have persistent ear infection while the other two shared during their interviews that they were not able to hear the sounds in a word and found spelling using phonograms extremely difficult.

Other observations made over the two year period prior to this study are their lack of motivation and unresponsive behaviour towards the existing remediation method. There were many incidences of copying of one another's work, and their resistance to reinforcement procedures such as 'finger-spelling'[1] and 'table top tracing'[2] that help students be aware of "the feel of the hand-arm movements involved in forming single letters and the sequences of letters used in sound units such as –dge, –tion, etc. (Rome & Osman, 1997).

Literature Review

The importance of morphology has been largely overlooked, with an emphasis on the role of phonological awareness in literacy. In their introduction to a special issue of the Journal of Learning Disabilities, 2014, Nagy, Carlisle and Goodwin note that the importance of morphology and its contribution to all aspects of literacy has become a recent focus for research. However, despite this burgeoning interest, there have been very few studies of children who are failing and these have concentrated on junior school learners. Elbro & Arnbak's (1996) study on the role of morpheme recognition in literacy skills indicated that in adolescent dyslexics morphological awareness plays an important part in spelling. Their findings also suggested that morphological awareness plays an even bigger role in spelling than in reading. As Greene (1996) suggests,

1. *Finger-spelling is a method where students are taught to use their fingers to identify each phoneme in a word, e.g.cat /c/a/t/.*

2. *Table top tracing is a kinaesthetic reinforcement strategy where students practiced tracing the letters in a phonogram such as 'igh' on rough surfaces to help them remember the phonogram.*

older students require a teaching method that goes further than the phonologic structure.

It is crucial that their language teaching involves a "direct instruction at higher levels of language" which she refers to as the morphological and synthetic aspects of the language. Similar findings were also reported by Kirk and Gillion (2009) in their study on children between eight to 11 years old as well. These researchers suggest similarly, an emphasis on the importance of working memory in performing these spelling tasks. One point they made that clearly represents the participants in this study is problems in working memory. Similar observations are made with students in this study where students are often hindered by their limited working memory.

Working memory involves the temporary storage and manipulation of information that is assumed to be necessary for wide range of complex cognitive activities (Baddeley, 2003), spelling is one of these. The study suggests that when a child is able to segment a word into meaningful segments (morphemes), it makes it easier for a child to hold it in their working memory while spelling each word segment. This strategy could thus ease the burden on their phonological working memory as it allows them to concentrate on one meaningful segment at a time.

While many learners without dyslexia acquire morphological knowledge on their own as they progress through school, poor spellers often do not. Carlisle (1987) suggests that poor spellers lack specific word knowledge that enables them to extract the base word from the derived form. For example, 'equal' from the word 'equality'. They were likely to spell the stem differently when it appeared on its own and when it appeared in complex work.

From the above research, it can be deduced that there is a need for explicit morphological instruction for poor spellers since their acquisition of morphological knowledge appears to be delayed due to their lack of exposure to print.

Research Methodology

Data Collection Methods

- **Coding Process**

A qualitative approach was chosen to allow the study to be guided by the data that emerge. Provisional coding was used to predetermine the set of codes prior to the study. The list of codes started with, 'attitudes towards spelling', 'usefulness of morphological instruction', 'preferred method than phonics', 'engagement in class', 'relevance to school work' and 'self-perception'. However, in the process of analyzing the transcription, it was found the responses could be grouped into three main themes. They were 'usefulness', 'confidence' and 'preferred method'.

- **Pre Study Focus Group**

A focus group is essentially a group discussion focused in a single theme (Morgan, 1997) and its objective is to reveal learners' spelling strategies and morphological knowledge. One 45

minutes formative focus group was convened with the three participants.

The session was not recorded so as to allow learners to be as open as possible about how they felt about the current lesson and the difficulties they faced. During the focus group interview:

a. The teacher showed them their spelling sheet from previous week and highlighted the spelling mistakes. Students were asked to re-enact their thought processes involved when they spelled the word.

b. Students were presented with words that contain prefix, base, and suffix: disruption / disagreement/ unhopeful. For each word, students were asked how they would memorise the spelling of the word (visual).

c. The teacher says a word orally and students were asked how they would attempt to spell the word.

- **Structured observation (Hopkins, 2004)**

In each lesson, two segments of the lesson were recorded. The first recording was during the introduction of the root (20 minutes) and the other during the spelling (15 minutes). A total of 12 lessons were videotaped. Video recording is useful to capture students' body language (e.g. nodding, engaging eye contact, and checking mobile phones). This may prove useful as the researcher's interest is also in measuring their increased self-esteem which may not always be expressed in words. These observations were then transcribed and analysed.

- **Documentary-based evidence**

These documents assist in measuring the 'application of knowledge' aspect of participants in this study. It will also be used to re-affirm any observations made that may be inconclusive based on viewing the video alone.

- **Intervention**

A two hour remediation session, once a week was conducted over 12 weeks. Participants were briefed about the study and prepared for the new integrated instruction. The two-hour class consisted of a 10 minute review of previous roots learned; 20 minutes introduction of roots; 10 minutes single word reading that consisted of previous phonograms learned and morphemes taught; and 20 minutes spelling that consisted of previous phonograms learned and morphemes taught.

The rest of the lesson covered comprehension; writing and other vocabulary building activities that the teacher needed to cover as part of the literacy approach. Word study and word detective skills were incorporated into these where opportunity arose (to allow incidental learning).

- **Post Semi Structured Interview**

The questions were predetermined by the researcher to allow feedback on their feelings and thoughts about the integrated instruction after the 12 weeks.

Scoring

Spelling

Each word was scored correct when the participants were able to spell the word independently or self-correct when mistakes were highlighted for him. For example when a word is spelt as 'tidyness', the teacher points out that he has to apply a suffixing rule and the participant spells the word correctly as 'tidiness' – the word will be scored as correct.

Words Generated Independently

The one hour of morphological instruction consisted of a 15 – 20 minute explicit teaching of root words and their meaning. Each lesson a new root word was introduced to the class. During this activity, participants were introduced to a new root word such as 'struct' and given a keyword that contained the root word such as 'construct'. Based on their prior knowledge of the word, teacher then used a Word Structured Inquiry (Bowers, 2010) process by asking participants to identify the prefix and root/base word and to prove that these were indeed real morphemes by associating them with other words containing these same morphemes, i.e. words that contain prefix 'con-' such as confuse, connect, context. After this, participants could begin to brainstorm words that contain 'struct'. They would then brain storm about eight to ten words together on the board.

After each introductory lesson, each participant was require to demonstrate their understanding of a root word by producing 12 other words that were not the same as those written on the board. However, they were allowed to expand any of the words written on the board by either adding a prefix or a suffix. For example, the word 'instruct', participants can produce answers such as instructors/ *un*instruct*ed*/instruct*ion*.

Participants were also expected to be able to apply their suffixing rules when needed. For example, when producing the word struct + ur~~e~~ + al, they should apply the drop-e suffixing rule struct + ure + al, which will then be rewritten as 'structural'. As in the spelling task, the teacher will provide opportunities for participants to self-correct themselves. If participants were unable to correct themselves, they would not score for that word.

Findings and Analysis

Key Definition

Academic self-concept in this study is defined as the person's attitude towards learning. It includes the confidence to do a task, participation type and frequency in class as well as developing independence through the application of learned skills beyond the classroom.

Spelling accuracy in this study is based on the learner's ability to spell the word closest to the correct spelling without the teacher telling him the correct spelling e.g. when the student spell deception as 'decaption', teacher will mark it correct if student is able to change the 'capt' to 'cept' when the error is brought to his attention.

Summary of Finding and Research Questions

The findings from this study were obtained from post study semi-structured interviews, 12 lesson observations and documentary evidence such as class worksheets and teacher-researcher's records of the students' behaviour and responses she noted in the classroom.

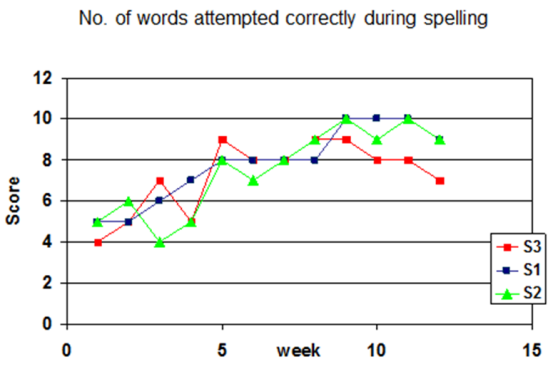

Figure. B – Number of words attempted correctly during spelling

Finding 1: All participants showed an increase in the number of words attempted correctly during spelling throughout the 12-week study.

It was observed that S2 and S3 often spelled words impulsively. At times they seemed to know the word, but failed to analyze the word structure before spelling the word or made connections to the wrong root or base word. An example mentioned earlier in this paper, S2 spelled 'unnoticeable' as 'unknowtisable'. S2 associated the word notice with the base word 'know' instead of 'notice'. Another example is suffix '-able' in 'acceptable' which was spelled as 'acceptble'.

Though the overall spelling accuracy increased, it can be observed that S2 and S3 performance was inconsistent throughout the 12 weeks compared to S1. This is consistent with the observations made in class. S2 and S3 were often playful and talkative in class. At times, they spell impulsively and may omit letters or use incorrect letter sounds. S1 is more attentive and often asked for the word to be repeated when unsure.

Finding 2: Participants were able to generate increased number of words from a given root word through the 12-week study. Even participant S1, who started with a low score of 4 words, increased to 7 words in week 12, and even achieved 10 words in week 9.

From class observations, S1 did not score (see, Figure B) as well as S2 and S3; this could be due to English language not being S1's home language. During the root word introduction, S1 faced similar difficulties producing words that were related to the given root, despite prompts that were later given by the teacher. This could suggest a lack of print exposure and opportunities to use the language that if provided, can give him a deeper understanding of the different orthographic structure a word can take. It was also observed that all three participants generated words with plausible prefixes and suffixes, all which were spelled correctly. While trying to generate words, some common mistakes included placing similar meaning prefixes

to the base word. For example, '***un***respectful' in the place of '***dis***respectful'.

Other common mistakes made during word generation were the application of the three common suffixing rules; 'doubling rule',[3] 'drop-e rule'[4] and 'y change i rule'[5] and the selection of the incorrect form of the bound base such as 'capt versus cept'. For example in the word 'deception' the 'capt' was used instead making the spelling 'decaption'. However, the teacher-researcher would score such mistakes as correct if the participants were able to self-correct themselves upon reminder on the first round.

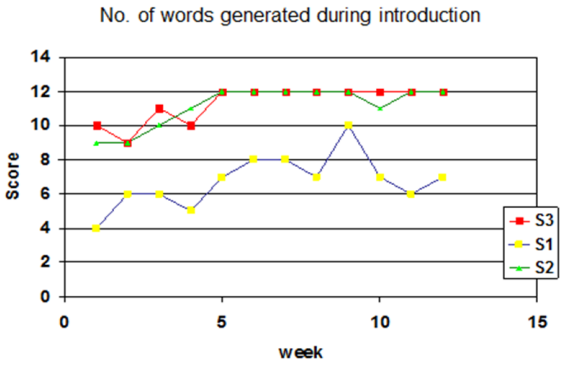

Figure C - Number of words generated during introduction or review of root word

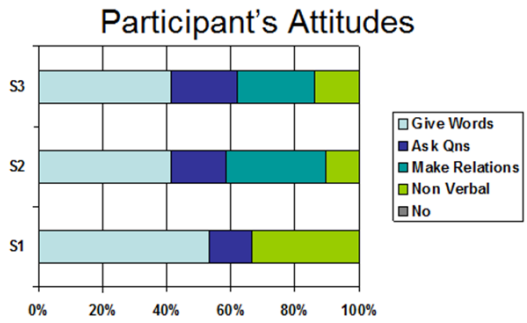

Figure D - Frequency of participation types

Finding 3: In terms of the attitude of participants, all were attentive during the 15-20 minutes introduction of a root or base word. Peer to peer learning was evident in every lesson. Participants were engaged and forthcoming. They provided answers readily when guided by the teacher, S2 and S3 demonstrated the ability to cite examples indicated by the wider portion in "make relations" and that brought out the meaning of the word to help their peers relate to the word better. The bar chart is most constructive when it displays a large portion of 'ask question – **blue**' and 'make relations – **turquoise**' as it reflects that students are making effort to clarify something they are unsure of or are aware of the meaning of the word and therefore able to relate this to their own experience.

From class observations, students responded to the teacher-researcher in

3. *trans + mit + ing = running when adding a vowel suffix to a root/base word that has 1 syllable/1 vowel / end with 1 consonant.*
4. *trans +port + ate + ion = making when adding a vowel suffix to a base word that end with the letter 'e' drop the letter 'e'.*
5. *cry + ed = cried when adding any suffix to a word that end with letter 'y' change 'y' to 'i' except when there is a vowel in front of 'y' or suffix begins with 'i'.*

their own ways depending on their personality.

After 12 weeks of class observations, the teacher-researcher classified the attitude of participants into four main categories:

a. Gives words – students respond readily as teacher guide them to the correct answers.

b. Volunteer answer - students provide answers without teacher guidance.

c. Make relations – students who fall into this category are able to make connections with words that were brainstormed in their conversation, comments, jokes while the class was on on-going. From the teacher-researcher's observations, most students who displayed thorough understanding of the constructed words were able to relate the word to their prior knowledge, making this observation important to take into account.

d. Non-verbal – students showed that they were engaged in the lesson through non-verbal means such as nodding, laughing at their peer's jokes and other forms of body language that equate to their involvement in the lesson.

e. No – students who do not display any sign of engagement or interest. Students who were seen to be engaged in other activities such as texting on their mobile phones or talking to their peers about matters not pertaining to the lesson also fall under this category.

Finding 4: All participants agreed that morphological instruction has been very useful and they have adopted the strategy in both their reading and spelling. However, some also agreed that phonics is still necessary in that the integration of both strategies will help them read and spell better. Most have indicated that they spell by sight recognition and they were often hindered by the letter position in words. For example, the word 'music', at times they know the letters that make up the word 'music', however, are confused by letter positions and may spell the word as 'muisc' or 'mucis'.

When prompted about the strategy they used for spelling, most said that they spell from their imagination which can be associated with their visual knowledge (Templeton, 1979) of how the word looks. S2 shared, "I spell from my imagination...I try to remember words in parts...then I try to spell." similar to S3 whom also shared "I try to imagine how the words look like then try to spell."

a) When asked if participants found the morphological instruction useful and when they most often used it, these are their replies; S2 viewed it positively, "It helped me very much, it changed the way I read and write, it has helped me look at words differently. I use it every day; useful for both reading and spelling." he continued, "(I) prefer to see them as prefix and base word like that. Makes more sense, so easier to remember, easier to remember words by parts than by sound."

When asked if morphological instruction has helped him in school, S1 responded, "Help me break down the word to spell. I

use it every day. Use it in class, at home. I use it more during spelling."

S3, "I think there is changes to the way I look at words. It is helpful. I use it most of the time...I use it as it works better for me. [Before this]...I know some of the suffixes, after you teach me morphology; spelling words are a lot easier for me."

b) It was also observed during the interviews that students felt more confident about attempting spelling and about themselves.

S2 said, "It changed the way I read and write." He went on to compare the current integrated morphological instruction with the existing phonics approach, "In the past before the new teaching, I cannot read and write, but now I can read and write better." By the end of the year of this study, S2 passed his English paper for the first time since primary two. He was 15 years old that year.

As for S1, he shared, "It helped me tackle word better. Learn how to spell." The teacher-researcher also observed in class that S1 was more willing to read. During spelling activities, he was able to ask leading questions that could help him reach the correct spelling of the word. His experience was similar to S2 as he shared how the lesson taught by the teacher-researcher was more defining, "I find the current lesson now easier to study than the time I was at Queeenstown" (his previous Learning Centre).

S3 felt that the explicit teaching of morphology has helped him gain deeper insights on this strategy that he has already adopted to help him tackle words. With the use of morphological instruction, he also felt that spelling words was easier for him.

On which strategy that they felt were more in tune with their learning needs, all participants agreed that morphology was their preferred way. S1 found difficulty remembering the morphemes as well as phonemes while S3 felt that both approaches work best together, he felt that, " Learning both, give us choice to what best to use."

Conclusion

In summary, the findings have shown the effectiveness of the integrated morphological instruction and the increased engagement and participation in the classroom. All students increased in accuracy, in willingness to attempt to correct their errors and in confidence. It can be seen that participants' self-esteem has increased, and this is key to learning. Participants are now equipped with the knowledge to overcome their spelling difficulties and to take initiatives to ask the teacher for words they are unsure about. The integrated morphological instruction has provided a compensatory strategy that is more age-appropriate and relevant to what older students can use in school to help them. A longer-term follow-up is needed to see whether students continue to use this approach when the morphological instruction has finished.

Further research is needed with larger groups of students who have failed to benefit from the standard phonological

intervention. From the data in this case study, it seems plausible to suggest that significant improvements would be made using this approach, which harnesses and enhances the higher level skills of these students, encouraging them to think more deeply about language and its use.

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