



Do Structured Writing Instruction and Writing Checklist aid Learners with Dyslexia in their Narrative Writing?: An exploratory case study

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Abstract

Writing has been identified as a field that has not been extensively researched as part of dyslexia. The learners at the Dyslexia Association of Singapore (DAS) are taught writing based on a structured writing instruction that follows the process genre approach (Badger & White, 2000) adapted alongside Derewianka's (1991) Curriculum Cycle (i.e. building knowledge of the field, modelling, joint constructing, and independent writing). Additionally, an adaptation of the 6+1 Trait® Writing (Northwest Regional Educational Laboratory, 2004) was added to the writing instruction to create the platform for structured feedback as well as to make the process of writing more focused and meaningful for our dyslexics learners. Hence, a year-long case study was conducted at DAS to explore whether the use of a structured writing instruction and a student-friendly checklist based on the 6+1 Trait® Writing (Northwest Regional Educational Laboratory, 2004) would lead to an improvement in dyslexic learners' narrative writing skills. Four classes of students attending mainstream schools, ages 10 to 12 years, with similar abilities have been identified to take part in the study for four terms. They were grouped to either be in experimental 1 or experimental 2 group, with both groups exposed to the same structured writing instruction, but experimental 1 also receiving a structured checklist to support their writing. Results obtained from this writing research showed a significant impact for the lowest achieving children, and will be further discussed and analysed in this article.

Keywords: learning difficulties, dyslexia, teaching writing, writing difficulties, process genre approach, 6+1 Trait® Writing

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Review of Literature

Dyslexia

Rose (2009) defined dyslexia as “a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling”. Dyslexia is not related to a person’s intelligence and “characteristic features of dyslexia are phonological awareness, verbal memory and processing speed” (Rose, 2009). Dyslexia Association of Singapore (DAS, 2017) described signs and symptoms of dyslexia to include a number of issues that impact on writing, including lack of punctuation, poor memory for sequences and unfamiliar facts and information, and the need for frequent reminders before remembering to do a task.

Rose (2009) reported that “tailoring teaching and learning to the needs of the individual is being promoted to schools as a critical driver in helping pupils to make the best possible progress, and achieve the best possible outcomes”. DAS (2017) also described that a literacy programme that is appropriate for learners of dyslexia include components like phonemic awareness, phonics, fluency, vocabulary, comprehension and writing; which are implemented in the literacy programme provided by DAS.

Dyslexia and Writing

In recent times, research findings are growing and accumulating that document the difficulties learners with dyslexia face in their writing. While dyslexia is usually associated with reading difficulties, both children and adults with dyslexia showed

almost as many indicators of writing problems as of reading problems when both writing and reading were assessed (Berninger et al., 2001). In addition, research has also shown that affected students often overcame their reading problems but continue to face difficulty in spelling and written compositions (Berninger, 2006).

Sever (2004) referred to “writing as action of expressing one’s senses, thoughts, plans and experiences”. The fact that writing is interwoven with mental processes means that it aids in the development and acquisition of many skills. It helps to expose learners to different writing experiences, widen their repertoire of vocabulary words, organise their thoughts and feelings in written forms, enrich their knowledge accumulation and develop their mental dictionaries (Gûnes, 2013).

Competent writers have innate familiarity with, and understanding of, the different genre conventions, as well as relevant topical knowledge (Graham & Perin, 2007). They write fluently and confidently, grasping fully the foundational skills which include handwriting and spelling, as well as manipulating the rules of grammar and the mechanics of writing (Graham, 2006). At the same time, they are also able to sustain their concentration throughout the whole writing process, possess deep understanding and clarity about the needs and perspectives of their audience, and the purposes, coherence and organisation of their writing (Harris, Santangelo, & Graham, 2010).

However, learners with dyslexia struggle and have greater difficulty in being engaged in writing activities compared to their peers who have no learning differences and thus may be easily discouraged by the feedback they receive. They often find it challenging to generate content and ideas to write based on given topics, by either retrieving the information from memory (Graham & Harris, 2003) or from their general pool of knowledge. They also demonstrate limited knowledge about writing genres, devices and conventions (Graham & Harris, 2003) for most forms including the common ones like personal narratives and story writing.

Writing and Motivation

Because writing is acknowledged as the most complex and most hard-won among the language skills (Karatay, 2011), learners with dyslexia struggle even more with writing, which could be one of the contributing factors for task avoidance many dyslexics demonstrate, as well as experiencing a decline in their motivation when it comes to writing related tasks. Motivation is a critical and essential element of progress and performance and if learners were to perceive and believe that the tasks they have undertaken are important and worthwhile, they would be much more likely to put in the effort and time to complete them (Bruning & Horn, 2000).

Unfortunately, the finding does not hold true for learners who struggle with writing (Graham et al., 1993). Struggling writers have significantly less knowledge about the purpose and value of writing as compared to their peers who are

competent writers (Saddler & Graham, 2007) and they perceive writing to have minimal personal relevance or value for them.

Executive Functioning, Dyslexia and Writing

Executive functions are mental processes that enable one to think and plan, learn new information and recall past information learnt, remember and carry out instructions well and juggle multiple tasks successfully. Thus, they are deemed to be very critical in tackling and resolving conflicts, problems and difficulties faced in education, employment and other life pursuits.

Executive functions have been explored as a contributing factor to dyslexia (Swanson, 2000) because learners with dyslexia have difficulty organising their thoughts and recalling information learnt, as well as engaging in extensive and ongoing activity that requires coordination and integration of several cognitive skills and resources. Research has also supported the correlation between executive functions and writing because they influence handwriting (Berninger et al., 2006a) as well as the overall written output (Hooper et al., 2002). Moreover, as writing is a complex process, executive functions monitor the stages of planning, drafting, editing and revising to enable learners to gradually reach the level of competence and confidence in writing (Hayes & Flower, 1980). A study has also suggested that learners with dyslexia have difficulty engaging their executive functions during reading and writing (Altemeier et al., 2008).

MAP Integrated Curriculum

Therefore, the changing demands and needs of learners with dyslexia, as well as the need to keep abreast with the mainstream curriculum, were instrumental for the enhancements made to the DAS curriculum- referred to as the MOE-aided DAS Literacy Programme (MAP) Integrated Curriculum (IC).

MAP IC emphasises the integration of key building blocks of literacy which are adapted from the National Reading Panel (2000), namely language and vocabulary, phonics, reading fluency, reading comprehension and writing (DAS, 2017). The Integrated Curriculum aims to cater to the varied profiles of learners attending remediation classes at the DAS, which include the younger and older students, and covers the mandatory components mentioned above in two hours every week. The learners are profiled according to three broad bands, namely Bands A, B and C. Within each band, there are three levels of literacy learning, making it nine levels in total. Learners are profiled according to the three bands to ensure that their learning needs are matched with the level of teaching within the MAP curriculum so that teaching can be more responsive to the learners' changing profiles, to enable them to progress smoothly and confidently up the different bands in a cumulative and sequential manner.

As part of monitoring the students' progress, the Educational Therapists (EdTs) administer the Curriculum Based Assessments (CBAs) twice a year, in Terms 2 and 4. The assessment components are

closely aligned with the MAP Integrated Curriculum taught to students on the MAP programme. Assessing students using the CBAs is directly in line with the stages of the Assessment, Planning, Implementation and Evaluation (APIE) cycle (Poon, Conway and Khaw, 2008).

The APIE cycle is a systematic way of addressing intervention programmes for learners with learning differences and is defined as the process of collating information for the purpose of making an informed educational decision (McLoughlin & Lewis, 2005). While the CBAs are directly involved in the assessment and evaluation stages in the APIE cycle, they also influence to a large degree the planning and implementation stages, where the students' performance levels would inform the EdTs on the content and delivery needs for future lessons.

Localisation of curriculum

The MAP IC and resources have been localised to better cater to bilingual learners at DAS and more importantly, to make learning more accessible and contextualised for them. These include the Writing resource packs outlined in the next section.

The IC was designed to motivate and engage learners during lessons while at the same time, equip them with the essential literacy skills. Thus, the resource materials developed emphasised the use of relevant and localised content with appropriate teaching principles to enable learners to apply skills learnt to a diversity of context and situations.

MAP Writing Curriculum

Thus, the writing curriculum was developed to suit the varying needs of students at the DAS and it comes along with the writing packs that have been developed meaningfully to ensure that the writing lessons have clear and specific objectives to prepare the students to write about specific topics. The writing framework is an adaption of the process genre approach whereby the process of writing does not only emphasise the linguistic skills such as planning, drafting, revising and editing, it also stresses the importance of linguistic knowledge, such as knowledge about grammar and text structure that are taught explicitly to students (Badger & White, 2000). These concrete reminders of critical steps provide students with a structure that prompts or encourages them as they work towards developing a written product. Additionally, such a process also enables students to systematically acquire a meta-linguistic awareness of the English Language, which in turn, empowers them to manipulate information and accomplish different purposes through writing. Invariably, these plans of action were encapsulations of the procedures that skilled writers use when they write (Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Graham & Harris, 1989b).

One of the key writing instructions that has been woven into the writing curriculum across the different levels includes devoting some time to engage the students in planned and purposeful brainstorming activities to help stimulate their thinking as well as to organise writing information before they embark on

their actual writing tasks, because engaging in meaningful dialogue and discussion can become a central construct in the development of literacy (Kucan & Beck, 1997).

Writing Pedagogy

As students who attend MAP vary in literacy ability, there are two main frameworks that seek to address the writing ability of the students in order to help them improve.

The first writing framework was adapted from Project Read[©] Teaching Methodology (Greene & Enfield, 1987) known as Grammar for Writing. It aims to help students move from being non-writers to writers of simple sentences and paragraphs. After the students have progressed to the paragraph level, EdT's would then proceed to use another writing framework, the Advanced Writing Framework, to help students who have developed a fair knowledge of grammatical features and functional literacy skills, from writing at a paragraph level to being able to produce an entire text with organised paragraphs. Therefore, this is the writing approach used in this research study.

Like Grammar for Writing, the Advanced Writing Framework has incorporated the Orton-Gillingham principles (Gillingham & Stillman, 1960, 1997) which emphasises the importance of scaffolding and has also assimilated the Presentation, Practice and Production Teaching Pedagogy to teach writing concepts. In addition, the Advanced Writing Framework has also adapted a fusion of Badger and White's

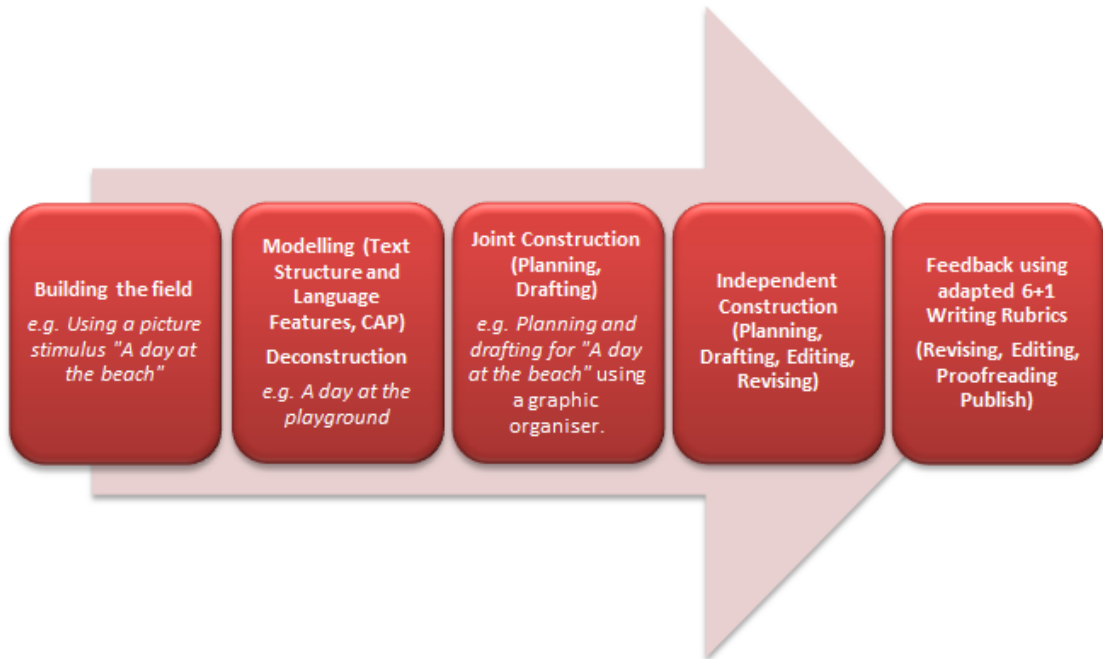


Figure 1. MAP Adapted Writing Framework

(2000) Process Genre Approach, Derewianka's (1991) Curriculum Cycle as well as the 6+1 Trait® Writing (Northwest Regional Educational Laboratory, 2004) to create a platform for structured and meaningful feedback.

This writing pedagogy does not merely emphasise the importance of purpose to reluctant writers, or the salience of the writing process (planning, drafting, revising, editing, proofreading, publish), it also stresses the importance of linguistic knowledge such as text structure and language features of each text type. Moreover, such a process enables students to systematically acquire a meta-language to empower them to brainstorm and write about the given topic as they

work towards becoming independent and proficient writers. Thus, the pedagogy used for the purpose of this research over the 4 writing cycles is shown in Figure 1.

Building the field Stage

As engaging in meaningful dialogue and discussion can become a central construct in the development of literacy (Kucan & Beck, 1997), brainstorming is one of the key writing instructions which have been woven into the writing curriculum across the different levels.

For the purpose of this research, 'building the field' refers to building knowledge about a certain topic through the use of pictorial stimuli to draw the participants'

interest as well as to tap on their personal experiences about the topic. This approach encourages discussions related to selected vocabulary that includes specific nouns and verbs which would be revisited during the Joint Construction stage.

Question of the Day, a method used by the Slingerland® Approach (1971, 2008), which is a classroom adaptation used by Orton-Gillingham practitioners to start the lesson by building the context, was also used.

Modelling Stage

Once interest and knowledge of the topic's lexicon for joint or independent construction by students have been built, they will be introduced to the text structure and language features typical of a narrative text type. If the need arises, EdTs might have to revisit Grammar for Writing or use traditional grammar to teach the students to better enable them to understand the different terms for the language features. The graphic organiser used in this case is the Story Mountain (Refer to Appendix).

After the EdT has ascertained the students' level of understanding and that they have a better idea on how a narrative should be written, the EdT can demonstrate or model how to construct the text type to the students by doing it on the whiteboard.

Joint Construction Stage

After going through the process of brainstorming in the earlier stage,

students would refer to the graphic organiser introduced during the deconstruction part of the modelling stage - Story Mountain (refer to Appendix) to plan and draft their writing ideas with the guidance of the EdT and with verbal reminders of what aspects of writing the students would need to improve.

Independent Construction Stage

Once the writing assignment has been planned and drafted, the final draft intended for publishing will be done independently. Students could be given a writing checklist from the adapted 6+1 Trait® Writing Rubrics, which was also used in the modelling stage for the students to assess and guide them to revise their organisation of their ideas, as a guide to edit their work (like in this research, experimental 1 group), or receive only verbal reminders (like in this research, experimental 2 group). The areas outlined are to guide the students to organise their paragraphs and sentences before looking at proofreading their work for spelling, punctuation and grammar according to the different writing traits (i.e., Ideas, Organisation, Voice, Word Choice, Sentence Fluency and Conventions).

Feedback Stage using adapted 6+1 Trait ® Writing Rubrics

After the writing task has been completed, the EdTs would mark the pieces of writing and highlight the strengths and areas of improvement based on the adaptation of the 6+1 Trait® Writing Rubrics (Northwest

Regional Educational Laboratory, 2004). After that, they will then communicate their feedback verbally to the students during the class.

During the research, for both experimental 1 and 2 groups, teachers did an assessment of the writing pieces and shared the feedback verbally, which will be explained in Methodology section.

An adaptation of 6+1® Trait Writing Rubrics

'6+1 Trait® Writing' was developed based on the early works of Hillocks (1986) which was formulated by the "descriptive and theoretical work" of Deiderich (1974) and Purves (1988). This serves as a form of assessment of student writing in the classroom which would equip students and EdTs with the structure to understand what good writing is (Culham, 2003) by giving the EdTs and students a metalanguage for discussing the students' strengths and areas of improvement. The 6+1 Trait® Writing uses an organised framework in order to build upon the skills that the student is already familiar with (Coe et al., 2011, p.3). It integrates aspects of the process approach of writing that includes the repetitive use of "planning, drafting, assessment, and revision" (Emig, 1971; Flower & Hayes, 1981; Applebee, 1986; (Northwest Regional Educational Laboratory, 2004).

The 6+1 Trait® Writing Rubrics (Northwest Regional Educational Laboratory, 2004) were designed to work collaboratively with other writing instructions to break down the complex task of writing or writing approaches used in special

education institutions where the student population have specific difficulties in writing (Scardamalia, Bereiter & Fillion, 1981; Harris & Graham, 1996). The concepts and language of 'six-trait' writing combined with these approaches aim to provide more "context and definition to the discrete tasks and strategies that are taught during these classroom activities" (Coe et al., 2011, p.5). In this model, the key qualities that define strong writing are ideas, organisation, voice, word choice, sentence fluency, conventions, and presentation (Northwest Regional Educational Laboratory, 2004).

Singapore Education System (Primary)

In Singapore's education system, students who attend local mainstream schools begin primary 1 at the age of 6-7 years old. They attend primary school from primary 1 (P1) to primary 6 (P6). According to the English language syllabus for primary and secondary, the Ministry of Education (MOE, 2010) selected text types for students to learn, from personal recount and narrative to expositions. At the end of primary six, students are expected to take the Primary School Leaving Examination (PSLE) and for the English language, they are assessed from either one of the two streams available, which are commonly known as the "Standard" stream and the "Foundation" stream. The examination papers for both streams differ in some aspects of the English language syllabus and the level of complexity; whereby the former will be more challenging than the latter.

According to the Singapore Examinations

and Assessment Board (SEAB, 2015), the PSLE Paper 1 writing assessment for both streams are functional writing and continuous writing. For continuous writing, students are given a series of pictures and they would have to write based on them (SEAB, 2015). The weightage for the PSLE Paper 1 Standard English exam is 27.5% while that for the Foundation English exam is 26.7% (SEAB, 2015).

Sun and Nippold (2012) cited that "most studies of narrative development have focused on preschool and younger school-age children". Both authors described the importance of examining narrative writing in today's context (Sun & Nippold, 2012). At present, students in public schools are often required and assessed on their ability to express themselves during generating or retelling of stories using relevant vocabulary and grammatically appropriate sentences based on the narrative genre (Sun & Nippold, 2012).

Even in Singapore, the MOE (2010) has highlighted the use of show-and-tell as an example of an activity to improve oral communication in their English language syllabus for primary and secondary. Therefore, learning to write a narrative text type is imperative for students to perform well during oral communication activities and more importantly, to perform during their PSLE exam.

This paper, thus, aims to answer the following research question:

How does explicit feedback in the form of a writing checklist improve narrative writing skills in learners with dyslexia?

Methodology

Instrument

One-picture stimulus

Several instruments were used in this case study. The first instrument was a one-picture stimulus (Picture A) from the CBA. This instrument is one of the picture-stimuli used to assess students' writing during CBA where students write a short composition based on it. For this research, Picture A was used as pre-test at the start of Term 1, mid-test at the end of Term 2 and post-test at the end of Term 4. The aim of the research is to assess the participants' writing performance in a year, based on the same picture stimulus

Writing Rubric

The second instrument was an adaptation of the 6+1 Trait® Writing Rubrics (Northwest Regional Educational Laboratory, 2004) that was developed for this research. As the 6+1 Trait® Writing Rubrics (Northwest Regional Educational Laboratory, 2004) framework was segregated by different grades or ages of the students in an American School, the researchers adapted the writing rubric to suit the participants of this study, who are from Primary 4, (10 years old), to Primary 6, (12 years old). Also, the objective behind the adaptation was critical because it needed to be able to give a valid assessment of dyslexic learners from the low to mid-range. For this case study, the writing rubric was used to assess participants' writing at the end of each independent construction stage and for the pre-, mid- and post-tests.

Student-friendly Writing Checklist

To help students increase their awareness of the traits that make up good writing, and get students to develop self-talk to remind themselves of what to look out for, a student-friendly writing checklist was created, similar to an "inquiry stance to approach a text with questions and observations" (Dawson, 2009) to make assessment of learning more authentic and explicit. This third instrument is used by the participants in the experimental 1 group. The terms in this instrument have been simplified to aid participants during the intervention. Participants in the experimental 1 group refer to the student-friendly writing checklist during each independent construction stage, which is when students write out the entire writing piece.

Intervention

The intervention that was conducted for both experimental 1 and 2 groups was identical. A structured writing instruction that was based on Badger and White's (2000) process genre approach, Derewianka's (1991) curriculum cycle and 6+1 Trait® Writing (Northwest Regional Educational Laboratory, 2004) was used by the researchers in this study.

During the intervention, the participants went through the stages as seen in Figure 1; building the field, modelling, joint-constructing and independent constructing. In each cycle, a writing topic is given based on one-picture stimulus.

Participants from the experimental 1 group were given the student-friendly

writing checklist from the adapted 6+1 Trait® Writing Rubrics (Northwest Regional Educational Laboratory, 2004), which was also used in the modelling stage for the students to assess and guide them to revise their organisation of their ideas, as a guide to edit their work. In contrast, participants from the experimental group 2 were only given verbal feedback.

The areas were selected to guide the students into ordering the paragraphs and sentences before looking at proofreading their work, for spelling, punctuation and grammar, according to the different writing traits (i.e., Ideas, Organisation, Voice, Word Choice, Sentence Fluency and Conventions).

After each writing cycle, both students from experiment 1 and 2 were given feedback on their writing before the next cycle began. However, while, the participants from the experimental 2 group were only given general comments and suggestions, experimental 1 group had a writing checklist to refer to when they were given feedback, which guided them to check if they had written in accordance to the narrative text type.

Research Design

This study employed a case study design due to the number of participants. Creswell (2012) described that a case study "may be a single individual, several individuals separately or in a group". Zainal (2007) defined case study method as the method in which a researcher closely examines data within a specific context. In most case studies, a very

limited number of individuals are selected as the subjects of the study (Zainal, 2007).

In this research, the aims were to investigate the effectiveness of the structured writing instruction within DAS and whether the writing checklist aids learners with dyslexia in their narrative writing. Ten participants were chosen based on purposeful sampling that were relevant to this case study.

Participants and Setting

The participants were the researchers' students, who were chosen as they were in primary school and based on their psychological profiling at DAS, belong to Bands A and B. In these bands, the students are learners who are still weak in reading, spelling and writing. The difference between the bands is that the learners in Band A face greater difficulty in reading and spelling than the ones in

Table 1—Profile of participants in research

Student	Centre	School Level/ Banding	Group	Researcher / Class
A	2	P6 / B4	experimental 1	Researcher 2 / Class 2
B	3	P6 / A3	experimental 1	Researcher 3 / Class 3i
C	3	P5 / A2	experimental 1	Researcher 3 / Class 3i
D	3	P6 / A3	experimental 1	Researcher 3 / Class 3i
E	3	P4 / B4	experimental 2	Researcher 3 / Class 3ii
F	3	P4 / A3	experimental 2	Researcher 3 / Class 3ii
G	1	P6 / A3	experimental 2	Researcher 1 / Class 1
H	1	P6 / A3	experimental 2	Researcher 1 / Class 1
I	1	P6 / A2	experimental 2	Researcher 1 / Class 1
J	1	P6 / A3	experimental 2	Researcher 1 / Class 1

Band B. Based on the current MOE (2010) writing syllabus, narrative writing is more emphasized in primary schools than in secondary schools, thus, primary school students were selected for this case study.

All ten participants were males from Primary 4 to Primary 6 levels (10 – 12 year olds) who belong to Bands A2 to B4. They attend local mainstream primary schools and come for DAS classes from three of the learning centres. All the participants come from 4 classes (Class 1, Class 2, Class 3i and Class 3ii) which are two hours per week in either a once a week 2hrs class or twice a week 1hr class. The frequency of either once or twice a week depends on the allocated class timings given depending on the participant's EdT's timetable. Typically, primary school learners from Band A attend DAS classes twice a week. Table 1 shows more information of the participants' profile in this study. From Table 1, participants A, B, C and D were grouped as experimental 1 group (with writing checklist) and participants, E, F, G, H, I and J were grouped as experimental 2 group (without writing checklist).

Data Collection and Procedures

Data collection was conducted over four consecutive terms in a school year which coincided with four writing cycles from the structured writing instruction. Students' writing pieces and their marks were analysed and will be discussed under results. Students were interviewed at the end of the study to be gathered as feedback for analysis. Figure 2 shows a timeline to summarise how data was collected.

The purpose of the data collection was to gather both qualitative and quantitative information in order to analyse and determine the effectiveness of the structured writing instruction and writing checklist to aid students with dyslexia in their narrative writing. Prior to data collection, parental and participants' consent were sought through consent letters which were signed. Table 2 is a data collection procedure for Writing Cycle 1 that is repeated in cycles 2, 3 and 4 but with different narrative writing topics.

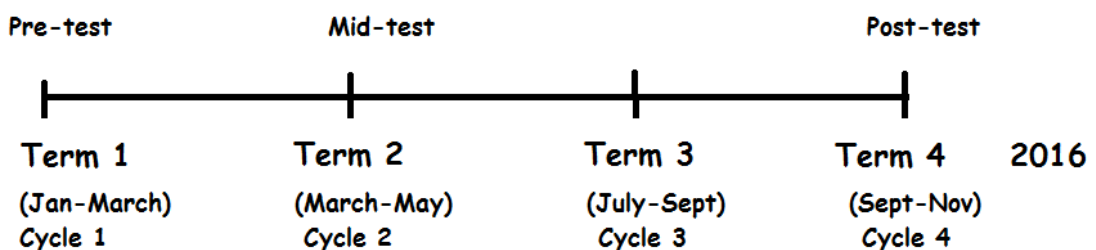


Figure 2. Timeline for Writing Research

Table 2—Data collection procedure for Cycle 1

Week	Lesson Objectives	Resources	Activities
Prior to research	Obtaining consent from participants and their parents	Consent forms	<ol style="list-style-type: none"> 1. Contact parents 2. To give parents' consent form to each participant to be signed and returned. 3. Participants to fill up consent form and return.
Wk 1	Administer Pre-test	CBA test kit	Administer pre-test (30mins)
Wk 2	Pre-writing stage	Picture stimulus (at the Fitness corner) Word splash	Class discussion on topic: At the Fitness corner Introduce topic and vocabulary words
Wk 3 (during 1st hr)	Give feedback for pre-test	Rubrics (experimental 1 group) Student-friendly checklist (experimental 1 group) Feedback form (experimental 2 group)	Inform students how they did for pre-test and what to look out for to improve their writing (experimental 2 - oral feedback with feedback form, experimental 1- using rubrics and checklist)
Wk 3 (during 2nd hr)	Deconstruction	Sample written text (At the playground) Story mountain	Introduce text structure <ul style="list-style-type: none"> ◆ Sequencing of events in a story mountain ◆ Highlight importance of paragraphing, indentation
Wk 4 (during 1st hr)	Deconstruction	Student-friendly checklist (experimental 1 group)	Introduce language features <ul style="list-style-type: none"> ◆ Highlight tenses, importance of punctuation (experimental 2- orally, experimental 1 - checklist)
Wk 4 (during 2nd hr)	Joint-construction	Story mountain	Plan writing topic: At the fitness corner in a story mountain <ul style="list-style-type: none"> ◆ Recall vocabulary words and spelling to use in writing.
Wk 5	Independent writing (mini post test 1)	Story mountain from Week 3 Writing sheet Student-friendly checklist (experimental 1 group)	To write out their first draft based on story planned <ul style="list-style-type: none"> ◆ Recall tenses, punctuation and paragraphing (experimental 2 - remind orally, experimental 1 group: use checklist to check writing)
Wk 6	Give feedback	Student-friendly checklist (experimental 1 group) Feedback form (experimental 2 group)	Give feedback on mini post test 1 (experimental 2: orally with feedback form, experimental 1: checklist)

Results and Findings

The scores for each participant were recorded for the pre, mid and post-test from a total score of 24 points, and a bar chart was drawn to compare the performance of each participant. The scores from the pre-test were obtained as a baseline to ascertain the participants' writing ability before intervention, while the mid and post-tests were used to monitor their progress for the entire year of intervention as part of the APIE cycle. Figure 3 shows the scores of each participant during the pre, mid, and post-test.

In Figure 3, it can be seen that 9 out of 10 participants have benefitted from taking part in the structured writing intervention. Most participants have made significant

progress especially during the mid-test. However, the bar graph shows that there is a slight regression in most of the participants' scores for the post-test, except for participants C, E and F. This may be attributed to factors such as a dip in students' motivation after their major national exam, which is the PSLE, as well as an increase in absenteeism rate after their PSLE. Participants C, E and F as seen in Table 1, were not in P6, took their end-of-year exam at a later date compared to the PSLE students. Thus, this could be a possible factor for the fact that their results did not show a dip in the post-tests.

Despite these factors, majority of the participants have demonstrated improvements in their writing ability.

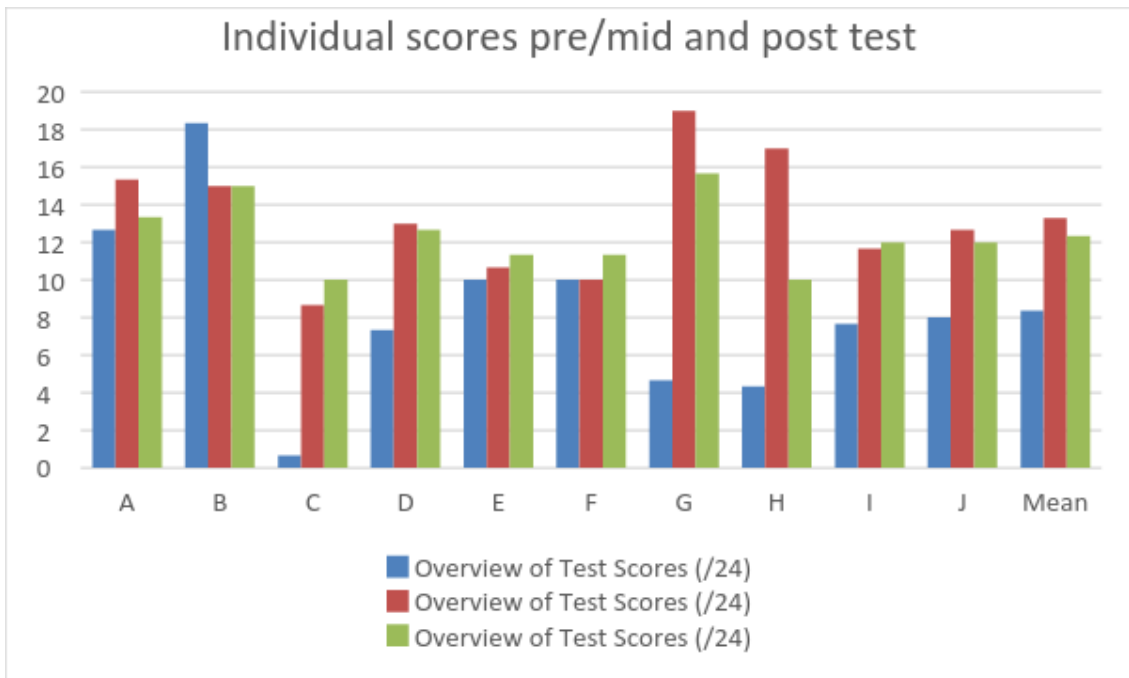


Figure 3. Comparison of Performance for each individual at pre/mid and post test

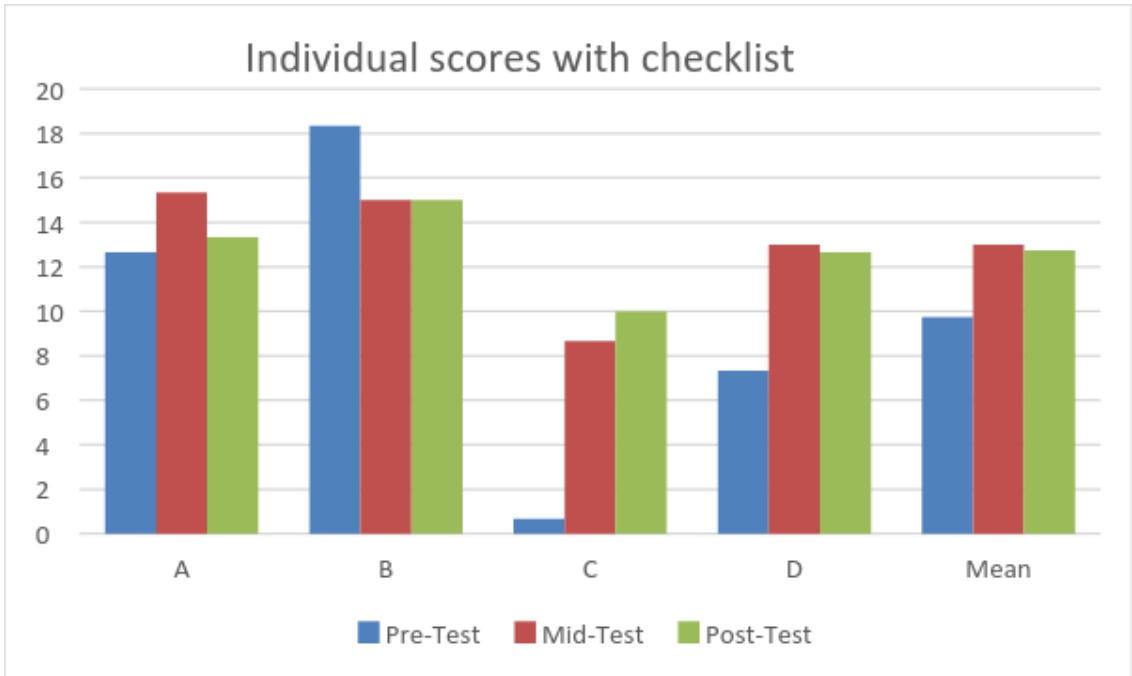


Figure 4. Results for experimental 1 group with the use of a student-friendly checklist

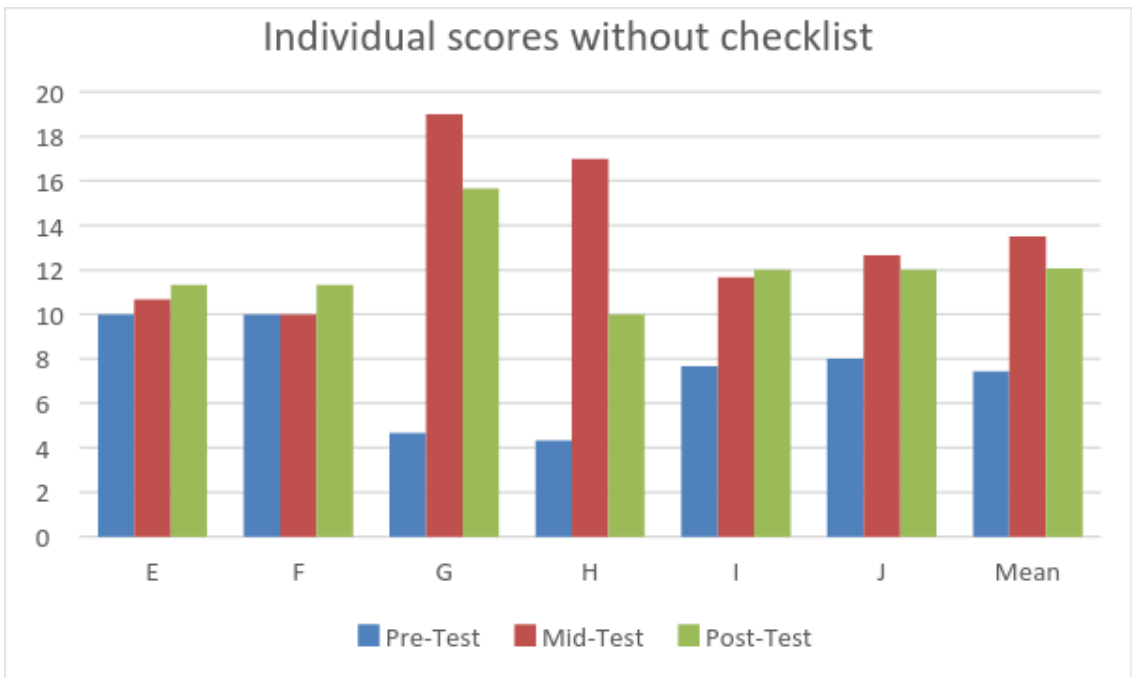


Figure 5. Results for experimental group 2 without the use of a student-friendly checklist

Breaking the data down further into the two groups performance, experimental 1 group participants received both the structured writing instruction as well as the checklist while experimental 2 group participants received only the structured writing instruction and verbal prompts, the data is recorded in Figures 4 and 5.

In Figure 4, the numbers here are too small for any meaningful analysis to be undertaken, but based on the results collected; most participants in experimental 1 group have made improvement. If you consider the participant C for example, this child has very low starting score but makes substantial and sustained progress after being taught using a structured writing approach and the checklist. By contrast, participant B started with one of the

highest scores overall, but his performance regressed slightly at mid and post-test. Nevertheless, 60% of the participants (3/5) maintain their performance from mid to post test.

Similarly, it may be seen that most of the participants made good and sustained progress, with participants G and H (who were the lowest achievers at pre-test) making the most improvement at mid test, and participant G maintaining much of that progress at post-test. It may in fact be more difficult to maintain exceptional progress long term, as one would typically show a regression to his earlier mean performance. In terms of percentage maintenance of progress, 57% (4/7) of experimental 2 group participants maintain their progress, a rough equivalent figure to experimental 1 group

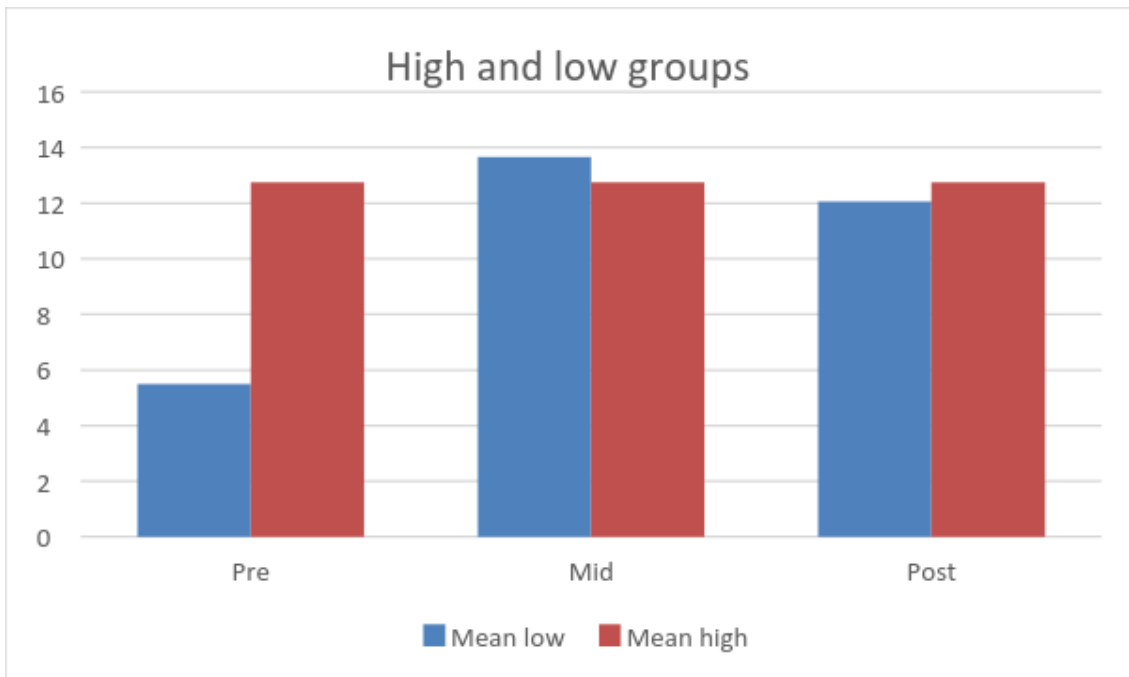


Figure 6. Comparison of High and Low groups in Pre, Mid and Post tests.

which shows that a structured writing instruction does indeed help students with specific learning needs like dyslexia in their writing.

The most useful way of considering the impact of the intervention would be to consider the results of participants who were initially high and low achievers after pre-test, with the data presented in Figure 6. Here we have taken a cut-off of 10 here as high achieving, because it seems to divide naturally there. Therefore, 'high achievers' refer to participants who obtained one of the highest scores at pre-test (e.g. participants A, B, E, F) while 'low achievers' obtained one of the lowest scores (e.g. participants C, D, G, H, I and J).

If we split the groups into those who received high scores and those who received low scores at the beginning, then the structured writing instruction is most successful, with improvement persisting for the lower achieving group.

If we consider the means, it may be seen that, the higher achievers are basically static, with the highest achiever, participant B showing some decline in scores over time, but still remaining high overall, whereas the lower achievers increase from a mean score of 5 in the pre-test to a mean score of 14 in the mid-test and then continue to demonstrate improvement throughout the period of intervention.

For interventions of this type, it is customary to perform an effect size analysis (Cohen, 1977). The effect size is calculated as the amount of improvement

divided by the standard deviation of the group. An effect size of 0.2 is seen as small, 0.5 as moderate and 0.8 or above as large. In this analysis, we compare the improvement of the low achieving participants with the high achieving participants, and demonstrate an effect size of 1.5 indicating a highly significant impact of the intervention for participants who had low skills initially.

At a micro-level, we are able to see the remarkable increase in scores among the low achievers such as Participant C from experimental group 1 and Participant G from experimental group 2 as reflected in the next two figures, Figures 7 and 8.

In Figure 7, we can see the improvement in Participant C's writing ability in terms of the different traits over one year of intervention. Initially, at the pre-test, he only scored a total marks of 2 under Ideas for Introduction and was not able to meet the requirements for the other traits.

Before Intervention, participant C (Refer to Appendix) was not aware of the text structure of a narrative text. His writing did not have a problem, a solution and a conclusion. His ideas were also irrelevant to the given topic and picture stimulus. Additionally, there was no paragraphing and his sentences were either incomplete or incoherent.

After Intervention, participant C included a setting, characters and time in his introduction although they were not well-expanded. He also included a problem in his writing which was absent in his pre-test. Furthermore, there was an attempt at paragraphing which made his essay

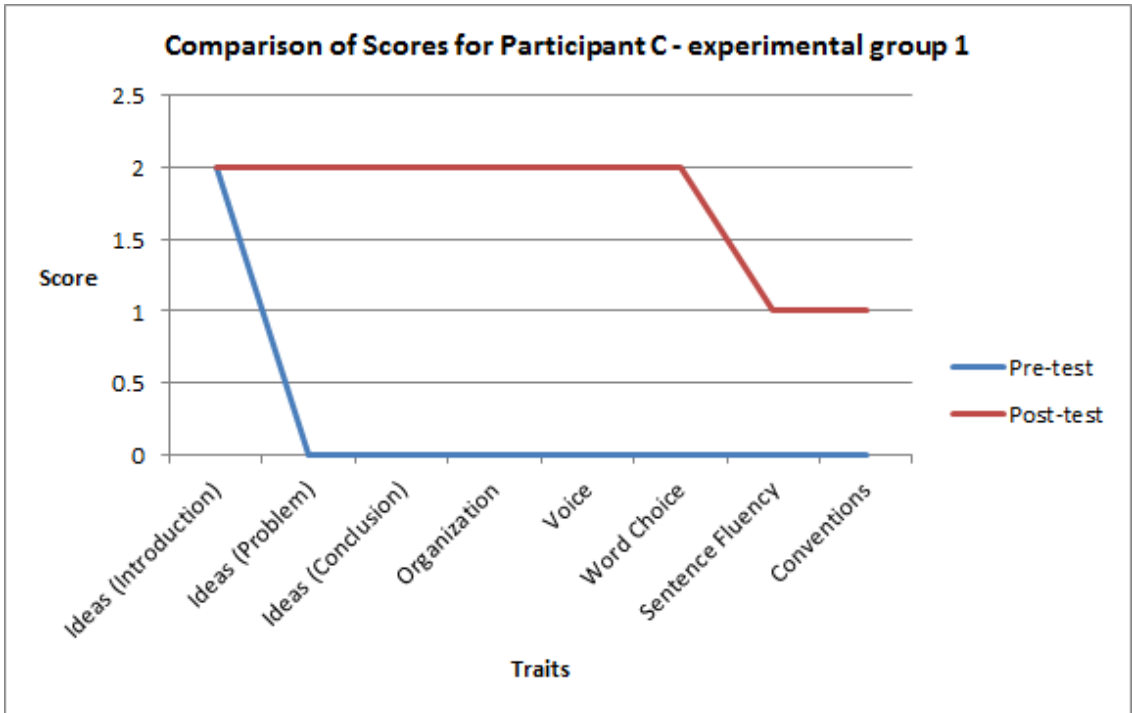


Figure 7. Comparison of score for participant C (experimental 1 group)

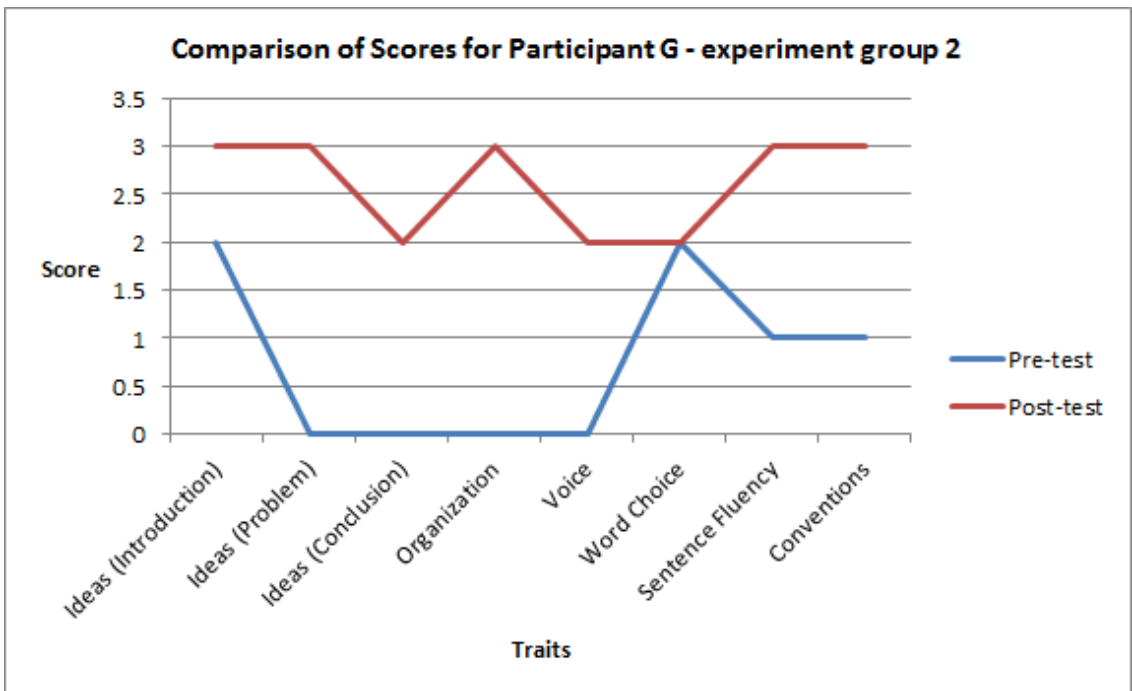


Figure 8. Comparison of scores for participant G (experimental 2 group)

easier to read. Thus, after going through the structured writing instruction and reminders using the writing checklist, Participant C was able to pass most of the traits even though he still needs help with sentence fluency and conventions that include grammar, spelling, and punctuation.

Overall, Participant C has shown small yet steady progress in his writing.

Despite not having the checklist, it can be seen that Participant G has also made notable progress in his post-test scores when compared against his pre-test scores.

Before intervention, participant G (Refer to Appendix) was not aware that a narrative writing (story) includes an introduction, a build-up, a problem, a solution and a conclusion. There was also an absence in the development of his characters and setting. Furthermore, his sentences were incoherent and his ideas were not relevant to the given topic.

After intervention, participant G is now aware of the text structure of a narrative text. His ideas were also relevant to the story with the setting, characters and time clearly stated. Although there are still areas to be worked on such as word choice, Participant G has demonstrated small yet commendable improvements after a year of intervention.

Discussion

In this exploratory case study that took place over a period of one year at the Dyslexia Association of Singapore (DAS),

10 students participated. These students were selected based on their profiles and abilities and they were performing at the lower end for their age range, 10-12 years of age, in Bands A2 to B4, indicating that their literacy skills were initially quite rudimentary. The students all benefitted from a 2 hours per week classes with DAS to improve their literacy, including writing. The experimental approach adopted used a pictorial prompt to brainstorm and a method of involving discussion, drafting and redrafting to achieve the final performance for each assessment session. In order to create more independent learners with stronger executive skills, a checklist was devised for experimental 1 group participants, to heighten their self-awareness when it comes to the traits required in writing as well as to enable them to self-check the work they have produced.

By contrast, experimental 2 group participants relied on verbal prompts from the teaching staff in order to ensure they had completed their writing task effectively. It may be seen from the results that the approach has proved effective for both groups even though most participants regressed after the mid-test. It is important to note that participants who regressed during the post-test were in P6 who had just done their PSLE, while the students who had incremental progress were younger and did their post-test close to the time when the mainstream schools conducted the examinations. Therefore, the dip in scores could be attributed to their decrease in motivation towards writing activities.

Interestingly, the major difference in performances lies in the starting level of the participants. Those students who were performing at the higher levels (e.g. participants A, B) at pre-test had less room for improvement than those who were experiencing significant differences. That said however, students who started with higher writing scores at the beginning of the intervention still show reliable, albeit lesser gains. Taken together, the findings reflect that students with lower writing scores initially (e.g. participants C, D) may have more room for growth and improvement compared to the students who started off with a higher baseline scores. This may be due to the fact that the high achievers have been placed with mid to low achievers and it was difficult for differentiated instruction. That would mean that for high-achievers who may need more higher-order skills such as Show-Not-Tell and advance ways to drive the additional gains, would not have sufficient instruction time to acquire those skills.

Moreover, it seems that student C who started with the lowest score possible, only 1 out of 24 at pre-test, made striking progress, and was able to attain and maintain this progress relatively independently by using the checklist. If we consider the impact of the intervention, an effect size of 1.5 for the lowest achieving students in comparison with the higher achievers, is highly significant evidence that this approach is particularly effective for the lower achieving sector, and would be a useful addendum to the standard practice in teaching.

It can be firmly concluded from this

structured case study that the picture based intervention is effective, and in terms of maintaining longer term independent processing, there is suggestive evidence that the use of the checklist is an effective and efficient enhancement of the instruction programme. However, the most interesting results are those of the low achievers such as Participants C and G, whose performance was significantly accelerated by this approach. In terms of impact, any system of intervention that is most successful for the low achievers could be a real breakthrough. Typically, intervention studies have found that it is the participants with moderate difficulties who respond most effectively to intervention. The implications of these for supporting dyslexic children with severe difficulties could be ground-breaking.

Limitations and Future Research

Inevitably, the conclusions that can be drawn from this study are limited by the small number of students who participated. Further research with a larger group of participants is needed to make more meaningful recommendations. However, it is possible to use an effect size to establish the overall effectiveness of the intervention for the lower achievers, which we have noted is unusual in research of this type.

In this study, the authors were the researchers/data-collectors and were also involved in the intervention study. As the authors were instrumental in setting up the planned intervention and naturally highly supportive of the intervention approach, it is possible that some of the effect reflects

the belief systems of the authors, and the adherence of the experimenters to the rationale. Ideally, the intervention would be undertaken blind with different researchers from the experimental team, and it may well be that results here would be less strong. However, this blind intervention approach is rarely practical in an educational setting, and typically, a quasi-experimental approach is adopted. Extra care was exercised however to ensure the validity of scoring as researchers only scored students who were not her own.

It would also be useful to consult the original diagnoses for the participants in order to establish if a particular profile is more susceptible to improvement using this approach. For example, there will be individual differences in overall ability within a dyslexic group of this type, and it would be interesting to establish whether or not there are correlations with intelligence, such that the most intelligent participants benefitted most from the approach. Similarly, there will be individual differences in underlying executive function at pre-test, but further data would be needed in order to explore this subsequently. Or if the most hardworking students were the ones who would have made the most progress?

In terms of further research, a further enriched intervention is proposed whereby 3 pictures are used to enhance the writing process to firstly align more closely to the mainstream exam syllabus and secondly, to see whether students are able to apply what they have been taught during the writing intervention phase to different contexts, to further support the

success of the structured writing instruction. One might well predict here that the lower achieving students would gain the most benefit from this intervention approach, and their scores would be enhanced in comparison to the one picture stimulus. It may also be useful in future research to adopt the 1 picture from pre-test to mid test and the full 3 pictures for mid to post-test to see whether or not, it is possible to maintain and extend the improvements from mid to post-test. However, this is an empirical question and only research will show who may be the major beneficiary of this intervention approach and whether the use of 3 pictures enhances or confuses the participants in terms of their written performance.

It is also interesting to note that scores for the majority of the participants demonstrated a regression in their scores between mid and post-test. It would be interesting to consider whether or not there might be further extraneous factors that may have impacted their performance at this time of year. For example, in other studies we have found a decline following school examinations, where poor results compared with their non-dyslexic peers have impacted on self-esteem and motivation to succeed. With dyslexic learners who typically may suffer from test anxiety, it would be interesting to find out whether test anxiety may have attributed to the dip in the test scores.

Furthermore, it would be compelling to investigate whether there has been an increase in motivation in the participants who have been taught writing based on the structured writing intervention with the

aid of a checklist to enable them to monitor their own progress independently.

Conclusion

In a case study of the usefulness of pictures in structuring writing, the majority of the participants made progress, and were able to maintain this progress presented over time. The results of this study present a clear case for the continuation of this structured writing instruction, which proved particularly effective with the lower achievers at the DAS. It was particularly striking to note the improvement in the lowest achiever of all, when children with severe difficulties are often the most difficult to remediate. The addition of a checklist can be seen as good practice in areas such as motivation and executive skills in planning and executing a piece of work, but the data to date does not provide sufficient support to indicate that this in itself is effective. Early results are promising for the lower achievers, but further research is needed to clarify this interesting area of investigation, a topic which has been frequently overlooked in dyslexia research.

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