Intensive remedial program for pupils at risk of dysgraphia: A single case study

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ABSTRACT

This study employed a single case about implementing a remedial program to help pupil at-risk of dysgraphia in order to hold a pencil with the correct gesture. This remedial program was developed to improve pupil at-risk of dysgraphia to hold a pencil correctly and train their fine motor skills which was a pre-requirement to learn writing. This research was based on Vygotsky's constructivist theory to produce a new remedial program. Data were collected from a preschool teacher and a preschooler in one of the Malaysia public schools through lesson observations. Moreover, document analysis on reflective journals and daily lesson plans were conducted in order to achieve a whole picture of this remedial program. The findings indicated that this remedial program was practical to scaffolding pupil who was at-risk of dysgraphia in particular to hold a pencil correctly. At the end of the study, the pupil was able to hold a pencil with the correct gesture and to start writing.

***Keywords**: dysgraphia, scaffolding, remedial program, fine motor skills*

INTRODUCTION

Dysgraphia is one of the learning disabilities that influences writing ability, fine motor skills, information processing skills and word coherence (Rief & Stern, 2010). More explicitly, the disabilities involve the inconsistent spacing of words on the page, difficulties or inconsistencies in writing within the lines and margins, awkward pencil grip and letter formation (Deiner, 2010). The writing tasks become more challenging for those children with dysgraphia (Deiner, 2010). Franklin & Cozolino (2018) point out that good writing requires a set of executive functioning skills, including organization, focus, attention to detail, and pen grabbing gesture.

Dysgraphia is caused by the neurological disorder and it is associated with incorrect orthographic coding - processing words in the brain (Rief & Stern, 2010). This disorder is usually diagnosed as soon as children start writing (Rief & Stern, 2010). Dysgraphia has strong connection to other learning disabilities (Sutherland & Green,2014). Remediations and specific learning techniques such as occupational therapy or school accommodation can improve their condition (Sutherland & Green,2014).

Nowadays, dysgraphia has less scientific research or report if comparing with dyslexia and dyscalculia (Rief & Stern, 2010). Rief and Stern (2010) highlight that it is difficult in establishing the prevalence rate of dysgraphia as well. Unfortunately, many parents may not be exposed to dysgraphia or they may ignore the potential signs of their child having a learning disability, preferring to remain in denial (Sutherland & Green,2014). Therefore, this study is designed to help pupils with at-risk of dysgraphia to move forward in posing the correct handwriting gesture by using a tool.

LITERATURE REVIEW

Learning to write is the consolidation of the writing process and the handwriting (Sousa, 2016). More explicitly, writing involves integration of attention, fine motor coordination, memory, visual processing, language and higher-order thinking (Sousa, 2016). Wing (2002) delineates the writing process starts from visual input to orthographic analysis (analysis the spelling and grammar), then proceeds to graphemic output (convert the sounds to appropriate letters) and motor output. In discussion, preschoolers with at-risk of dysgraphia will encounter difficulties in writing. There are three types of dysgraphia namely motor dysgraphia - fine motor skills problem (fingers and thumb), dyslexic dysgraphia - unable to perform oral and written spelling and spatial dysgraphia - visual-spatial perception and placement (Sousa, 2016; McBride-Chang,2019). Dysgraphia cannot be diagnosed by noticing at a sample of handwriting (Sousa, 2016). A preschooler who has been identified with at risk of motor dysgraphia, uses finger succession task on their dominant hand, where the children touch each finger to the thumb sequentially in 5 cycles within 26 seconds (Richards et al., 2009).

When we discuss about motor dysgraphia, we are more concerned about penmanship and how to hold a pen or a pencil for pre-schooler with at-risk dysgraphia. We usually hold a pen in a gentle pincer grip between the thumb and index finger, resting it on the middle finger using our dominant hand (Sassoon, 2003). Somehow, kids' silicone writing pencil grip can be bought in the market may help young learners improve their handwriting, provide comfort and control, reduce hand fatigue and teach the proper tripod grip (see figure 1). In the context of this research, the researcher argues that the writing tool is different from the commercial pencil grip in the market which young learners need to use their thenar muscles (one of the palm muscles) to scaffold their thumb, index finger and middle finger to perform the proper tripod grip (see figure 2).

Figure 1 *Commercialized silicone pencil grip*

Figure 2 *Writing tool been used in this study*

After the issue has been detected on a pre-schooler with at-risk dysgraphia encountered difficulties in writing, the teacher should not simply stand on a fence and observe the child to explore and discover the learning activity by himself. Instead, teacher may scaffold the pre-schooler with at-risk dysgraphia

to hold a pencil using the tool and encouraged them to engage in the learning environment. Vygotsky's constructionist theory points out that learning happens through social constructivism, it has four basic principles which are learning and development as a social and collaborative activity, the zone of proximal development can serve as a guide for lesson planning. Moreover, the core concept of the zone of proximal development describes three zones of development with pupil learning activity by himself, learning activity with guidance, and inability to perform the activity. Thirdly, classroom learning should happen in meaningful contexts and the last principle is outdoor learning experience should be related to the child's school experience (Pound, 2017). Vygostsky's proclaims that children make sense of the world by using physical tools and cultural tools such as language, models, stories and so on (Aubrey & Riley,2019). Therefore, it is interesting to find out how the teacher scaffold preschooler with at-risk of dysgraphia in holding pencil in the correct gesture using tool and develop their fine motor skill better.

OBJECTIVE

The objectives of this study are to explore how this writing tool helps a preschooler with at-risk of dysgraphia to hold a pencil in a correct gesture. Hence the research question for this study is (1) How to help the pupil with at risk of dysgraphia to perform writing with a tool? Data were collected through observations and interpreted in order to answer the above research question.

METHODOLOGY

This study is conducted as a single case research design to gather the relevant qualitative data through lesson observation and document analysis. Merriam and Tisdell (2016) state that the researcher is the primary instrument for data collection and analysis. It is carried out at one of the preschools in Tawau District, Sabah. One preschool teacher and one preschooler with at-risk dysgraphia have been chosen purposefully for this study. They participate in this remedial activity on a voluntary basis.

RESULT

The result clearly indicated that the pupil with at-risk dysgraphia was finally able to hold a pencil with the proper tripod grip after a month practice writing with a tool and observations under teacher's guidance.

Based on the given document, the worksheet of pupil A (see figure 3), the researcher found out that pupil A's handwriting was illegible and unclear. This caused the difficulty for the teacher to check his work and at the same time this would destroy the enthusiasm of pupil A to further his will of learning to write. As in preschool level, writing is one of the important learning activities. Therefore, it is essential to find out the specific way to help pupil A as a at risk of dysgraphia pupil in order to build his leaning interest in writing activity.

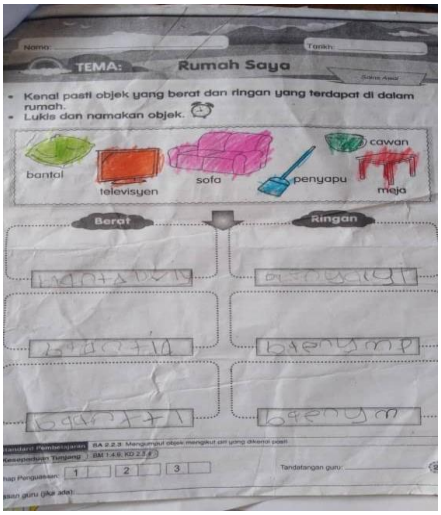

Figure 3 *Pupil A's handwriting before undergo an intensive remedial program*

From the observation, the researcher discovered that pupil A had difficulty holding a pencil correctly (see figure 4) and with poor posture. Besides having a good posture while drawing and writing, it is important that pupils learn to hold a pencil in a correct gesture.

Figure 4 *The way of how pupil A holds a pencil before using a writing tool*

In Figure 4 it clearly showed that pupil A was having difficulty in holding a pencil in the correct gesture. Therefore, from this observation, the researcher introduced the writing tool to be used in this study. After a month observation, pupil A's handwriting improved (see figure 5) and at the same time the researcher found out that he was able to hold a pencil correctly (see Figure 6).

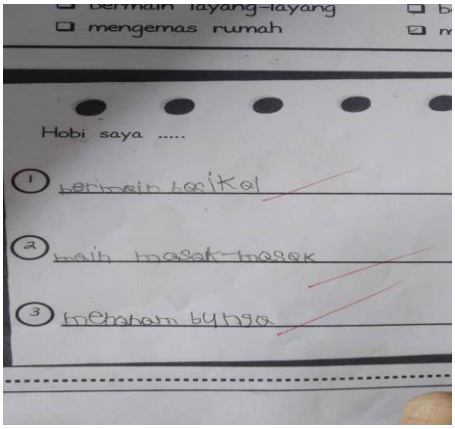

Figure 5 *Pupil A's handwriting after undergo a remedial program*

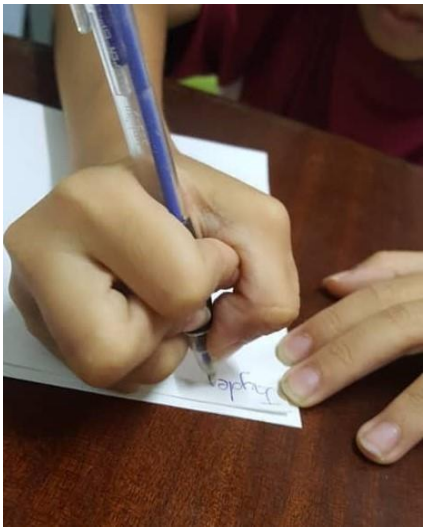

Figure 6 *Pupil A is able to hold a pencil in the correct gesture*

Based on the information by the Department of Occupational Therapy, Royal Children's Hospital, Melbourne (2005), most children will naturally develop a pencil grip that is comfortable for them. There are a variety of pencil grips can be observed in schools. According to Occupational Therapy Department, there are acceptable pencil grips include those shown in Figure 5.

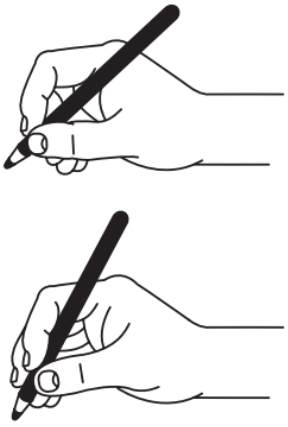

Figure 7 *Acceptable pencil grips*

Conforming to the general guidelines for a good pencil grip as shown in Figure 6, include:

i. The pencil is held in a stable position between thumb, index and middle fingers
ii. The ring and little fingers are bent and rest comfortable on the table
iii. The index finger and thumb form an open space
iv. The wrist is bent back slightly, and the forearm is resting on the table
v. The pencil is held about 1-2cm from the tip

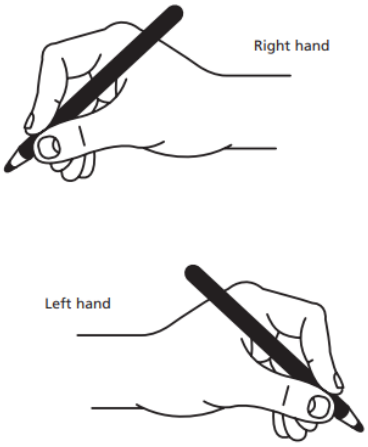

Figure 8 *A good pencil grip*

CONCLUSION

As a conclusion, this case study describes how this writing tool could be a remedial tool in an intensive remedial program and able to give significant impact to pupils at risk of dysgraphia. The innovative idea of the researcher besides of guiding pupils to hold a pencil in a correct gesture, it also focuses on strengthening their thenar muscles in order to help scaffolding their thumb, index and middle finger to perform the proper tripod grip (see Figure 2) and not only focus on the strength of the thumb and index finger. As shown in Figure 3, pupil A has difficulty folding his ring and little fingers while holding the pencil. Therefore, to train pupil A to bend and rest his middle, ring and little fingers comfortably on the table while writing, the researcher comes out with the idea of him holding a writing tool which helps him be able to bend his fingers. This tool helps to bend the ring and little fingers comfortably on the table while the thumb and index finger are used to hold the pencil with the pencil resting on the middle finger (see Figure 5). This writing tool with the above mentioned specialty is different from the other writing tools which could be found in the market. From the observation, pupil A has gained his confidence in writing activities and was able to hold the pencil correctly even without using the tool.

REFERENCES

Aubrey, K., & Riley, A. (2019). *Understanding and using educational theories*. Thousand Oak, CA:Sage Publications

Department of Occupational Therapy. Royal Children's Hospital. Melbourne (2005). *Developing a pencil grip* [Fact sheet]. Retrieved from http://www.rch.org.au/uploadedFiles/Main/Content/ot/InfoSheet_A.pdf

Deiner, P. L. (2010). Inclusive early childhood education: Development, resources, and practice. Belmont, CA: Cengage Learning/Wadsworth.

Franklin, D., & Cozolino, L. J. (2018). Helping your child with language-based learning disabilities: Strategies to succeed in school & life with dyslexia, dysgraphia, dyscalculia, ADHD & processing disorders. Oakland, CA: New Harbinger Publications.

McBride-Chang, C. (2019). *Coping with dyslexia, dysgraphia and ADHD: A global perspective*. London: Routledge.

Merriam, S. B., & Tisdell, E. J. (2016). Qualitative research: a guide to design and implementation (4th ed.). San Francisco, CA: Jossey-Bass.

Pound, L. (2017). How children learn. United States: Andrews UK.

Richards, T. L., Berninger, V. W., Stock, P., Altemeier, L., Trivedi, P., & Maravilla, K. (2009). Functional magnetic resonance imaging sequential-finger movement activation differentiating good and poor writers. *Journal of Clinical and Experimental Neuropsychology*,*31*(8), 967-983. doi:10.1080/13803390902780201

Rief, S. F., & Stern, J. M. (2010). The dyslexia checklist: A practical reference for parents and teachers. San Francisco, CA: Jossey-Bass.

Sassoon, R. (2003). *Handwriting: The way to teach it*. London: Paul Chapman.

Sousa, D. A. (2016). *How the special needs brain learns* (3rd ed.). Thousand Oaks: Sage.

Sutherland, J., & Green, M. (2014). Dysgraphia: Causes, connections and cures. United States: CreateSpace Independent Publishing Platform.

Wing, A. M. (2000). Motor control: Mechanisms of motor equivalence in handwriting. *Current Biology,10*(6). doi:10.1016/s0960-9822(00)00375-4