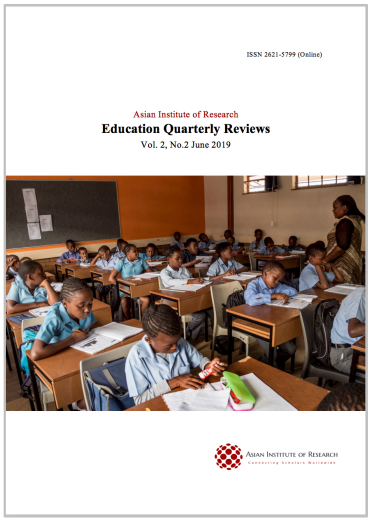

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Leading Special Education Teachers to Envision Evidence-based Metacognitivist Instructional Strategies in Inclusive Education Schools

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Abstract
The present study intends to inspire special education teachers to envision ways in which to use evidence-based metacognitivist instructional strategies with a higher effect size than 0.4 in inclusive education schools. These evidence-based instructional strategies included: study skills, concept mapping, and reciprocal teaching. Recommendations are presented to address intensive professional development and workshops for special education teachers.

Keywords: Evidence-Based Metacognitivist, Instructional Strategies, Inclusive Education

Evidence-based instructional strategies have become a new trend in the education of students with special educational needs and disability (SEND). Studies (see, e.g., Hattie, 2009-2017) have shown that these instructional strategies have positive influences on student learning and achievement. Hattie (2017) provided an effect size (Cohen's d) for each evidence-based instructional strategy in education. Specifically, Hornby (2014) determined the effect size (Cohen's d>0.4) for each evidence-based cognitivist instructional strategy that could be most effectively implemented in inclusive education classrooms when teaching students with SEND. These evidence-based cognitivist instructional strategies with effect sizes include: study skills, concept mapping, and reciprocal teaching (Hornby, 2014, 2018; Al-Shammari, 2019A, 2019B). Each is described below.

Study Skills

Study skills are a teaching strategy that provides students with useful techniques for learning new materials. Research (see, e.g., Cornford, 2002) has indicated that students who use of study skills strategy develop self-regulatory and procedural skills, which positively influences their achievement. Other research (see, e.g., Al-Shammari, 2019B) has shown that special education teachers who teach students with SEND in inclusive education schools practiced study skills, including note-taking and representation, at a high level when following evidence-based metacognitivist instructional strategies. According to Chang and Ku (2015), the three essential components of note-taking are: quantity, quality, and representation. The quantity of notes has a direct correlation with higher test scores. The quality of notes taken reflects an understanding of the material. Representation is one way in which students can summarize information and even create concepts maps. All in

all, the study skills strategy enables students not only to define, organize, and retrieve concepts, but also facilitates their understanding of how to draw lines and images to convey abstract concepts relating to complex definitions (Terry, 2003). In addition, the study skills strategy enhances students' in-depth learning, performance, achievement, competence, participation, and interaction in learning activities, and memorization (Al-Shammari, 2019B, p68).

Implementation of the study skills strategy varies among inclusive education schools. Students can start by engaging in note-taking, highlighting information, creating a “to do” list, following a schedule, and setting aside time to study/work (Chang & Ku, 2015). For instance, students who are being taught how to take notes in class should learn to condense the original information and extract concepts using critical thinking skills. They should also learn to summarize and use concept mapping to reorganize information. Students who engage in these processes will improve their comprehension and understanding through information integration. In teaching these strategies, special education teachers should first use explicit instruction when teaching study skills and then model ways to engage in note-taking, such as using index cards or concepts maps. Other methods of successfully practicing the study skills strategy in the classroom include: learning study skills (e.g., note-taking, highlighting, and summarizing), and gaining the ability to intensively summarize, extract, and gather original ideas and concepts from the content being studied (Al-Shammari, 2019B, p69).

Concept Mapping

Concept mapping is a teaching strategy that involves the graphic depiction of the structure of complex concepts. Research by Shukry-Balaa and El-Hassan (2018) showed that concept mapping helps to improve students' performance and achievement. In addition, the concept mapping strategy is helpful in assisting students in forming connections between concepts, organize a hierarchy of concepts, gain facility in creative thinking, learn, organize abstract thoughts, and develop critical thinking skills (see, e.g., Al-Shammari, 2019B, p72-74). Specifically, students who receive instruction on the concept mapping strategy gain the ability to visualize and organize their ideas (Teo, Shaw, Chen, & Wang, 2016). According to Al-Shammari (2019A), the five components of concept mapping are: brainstorming, organizing concepts, developing relationships between concepts, linking connections among concepts, and reviewing concept mapping.

Implementation of the concept mapping strategy varies among inclusive education schools. For instance, students must learn to organize information graphically. The important components of concept mapping are the main ideas enclosed in boxes or circles, flowing from top to bottom in a hierarchical diagram. Typical concept mapping conventions include having the core concepts listed at the top of the diagram, with associated concepts linked to them. Arrows are then drawn to connect the boxes, showing relationships among concepts. Special education teachers who are introducing concept mapping to students with SEND must first provide an overview and then give examples. Next, the students receive a topic and are guided through the concept mapping process, learning to focus on the main ideas, and how to determine the important concepts that stem from them. The concept map should be well organized and follow typical map conventions, with short and clear concepts (Birbili, 2006)**.** Other steps in successfully practicing the concept mapping strategy in the classroom include: brainstorming, organization of ideas and concepts, designing a hierarchy shape to systematically connect ideas and concepts, connecting ideas and concepts based on the relationships among them, and reviewing the concept map to make sure ideas and concepts are addressed correctly (see, e.g., Al-Shammari, 2019B, p78-80).

Reciprocal Teaching

Reciprocal teaching is a strategy that guides both teachers in modeling lessons and students in leading learning and group discussions. Specifically, reciprocal teaching is "an instructional procedure designed to enhance students' comprehension of text" (Oktarina, 2019, p 62), and provides students with four specific strategies: predicting, questioning, clarifying, and summarizing (Oczkus, 2003). Lederer (2000) explained that reciprocal teaching is a good technique to use with students with learning disabilities because it fosters independent reading skills. In addition, the use of the reciprocal teaching strategy by special education teachers has shown positive effects in inclusion classrooms (Al-Shammari, 2019C). Research (King and Johnson, 1999; Kelly, Moore, and

Tuck, 1994) has demonstrated that the strategy improves student comprehension and assists students in learning four skills: predicting, clarifying, questioning, and summarizing.

Implementation varies among inclusive education schools. For instance, the acquisition of strategies is a joint responsibility shared by the special education teacher and students with SEND; although the teacher initially assumes primary responsibility for the instruction and modeling of strategies, this responsibility is gradually transferred to the students with SEND, with all students expected to participate in the discussion. The special education teacher enables this participation by providing scaffolds in the form of supporting statements and prompts or altering the demands on students with SEND. Finally, these students are continually reminded that the strategies are useful methods for improving their comprehension of texts. In continually trying to construct meaning from the text, students come to realize that reading requires not only the ability to decode words but also metacognitive strategies that facilitate constructive and evaluative activities (Allen, 2003, p324; Palinscar and Brown, 1984). Other procedures linked to the four steps in reciprocal teaching that are necessary to successful implementation and practice in the classroom include: (1) summarizing—the teacher guides students in summarizing the contents through keywords and ideas, so they can visualize the big picture and main essential components and elements; (2) questioning—the teacher asks students to ask themselves a few questions after gaining a comprehension of the content, enabling students to absorb important knowledge and gain the skills needed to ask and write questions; (3) clarifying—the teacher provides a question and feedback based on a discussion with all students on what they learned from the content being taught, so the students can correct or reinforce their answers; and (4) predicting—the teacher asks the students to take time to read the content again and then think about it and anticipate next steps so that the students can form expectations and make connections among ideas in order to focus on them (see, e.g., Al-Shammari, 2019B, p84-88).

Recommendations for Special Education Teachers

The recommendations offered here have been developed according to the research perspective.

First, special education teachers should attend workshops and professional development (PD) programs focused on evidence-based teaching and learning strategies, where they can gain knowledge and skills and be exposed to the most up-to-date research on teaching. These PD programs should be planned, presented, and practiced following a microteaching practice method in which special education teachers work in groups to develop and present a series of instructional materials. This recommendation is supported by research (i.e., see Al-Shammari, 2019A, 2019B; Kiewra, 2002).

Second, those special education teachers whose educational qualifications are not in special education should receive intensive professional development programs and workshops to fill the gaps in their teacher education preparation. Further, recruitment and hiring policies in the special education teaching profession should focus on hiring teachers who specialize in teaching students with disabilities and have special educational needs. This recommendation is supported by research (i.e., see Al-Shammari, 2019C).

Last, special education teachers should be encouraged to examine their own teaching performance in order to evaluate their effectiveness in student learning and learning outcomes. Findings can aid special education teachers in assessing their teaching strengths and weaknesses and gaining insights into student learning and learning outcomes. With this information, special education teachers can plan instructional changes and implement them to measure how they may or may not improve student learning and learning outcomes. This recommendation is supported by research (i.e., see Al-Shammari, 2012, 2018).

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