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Lebanese Elementary Teachers' Perceptions about Metacognitive Skills for Students with Learning Disabilities

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Abstract

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MA, Lebanese American University, 2006

BS, Lebanese University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Teachers in Lebanese schools are still using outdated traditional strategies for instructing students with learning disabilities (LD). The purpose of this qualitative exploratory case study was to understand Lebanese elementary teachers' perceived barriers to providing effective metacognition skills instruction and increase the understanding of how teachers are supporting students with LD to use metacognitive strategies to enhance their own learning. The conceptual framework used to ground the study was Flavell's metacognitive theory. The purposeful sample included 12 elementary special and regular education teachers selected from 6 different Lebanese schools in 5 areas in Lebanon. Each teacher participated in a semistructed interview and was observed while teaching in the classroom. Coding and thematic inductive approaches based on elements of the conceptual framework were used to analyze the data. Peer debriefing, member checking, and triangulation by region were used to ensure credibility and trustworthiness. The findings revealed that teachers were knowledgeable about how to teach metacognitive skills, but they were not explicitly instructing those skills to students with LD. Among the reported barriers to teaching these skills included lack of time, perceived nature of the LD students' disability, and cultural expectations. The findings were used to provide recommendations for Lebanese teachers to implement in day-to-day instruction for students with LD and for school leaders to build teachers' capacity to engage LD students in constructing their own learning. This study may affect positive social change by promoting instruction of metacognitive strategies for students with LD to help them build lifelong 21st century skills.

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Dedication

This dissertation is dedicated to my husband and sons. Mike, I would not have been able to accomplish my dream if you were not in my life. You believed in me from the first encounter. You inspired me, motivated me and pushed me to reach my utmost potential. Georgie, Daniel, and Michael Jr., you are my life, my joy, my inspiration. I cannot imagine my life without you. Thank you for accompanying me in this journey. I love you all very much.

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Chapter 1: Introduction to the Study

This study took place in Lebanon where the education of students with learning disabilities (LD) remains a concern and continues to be an essential dilemma for educational reform in the schools (Awada & Gutiérrez-Colón, 2017). Lebanese students with LD develop educational gaps as they move into more challenging tasks, falling behind regular students, and trapped in a cycle of frustration and academic deficits (Elhage & Sawilowsky, 2016). Teachers in Lebanese public schools are less qualified than their counterparts in the private sector, and they use mostly rote learning pedagogy (Bahous, Busher, & Nabhani, 2016).

Students with LD face challenges with metacognitive skills, which can affect the way they are processing the academic content when they are unable to complete an academic task requiring metacognitive skills (Bishara, 2016; Hord & Newton, 2014). Metacognitive skills enable students to monitor, plan, and evaluate the work (Chevalier, Parrila, Krista & Deacon, 2015). Students feel more in control of their learning when they use metacognitive skills, which can increase their interest and boost their motivation (King & McInerney, 2016). Metacognition usually falls under two categories: The first is metacognitive knowledge, which is related to how much the students with LD know about the task; and the second is metacognitive process, which is related to how students with LD can monitor, plan, and assess the task (Hessels-Schlatter, Hessels, Godin, & Spillmann-Rojas, 2017).

The purpose of this study was to increase the understanding of how Lebanese elementary teachers were supporting students with LD to use metacognitive strategies to

control their own learning and what the teachers' perceived barriers to providing effective metacognition skills instruction were. The results of the study could benefit the Lebanese schools and teachers by providing an understanding of how teachers in Lebanon are supporting students with LD to develop metacognitive skills and how they perceive the barriers for providing effective metacognitive skills instruction. The results were used to provide recommendations to Lebanese teachers to implement in day-to-day instruction to students with LD and for school leaders to build teachers' capacity to engage students in their own learning.

Chapter 1 of this study includes a review of the background, the problem statement, the purpose, and the conceptual framework relating to the explicit teaching of metacognitive skills for students with LD. In this chapter, I relate theory to teachers' perspectives as to how elementary students with LD benefit from the explicit instruction of metacognitive skills. This chapter includes an overview of the nature of the study, definitions of the key terms used in this research, assumptions, scope and delimitations, limitations, and the study's significance.

Background

Metacognitive skills are a prerequisite to achieving active learning (Trif, 2016). Explicit teaching of metacognitive skills helps elementary students with LD)develop the ability "to understand, analyze, represent, execute and evaluate" (Pfannenstiel, Bryant, Bryant, & Porterfield, 2014, p. 293). Dent and Koenka (2016) revealed a positive relationship between metacognitive skills and academic achievement. Metacognitive skills could ensure that students can execute a task in addition to understanding it. García,

Rodríguez, González, Álvarez, and González (2016) investigated the link between high metacognitive knowledge and better metacognitive skills. The results revealed that students with high metacognitive knowledge used more metacognitive skills in their tasks. They were able to analyze, plan, execute, and evaluate.

Researchers recommended promoting metacognitive skills to students with LD. Explicit instruction of metacognitive skills should be required across all grades and at an early age (García et al., 2016; Pfannenstiel et al., 2014). Diaz (2015) examined the effect of metacognitive skills to help students with disabilities to increase and retain vocabulary words. The findings of this study were positive, and students were able to identify the meaning of the vocabulary in different ways. The researchers provided some practical educational implications and stated that training in metacognitive skills benefited classroom practices. Metacognitive skills offered learners the knowledge and the ability to be engaged in their own learning. They produced autonomy behaviors for students to attain their learning goals. In this study I explored the training for metacognitive skills in different languages.

Bishara (2016) compared the impact of two different teaching methods: the traditional way and the self-regulated method. The findings of the study revealed that children with learning disabilities experienced difficulties in problem-solving. LD students faced challenges in tasks that required higher order thinking. The researcher's recommendation to address these problems was to provide LD elementary students with self-regulated methods instead of using the traditional instruction method. The researcher

suggested future research could differentiate between conventional and self-regulated instruction.

Peklaj (2015) investigated teachers' competencies that affected students' learning. The researcher selected the teachers' skills that were mostly related to learners' achievement and provided a model that included the factors that influenced students' progress. The findings revealed that the best student performance was linked to when the teacher promoted metacognitive skills using different high-quality instructional strategies. The researcher recommended providing professional development to teachers to develop these competencies. Schools should equip teachers with tools to improve metacognitive skills at various students levels to promote an optimal learning environment.

Henter and Indreica (2014) conducted research to improve preservice teacher metacognitive awareness. Training teachers on metacognitive skills increased their awareness, and in return, it increased the way they were teaching metacognitive skills to students. The findings revealed that metacognitive skills could be developed in students and could be an essential element for teachers and students. Researchers recommended that teachers practice metacognition and include it in their curriculum (Littrell-Baez, Friend, Caccamise, & Okochi, 2015).

There is a need to conduct a further investigation relating to the implementation of metacognitive skills in the classroom for students with LD. There is a gap in metacognitive research in Lebanon, especially in that there is little data on how educators are instructing students with LD. The minimal findings of Lebanese research revealed

that teachers in Lebanon are still using an old way of teaching: the teacher-centered approach (Elhage & Sawilowsky, 2016). Diaz (2015) mentioned that classroom research is needed to develop different techniques and metacognitive processes that can help students with disabilities.

Börnert and Wilbert (2015) provided problem-solving strategies that would be used to build programs to enhance metacognitive skills and problem-solving behavior. The researchers recommended using their findings as a starting point to investigate more about metacognitive skills. Turhan and Zorluel Özer (2017) found that the lack of correlation between reading strategies awareness and academic achievement might be related to other factors that can influence the participants.

There is a possibility that metacognition links to metacognitive awareness and academic achievement. Researchers suggested investigating more on metacognitive skills within different cultural and geographical contexts (McKenna, Shin, & Ciullo, 2015). They found that there was a practice gap between achievement and the implementation of evidence-based practices. The researchers suggested that elementary teachers needed to incorporate metacognitive skills in the classroom frequently and recommended that schools should include cognitive strategies in their training and professional development. The researchers suggested further observational studies for students with disabilities using metacognitive skills. Future research to investigate teachers' use of metacognitive skills including students' outcomes data were recommended, including ongoing training and consultation to improve teachers' instruction.

Van Opstal and Daubenmire (2015) explained that students who used science writing heuristic as an instructional approach affected their use of metacognitive skills in their learning. Students collaborated with their peers to monitor their use of metacognitive skills. The researchers suggested further research to understand in depth the use of metacognitive skills at all academic levels. Haberkorn, Lockl, Pohl, Ebert, and Weinert (2014) stated that there was limited research pertaining to metacognitive skills development for students in elementary classes. The researchers analyzed the dimensionality of students' metacognitive knowledge and recommended more investigation on teaching in class and students' engagement. The study provided important steps for future research examining the nature of metacognitive knowledge in elementary schools.

This study was needed because it gave a more in-depth understanding of teachers' perception of explicit teaching of metacognitive skills for elementary students with LD. It also provided a stronger idea of the barriers that teachers perceive to providing metacognitive skills instruction. Based on the findings, a set of recommendations may make teachers aware of the best practices that develop metacognitive skills for students with LD and may lead school leaders to build teachers' capacity to meet the students' needs. Teachers who support students with LD to develop their metacognitive skills are providing them a chance to enhance their mental processing. Learners will be more aware of their own learning and more in control of the learning process.

Problem Statement

The problem that drove this study was that teachers in Lebanese schools are still applying traditional and outdated teaching strategies, focusing on memorization without encouraging the development of metacognitive skills for students with LD. Elhage and Sawilowsky (2016) stated that teachers in the Arab world are not able to help students with learning disabilities improve their metacognition skills because they are still using outdated teaching strategies, adopting a culture of superiority, and failing to deliver differentiated instruction. Awada and Diab (2016) revealed that Lebanese teachers relied on traditional instructional methods and recommended training teachers to instruct students to use problem-solving strategies. According to El-Daw and Hammoud (2015), teachers in Lebanese schools are not delivering high-quality instruction to students with LD, and students are facing repeated failure at school. Elhage and Sawilowsky (2016) have argued that part of the cause of this problem was in general, that teachers in the Middle East entered the profession with a lack of preparation and did not receive continuous professional development during their years of teaching.

McKenna et al. (2015) discussed the problem that students with LD have limited cognitive and metacognitive skills for monitoring their own problem-solving steps. Yang, Aalst, Chan, and Tian (2016) stated that the effective instruction of metacognitive skills improves students' collaborative inquiry processes. Learners who develop metacognitive skills become independent learners and can self-regulate their learning (Van Opstal & Daubenmire, 2015). According to Wagaba, Treagust, Chandrasegaran, and Won (2016), teachers should model and explicitly instruct metacognitive skills to enhance students'

learning and promote students' engagement. The results of the current study may increase teachers' instruction of metacognitive skills to students with LD, which may impact their academic performance.

Purpose of the Study

The purpose of the study was to increase the understanding of how Lebanese elementary teachers were supporting students with LD in using metacognitive strategies to control their own learning, and what the teachers' perceived barriers to providing effective metacognition skills were. I used classroom observations to better understand how teachers instruct students with LD and determine the gaps in practice related to metacognitive skills instruction. I also used semistructured interviews to better understand the teachers' perceptions regarding ways to improve the metacognitive skills of students with LD. The results were used to provide research-based recommendations to assist teachers in improving the way they are teaching metacognitive skills to students with learning disabilities. The recommendations can be used by school leaders when they implement professional development programs for their teachers.

Research Questions

The following research questions were formulated to guide the present research:

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognitive skills for students with LD?

Conceptual Framework for the Study

The conceptual framework of this study was based on Flavell's (1979) metacognition theory. Flavell (1979) explained that "cognitive strategies are invoked to make cognitive progress and metacognitive skills to monitor it" (p. 909). Flavell identified two components of metacognition: regulation and knowledge of cognition. He stated that young children have limited knowledge of cognitive and metacognitive phenomena or limited metacognition. Young children are unable to monitor their comprehension, memory, and other cognitive processes. Flavell (1979) mentioned that metacognitive skills were necessary for reading, comprehension, writing, oral language and communication. He recommended the integration of explicit teaching of metacognitive skills to children for increasing the quality and quantity of metacognitive knowledge and monitoring skills, which connects to the problem and purpose of this study.

According to Diaz (2015), metacognitive skills are the development of knowledge about the thinking process. Young children who use metacognitive skills have advantages in understanding their learning process and to be more aware of the different ways to approach their learning goals. Kaya and Ateş (2016) stated that instruction about metacognitive skills should be integrated into school to improve elementary students' learning outcomes and allow students with LD to manage their academic performance independently.

The metacognitive theory was derived from previous theories. One of the theories was self-efficacy theory. Students with high self-efficacy use more metacognitive skills in their academic tasks (Coutinho & Neuman, 2008; Komarraju & Nadler, 2013). Self-efficacy is the person's own belief about their ability to achieve a desirable goal (Bandura, 1997). Zimmerman (2000) mentioned that there is a link between students' self-efficacy and the enhancement of students' methods of learning. Also, teaching metacognitive skills to students can decrease their stress and anxiety. Zimmerman (2000) confirmed that helping students how to control their learning can impact them emotionally by minimizing their stress and anxiety. Students who believe they have high self-efficacy, they feel in control through the use of metacognitive skills such as self-monitoring and self-evaluation skills (Zimmerman, 2000).

Learning style theory can be linked to metacognitive theory. Boyatzis & Kolb (1995) stated that learning styles are also called "learning strategies, control processes, strategic knowledge, or cognitive strategies" (p.1). Students are able to express at a specific time their declarative knowledge to process the information, to remember, and to solve problems. According to Coutinho and Neuman (2008), learning style theory suggests that students' abilities and performance can vary greatly. They believe that the students can adopt different learning styles: "deep processing, surface processing, and disorganization" (Coutinho & Neuman, 2008, p.134). The students with deep processing style seek to understand the information and challenge themselves to acquire it. The students with surface processing style rely on rote memory and focus literally on the text instead of analyzing it. The student with disorganization style is unable to process

information in an organized and structured way (Coutinho & Neuman, 2008). Students should be trained to use metacognitive skills. Coutinho and Neuman (2008) confirmed that students who use deep processing learning style use metacognitive skills to facilitate the processing of the information.

Nature of the Study

This study was a qualitative exploratory case study. According to Ravitch and Carl (2016), qualitative research starts from interest, problem, or question. Yin (2016) highlighted the importance of case studies that focus on individuals. The objective of this study was to better understand an educational phenomenon in Lebanese schools, which is the explicit teaching of metacognitive skills for students with LD. Students with metacognitive skills can succeed in learning and responsibility by evaluating their own learning process (Gencel, 2017).

The participants were 12 teachers working in six different schools in different areas of Lebanon. Teachers taught English or Mathematics subjects for students with and without learning disabilities. I collected data through semi structured interviews, and I also observed 12 teaching sessions in the classrooms for 45 minutes each. I observed the teachers' instruction of the students with and without LD to determine how they could better provide metacognition skills instruction.

Semistructured interviews are an appropriate method to investigate the perceptions of teachers regarding ways to improve the explicit teaching of metacognitive skills to students with LD. According to Ravitch and Carl (2016), the researcher uses semi structured interviews to collect deep, rich, individualized and contextualized data,

using organized questions as well as tailored and specific follow-up questions. The observation during the instructional time provided a more comprehensive understanding of the gaps in practice related to metacognitive techniques and strategies.

The procedure for analyzing the data was open coding and thematic coding. Ravitch and Carl (2016) mentioned that open coding involves summarizing segments of data and thematic coding includes the process of going from coding chunks of data to coding categories, which lead to constructing the arguments and developing the findings. According to Burkholder, Cox, and Crawford (2016), coding is the process to organize data by identifying the patterns in the answers, creating categories, and determining and synthesizing the interconnectivity among them to better understand the phenomena.

Definitions

I used the following terms and definitions throughout this study.

Metacognition: The knowledge and regulation of cognition (Hessels-Schlatter et al., 2017).

Metacognitive knowledge: The awareness people have about their own cognition, their strengths and weaknesses and learning habits about a task and its characteristics and strategies such as when, how, and where to use this knowledge (Hessels-Schlatter et al., 2017).

Metacognitive process: The process that allows people to monitor and regulate their cognition. It is divided into three components: planning, monitoring, and evaluation (Hessels-Schlatter et al., 2017).

Metacognitive skills: "[O]ne's own self-awareness, learning characteristics, and ability to regulate one's cognitive processes" (Gencel, 2017, p. 294).

Learning disabilities: Psychological processing disorders with three dominants factors: severe discrepancy disorder between intellectual ability and achievement, achievement deficits in academic areas, and exclusionary criteria such as physical impairment, intellectual disabilities or any other disorder (Maki, Floyd, & Roberson, 2015).

Students with learning disabilities: Students who have a normal or high level of intelligence and experiential difficulties in the learning process. They have weakness in organizing information and applying strategies in math, writing, and/or reading processes (Girli & Ozturk, 2017).

Explicit instruction: Instruction during which the teacher presents the concept to the learner in direct and expected learning outcomes. It focuses the attention of the student towards the concept of learning rather than the task (Whyte & Deane, 2015).

Assumptions

The assumptions of this study were beliefs acceptable as facts without proof or evidence. The study had three assumptions. My first assumption was that the participants would answer my interview questions transparently and honestly. My second assumption was that the interview questions and the classroom observations would elicit reliable information on the way elementary teachers are providing metacognitive skills for students with LD. My third assumption was that the data would be valid because I would perform member checking throughout the analysis process, and the ongoing dialogue of

my interpretations would ensure the truth of the data. Assumptions are necessary for the context of the study because they push the researcher to consider critically the goals and motivation that inspire the study (Ravitch & Carl, 2016).

Scope and Delimitations

The study was conducted within a limited scope. Delimitations are intentional limitations set by the researcher. I chose six schools from different regions in Lebanon that have a special education department and provide services for students with LD. The study included 12 participants from regular and special education teachers who teach elementary students with LD. I used volunteer participants from sites purposefully selected to represent geographical regions of the country.

Limitations

The study included 12 participants from six different schools in Lebanon. One limitation was that the findings cannot be generalized to all schools in Lebanon. Another limitation was transferability and dependability procedures. Also, the participants may have been reluctant to share their experiences and perspectives towards the explicit teaching of metacognitive skills. Another limitation was that I might have constructed the meaning subjectively of the data rather than collecting it objectiveley due to the interviews open-ended questions. The transcript of the data was verbatim, and it might be a limitation since it does not capture all of the nuances of the interview. Observation can be inferential, and field-notes can reflect my biases or assumptions. To address these limitations, I provided clear information to the participants about the interview while using a safe and comfortable environment emphasizing the confidentiality of the process.

I included open-ended questions, so the process was inductive. Also, I used peer-debriefing, member checking, and auditing to limit my biases.

Significance

The research conducted provided findings that can be used to develop training modules that will equip teachers to instruct students with learning disabilities in the use of metacognitive skills, which can positively influence their academic performance. Ludvigsen, Stahl, Law, and Cress (2015) argued that teaching metacognitive skills to students with disabilities can help the students to improve academically and lead them to higher quality learning. According to Börnert and Wibert (2015), several studies have shown the positive impact of teaching metacognitive skills on students' learning outcomes. Littrell-Baez et al. (2015) explained that metacognitive skills allow students to reflect and predict their own learning. They can monitor their understanding, self-regulate their studies, and perform better in test taking.

This study was unique because of the lack of research in the Middle East that targets metacognition instruction to students with learning disabilities. According to Alkhateeb, Hadidi, and Alkhateeb (2016), teaching students with LD in the Arab world remains a formidable challenge at the classroom level. During their investigation, the researchers provided data related to schools in the Middle East who shared that general and special education teachers perceived that their training was inefficient to meet the needs of students with disabilities. Students with LD lack the skills to monitor or plan their learning and have difficulties integrating into a regular classroom (Alkhateeb et al., 2016).

The research conducted during this study supported professional education practices. According to El-Ghali (2015), the quality of education is the primary concern in Lebanese schools despite all the educational development after the civil war. El-Ghali (2015) stated that due to continuous political instability in Lebanon, the government and society face many challenges addressing the development of quality education. According to Khochen and Radford (2012), special education teachers in Lebanon have insufficient practice to teach students with disabilities. The recommended strategies of the study provided school leaders with tools to use during their teachers' professional development and capacity building programs to help learners become fully engaged, active partners in their learning. The results of this study benefited educators and schools by increasing their understanding of how elementary teachers in Lebanon are providing metacognitive skills instruction to increase problem-solving skills and academic success for students with LD. The results of the study led to positive social change by providing recommendations to improve the implementation of classsroom metacognitive skills to enhance the students' ability to apply cognitive strategies more efficiently (see Leopold & Leutner, 2015).

Summary

The problem identified in this qualitative exploratory case study was that Lebanese teachers are still using old and traditional way of teaching for students with LD. The purpose of this study was to answer three research questions that are related to elementary teachers' perceptions supporting the metacognitive skills of students with LD and the barriers that are hindering teachers from providing effective metacognitive skills.

Metacognitive skills enable students with LD to monitor, plan, and evaluate their learning. The conceptual framework was based on Flavell's (1979) metacognition theory. I defined terms that were essential for this study based on the latest scholarly sources. I mentioned the main assumptions and limitations of the study along with measures to address them. Finally, I reviewed how the findings will impact the Lebanese educational practices for students with LD.

Chapter 2: Literature Review

The purpose of this qualitative case study was to increase the understanding of how Lebanese elementary teachers were supporting students with LD to use metacognitive strategies to control their own learning, and what their perceived barriers to providing their students with metacognitive skills were. My research questions guided me to understand the problem that exists in the instructional method of Lebanese elementary teachers who are still using traditional methods of teaching students with LD.

In Chapter 1, I provided a concise summary of the few studies conducted in Lebanon regarding teaching methods for students with or without LD. However, no single research was an investigation of whether students with LD were receiving the explicit teaching of metacognitive skills. In the Western world, several research discussed the importance of metacognitive skills for students with LD and recommended to integrate these skills into their daily instruction. By presenting the following literature review, I was able to set the background to the problem, evaluate the best practices, and understand the various barriers for explicit teaching of metacognitive skills for students with LD.

Literature Search Strategy

Throughout Chapter 2, I review different studies related to metacognitive skills and related subtopics. I compare and contrast various research related to the best practices of metacognitive skills and the characteristics of LD students' metacognition. This chapter also includes what previous studies have concluded about the explicit teaching of metacognitive skills for elementary students with LD and what the barriers that might

affect teachers' instruction are. These studies are valuable because they provide the information that allows me to understand how Lebanese elementary teachers were supporting students with LD to develop metacognitive skills and the perceived barriers that were hindering them from providing the metacognitive skills.

This chapter restates the problem and purpose of the study with a synopsis of the current literature that establishes the relevance problem. It includes the conceptual framework of the study with the relevant theories and methodologies. It also presents all the resources of information that cover the background of the study, characteristics of the metacognitive skills of LD students, and best practices of metacognition instruciton. In addition to the relationship between metacognitive skills and learning, this chapter includes information about teachers' perceptions and the different barriers that can hinder teachers' explicit instruction of metacognitive skills. This chapter concludes with a summary of the major themes in the literature and what is known in the discipline related to the perception of elementary teachers about metacognitive skills for students with LD.

I conducted a literature review using different databases and search engines to find peer-reviewed articles that are linked to the importance of teaching metacognitive skills to students with LD. The various search engines were SAGE, Google Scholar, ProQuest, Taylor and Francis Online, and ERIC. I found most of the publications in professional and peer-reviewed journals that were recently published by leaders in the field of psychology and education. I used the following keywords in conducting searches in peer-reviewed articles: *cognition, training in metacognitive skills, explicit teaching, LD students, academic achievement, classroom instruction, monitoring, planning,*

cognitive strategy instruction, teacher competencies, teaching methods, self-regulated, traditional method of instruction, knowledge, skills, learning, and *elementary students.* This review will provide the base and background of explicit teaching of metacognitive skills for students with LD.

Conceptual Framework

The qualitative case study was based on one conceptual framework: the metacognition theory. Flavell (1979) was the first researcher who introduced the term metacognition. Metacognition is defined as people being aware of their own cognitive processes (Flavell, 1979), or "thinking about thinking" or "people's awareness of the knowledge they possess" (Abromitis, 1994, p. 4). Young children have limited metacognitive skills, and they scarcely monitor their own comprehension, memory, and other cognitive processes (Flavell, 1979; Garner & Alexander, 1989). Current researchers believe that metacognition emerges early in life and follows an extensive development until it becomes more explicit and powerful throughout adolescence (Kuhn, 2000; Paulus, Tsalas, Proust & Sodian, 2014). Marulis, Palincsar, Berhenke and Whitebread (2016) speculated that the roots of metacognition might be present in babies at 2-to-4 months of age; infants can participate in the control and monitoring of interactions with adults.

Metacognition can be divided into two components: knowledge, such as the awareness of a person about control processes, and cognition, such as how a person uses that knowledge to regulate cognition (Abromitis, 1994; Flavell, 1979). Metacognitive skills are required in 21st-century education; learners need to develop those skills to

become proficient in the way they learn, think, and cope with new situations (Wismath, Orr, & Good, 2014).

Metacognitive Knowledge

Metacognitive knowledge is related to the theory of mind (Flavell, 2000). Children are aware that their own experiences are shaped by their own knowledge and beliefs and by other people's experiences. Theory of mind affirms the children's ability to predict, explain, and interpret their behaviors and the behaviors of others depending on their mental states (Scholl & Leslie, 1999). It refers to the knowledge of memory, comprehension, and learning that a person can verbalize (Händel, Lockl, Heydrich, Weinert, & Artelt, 2014; Li et al., 2016). The findings of Artelt and Schneider (2015) revealed that there is a high positive association between metacognitive knowledge and students' academic competency. The metacognitive knowledge is divided into three different kinds: declarative, procedural, and conditional (Brown, Bransford, Ferrara & Campione, 1983; Jacobs & Paris, 1987).

Declarative Knowledge

Declarative knowledge includes the knowledge of a person's self as a learner and the factors affecting that person's own performance (Schraw, 1998). It contains information about the task structure and objectives and comprises learners' beliefs about the task and their abilities to accomplish it (Jacobs & Paris, 1987; Paris, 1983; Schraw,1998). The learners understand how strategies operate and what are the processes needed to finish the task (Juliebo, Malicky & Norman, 1998; Ruan, 2004). Declarative knowledge starts in early elementary, precedes procedural knowledge, and differs in their

developmental paths (Fritz, Howie & Kleitman, 2010; Li et al., 2016). Usually, teachers focus in the classroom on the content of the lesson. In one study, Wagaba et al. (2016) found that most student-teacher discourse is related more to the consequences of the learning and less on the process. The researchers recommended that teachers need to give more opportunities to students to discuss their metacognitive knowledge and to practice their metacognitive skills.

Procedural Knowledge

Procedural knowledge includes knowledge about the implementation of various procedural skills. They are a repertoire of multiple behaviors that help the learner to select among them to achieve the task (Abromitis, 1994; Fyfe & Loehr, 2016; Paris, 1983; Rittle-Johnson). Fritz et al. (2010) stated that procedural knowledge is visible at an early age when children can start monitoring their task. It underlies skills to encode the information that is hard to explain through language (Rosenblatt, 2004; Schraw, 1998). Rittle-Johnson et al. (2016) conducted a study on 180 second-grade children to evaluate the effect of teachers' instruction on math notion and procedure in one lesson versus math concept only. The findings revealed that children who received instruction for procedural knowledge had better retention of the concept than the control group. Also, teachers who provide an opportunity to learn concepts through hands-on activity can increase students' awareness of the process. One study by Strickland (2016) found that the use of manipulatives for students with LD can also enhance their procedural knowledge. Learners who know how to skim and how to summarize a reading passage or how to use

manipulatives to solve a mathematical computation, indicated using their procedural knowledge efficiently.

Conditional Knowledge

Conditional knowledge includes knowledge about why and when learners are able to use declarative and procedural knowledge (Abromitis, 1994; Burchard & Swerdzewski, 2009; Paris, 1983; Schraw, 1998). Effective learners understand why and when to use the strategies and know when and what materials to rehearse and how to adjust to the new situational demands for each learning task (Juliebo et al., 1998, Paris, 1983; Schraw, 1998). Pinninti (2016) investigated the conditional knowledge of reading skills for upper elementary students. The findings revealed that good readers used prereading, while-reading, and post reading skills. A similar study conducted by Turhan and Zorluel Ozer, (2017) showed that there is a high correlation between conditional knowledge and academic achievement. These results put more implications for learners, teachers, and curriculum designers to integrate more of these skills to enhance the students' performance.

Metacognitive Control Processes

The metacognitive control processes include three essential skills**:** planning, monitoring, and evaluation (Jacobs & Paris, 1987; Onyekuru & Njoku, 2017). These skills help the learners to control their learning (Schraw, 1998). Metacognitive control processes are based on the learners subjectively monitoring their current learning that can impact their performance positively (Roebers, Krebs, & Roderer, 2014). According to Li et al. (2016), children are like adults and they need to make study decisions. These study

decisions are related to metacognitive control processes, which are critical to enhance learning and to improve academic efficiency. Destan, Hembacher, Ghetti, and Roebers (2014) stated that these metacognitive control processes are observed when students adapt their answers due to the output monitoring processes response or by responding strategically to enhance performance. Following is an examination of each essential skill.

Planning

Planning is the selection of relevant strategies and resources that might impact performance (Schraw, 1998). According to García et al. (2016), planning is part of the executive functions skills that are in charge of goal-oriented behavior. These skills lead to a deeper understanding of learning. Also, Zepeda et al. (2015) stated that planning skills serve as domain-general knowledge to achieve the goal; learners knowing these skills can improve their self-efficacy. The ability to plan before reading develops through childhood and adolescence, and teachers who better understand the progress of their students or where they are in the learning process can predict the students' orientation and planning task (Baas, Castelijns, Vermeulen, Martens, & Segers, 2015).

Monitoring

Monitoring refers to "one's online awareness of comprehension and task performance" (Schraw, 1998, p. 115). Students check their understanding after a learning event, and they are engaged in continuous self-testing while learning. It informs the learners' progress and provides the foundation for initiating a learning behavior (Roebers et al., 2014). It develops slowly and improves through practice and training (Burchard & Swerdzewski, 2009; Delclos & Harrington, 1991). One study conducted by Wells,

Sheehey and Sheehey (2017) revealed that self-monitoring of performance improved students' rate of completion of the task. Learners were taught to self-assess and to record their progress which impacted their academic achievement positively. Researchers recommended helping learners to graph their progress using a bar graph. In the same way, Pratt and Martin (2017) stated that teachers are providing high effective instructional techniques to elementary students, equipping them with skills that enables them to think aloud and monitor their learning.

Evaluation

Evaluation refers to evaluating the outcomes or to the efficiency of learning (Schraw, 1998). Researchers believe that metacognitive knowledge and control processes skills are related to evaluation. Every step the learner takes, it starts with planning and ends with evaluation (Flavell, 1979). Learners need to evaluate if the learning outcomes match the learning goals and if the processes were efficiently used (Onyekuru & Njoku, 2017).

Metacognitive regulation improves academic performance, and young students can acquire metacognitive skills through instruction (Schraw, 1998; Flavell, 1979). When teachers help students to develop one aspect of regulation, for example planning, they will enhance other components such as monitoring. The metacognitive concept was applied in previous research. Juliebo et al. (1998) investigated the metacognitive behavior displayed by young children with reading difficulties during the reading intervention. The findings revealed that children demonstrated a wide range of metacognitive behaviors that reflected their metacognitive awareness of reading strategies. This concept is still

discussed in recent research. The findings of a study conducted by Roelle, Nowitzki, & Berthold (2017) revealed that metacognitive skills enabled students to regulate their knowledge construction and can influence the cognitive processes.

Kinnunen, Vaurus, and Niemi (1998) investigated the comprehension monitoring processes for 132 elementary students with poor reading skills and listening comprehension. The findings revealed that poor decoders showed less use of metacognitive skills, and good comprehenders used more consistent and efficient monitoring skills. The use of metacognitive skills impacts the listening comprehension positively. There is also evidence for using metacognitive skills in writing. Ruan (2004) investigated metacognition development for a group of bilingual elementary students as they were engaged in a writing task. The purpose of the study was for students to produce and demonstrate during writing tasks several metacognitive statements that are related to planning, monitoring, and editing functions. Learners made a significant improvement on the procedural knowledge at the end of the academic year compared to the start of the year. The qualitative analysis revealed that good writers used more inner thinking, self and other regulatory speech than poor writers.

Previous research highlighted the importance of explicit teaching of metacognitive skills and provided evidence that students who use metacognitive skills improve their reading comprehension, writing and problem-solving. Glaubman, Glaubman, and Ofir (1997) trained a group of learners how to use different skills to generate questions. These skills are grounded in metacognitive theory, active processing theory, and conventional theory. The findings revealed that the metacognitive training

group did better than the other two groups of the study. Glaubman et al. (1997) showed the value of integrating the explicit teaching of metacognitive skills in the classroom instruction. These findings are aligned with Varga's (2017) study for elementary students. The study showed that the teachers' use of linguistic strategies could provide support to students to identify and visualize their personal queries, observe and verbalize their process, survey their use of reading, and recognize that the text is an interactive tool between reader and text.

The current study benefited from this framework that provides a foundation for teachers to instruct students with LD to be aware and to control their own learning. Metacognition theory gives a guideline on how students learn and what affects their improvement. It provides in addition to self-efficacy and learning styles theories a foundation to enhance students' learning. It is essential that students with LD transform their knowledge into strategic behavior. Paris (1983) stated that declarative, procedural and conditional knowledge is necessary for becoming strategic learners.

Literature Review Related to Key Concepts

The literature review examined metacognitive skills of the students with LD, mainly how metacognitive skills affect their learning, and how teachers can support the development of metacognitive skills in the classroom. From early school years, students are required to acquire responsibility, as well to learn how to organize, monitor, and plan, especially in the classroom setting (García et al., 2016). Metacognitive skills are necessary for students with LD to respond successfully to their academic needs. According to Onyekuru and Njoku (2017), learners are expected to acquire knowledge

which is put to a test during exams. Students with a high level of metacognitive skills perform better than students with low metacognitive skills.

Metacognitive Skills and Students with Learning Disabilities

Students with LD cannot develop effective learning skills or to strategically process information due to lack of metacognitive awareness (Stipanovic, 2016; Krawec, Huang, Montague, Kressler, & Melia de Alba, 2013). The development of metacognitive skills may lead to positive academic outcomes and decision-making (Boyle, Rosen, & Forchelli, 2014; Stipanovic, 2016). It enables learners to reflect on their thinking by internalizing, understanding and recalling the task they need to learn (Ajaja, 2017; Metzger, Smith, Brown & Soneral, 2018; Schraw,1998).

These metacognitive skills can be gained through explicit teaching and training. Students with LD need to develop metacognitive knowledge before metacognitive skills; it is a critical precursor for their development. García et al. (2016) investigated the correlation between metacognitive knowledge and skills. The researchers assessed metacognitive knowledge and skills for 141 participants from elementary classes from nine schools. The findings revealed that students identified with high level of metacognitive knowledge reported better usage of metacognitive skills. However, it is not enough for students with LD to know what and when to use metacognitive skills but also how to use them (Ozturk, 2015). It is favorable to teach explicitly metacognitive skills for students with LD (García et al., 2016; Gnaedinger, Hund, & Hesson-McInnis, 2016).

Students with LD experiencing problems with their learning process have a deficiency in organizing information and show lower levels of metacognitive skills than

students without LD. Girli and Öztürk (2017) compared the use of metacognitive skills between students with LD and typically developing (TD) students. The data collected was from 119 elementary students with LD and TD. The findings revealed that there was a significant discrepancy in the usage of metacognitive skills between students with LD and TD in the reading process. Continuous academic failure reduces their self-esteem and affects their personality development.

Also, students with LD fail to solve mathematical problems when it requires the use of metacognitive skills. According to Riccomini, Stocker and Morano (2017), 3% to 6.5% of students with LD have a mathematics disability and experience many challenges in solving computation and problem-solving arethmatics. Mathematical problem-solving involves several metacognitive processes; the learners need to comprehend, integrate, generate and maintain the mental image of the problem (Krawec et al., 2013; Montague, Krawec, Enders, & Dietz, 2014). Zhu (2015) explored elementary students' representation strategies for problem translation and integration and found that LD students had limited ability to identify what skills to use to solve the problem and limited ability to represent problems.

Moreover, LD students have deficiencies in their ability to use practical skills to facilitate learning, which imply that teachers in schools need to teach and train those skills explicitly. Vula, Avdyli, Berisha, Saqipi, and Elezi (2017) compared two elementary groups; the first group was given a direct instruction of metacognitive skills to solve math problems, and the other group was considered a control group and performed the same task without any guidance. The research findings revealed that

learners who used metacognitive skills were able to regulate their actions and reasoning, and to reflect what impacted their success in solving the math word problems.

Metacognitive knowledge and metacognitive processes are essential elements in the emergence of learning difficulties in students with LD. Learners lack metacognitive skills that regulate their own learning and affect the acquisition of other skills (Händel et al., 2014; Chevalier et al., 2017). The general learning disabilities for LD students are due to a deficiency in metacognitive processes. The weakness of metacognitive knowledge can lead LD students to fail using and to generalize learning skills.

Metacognitive Skills and Teaching/Learning

Metacognitive skills are essential to students' success. Learners who use metacognitive skills can learn, remember, and discover the best way to reinforce what they learned more than others as they are used during cognitive activities (Chatzipanteli, Grammatikopoulos, & Gregoriadis, 2014; Martin, Nguyen, & McDaniel, 2016; Tas & Sirmaci, 2016). In fact, learners become aware of strengths and weaknesses and develop a high level of academic achievement (Apaydin & Hossary, 2017; Onyekuru & Njoku, 2017).

Classroom instruction fails to integrate two components in mathematical problem-solving (Zhu, 2015). The first component requires that teachers provide a set of metacognitive skills. The second component requires that teachers help LD students to learn those metacognitive skills through explicit and effective instruction. Classroom instruction should engage with metacognitive skills thereby facilitating and evaluating students with LD's problem-solving abilities (Zhu, 2015). Cognitive processes are not

direct means for academic success, but the integration of metacognitive skills during problem-solving may ensure the achievement of the task. Yıldız and Dökme (2017) investigated the effect of metacognitive instruction for solving mathematical problems in a science lesson. Learners in elementary classes who were exposed to metacognitive instruction achieved higher in exams compared to the control group. Beside cognitive capacities, learners need to be able to transfer knowledge to the new situation.

Also, classroom instruction has failed to provide metacognitive skills in reading for students with LD. Kara (2015) investigated teachers' instruction of metacognitive skills to students in reading sessions. The findings revealed that teachers had few attempts instructing metacognitive skills to students, and they only focused on inferences and meaning skills instead of visualization and evaluation skills. As for Händel et al. (2014), they concluded that LD students performed poorly in reading due to lack of metacognitive knowledge for reading strategies. Experienced teachers instruct metacognitive skills to students who struggle with reading to create awareness of comprehension strategies (Cobb, 2016). When teachers teach comprehension to students with LD, they must include the knowledge and the use of metacognitive skills before, throughout, and after reading (Ozturk, 2015). This skill helps learners to plan first their reading activity, activate prior knowledge, and examine the title, pictures, illustrations and the length of the text. Later, learners will regulate their reading activity by monitoring the activity using self-questioning, and finally they evaluate, reflect and make analysis not only for the reading process but also for the learning process and goal fulfillment (Iwai, 2016).

Metacognitive processes are critical elements to explicatory and informational text comprehension, and they are the building blocks of vocabulary learning (Abersek, Dolenc, & Kovacic, 2015; Asraf & Supian, 2017). Students who are aware of their intentional activities possess metacognitive awareness and can monitor their comprehension (Cobb, 2016). Van Steensel, Oostdam, van Gelderen, and van Schooten (2016) investigated the relationship between vocabulary knowledge, word decoding, reading comprehension, and metacognitive knowledge for 328 low achieving students. Their findings revealed that there was a high correlation between higher order skills, such as vocabulary knowledge and metacognitive knowledge, and reading comprehension. Students who had high level of vocabulary knowledge and metacognitive knowledge had a high level of understanding the text.

Therefore, understanding vocabulary words and metacognitive knowledge are important factors to understand a text. Although word decoding is vital at an early age, vocabulary and metacognitive instruction are essential to understanding a text. These findings are confirmed by Botsas (2017) who mentioned that active and successful comprehenders use planning skills, evaluate the difficulty of the passage, and search for the meaning of vocabulary in their lexicon before reading to understand the text.

Teachers should allocate time to train students with LD metacognitive skills. They need to take advantage of each activity and open a space for essential skills acquisition. According to Ozturk (2015), teachers can ask explicitly self-generated questions, activate the prior knowledge, and make the right elaboration by using the “why” questions, which can motivate learners to monitor and regulate their learning. The primary goal of

educators is to teach deep-level learning skills for students with LD. Learners need to understand, make meaning, and apply the learning materials, and later evaluate their performance. Teachers can use the Assessment of Learning (AFL) to help learners develop metacognitive skills. According to Baas et al. (2015) and Crichton and McDaid (2016), the Assessment of Learning (AFL) creates a rich learning environment where learners develop cognitive and metacognitive skills. Teachers implement the Assessment of Learning (AFL) by monitoring the activities, providing students with information that facilitates their understanding, and makes them aware of the gap of their current level of performance and the final goal.

Teachers elicit learners' reflection on teachers' feedback within teacher-student dialogue, making them aware of the appropriate metacognitive skill that they need to apply using scaffolding technics. Similarly, Court (2014) believes that the AFL will not improve only the content but the students' writing skills, where it increases students' metacognitive awareness of what is considered accurate and stretches their cognitive capacities by understanding the content subject in-depth and the feedback.

Best Practices in Metacognitive Instruction

Students with LD benefit from metacognitive practices that can improve academic performance. Learners who receive metacognitive training impact positively their awareness and reading skills (Ozturk, 2015). Also, Henter and Indreica (2014) emphasized that teaching explicitly metacognitive skills separately from the content of the learning, is the key to success. Teachers should identify the skill to be used, present how to implement this skill, clarify under what situation the skill is useful and why it is

useful (Henter & Indreica, 2014). In this section, I will provide a set of best practices for metacognitive skills that teachers can explicitly instruct students with LD to enhance their learning. Also, I will give various strategies that can empower the development of metacognitive skills.

Metacognitive skills help learners better use attentional resources and existing strategies, and provide students with a high awareness of comprehension steps (Dimassi, 2017). Metacognitive skills include organization, preparation, organizational planning, selective attention, self-evaluation, self-monitoring, and self-management skills (Dimassi, 2017). Teachers can model metacognitive skills during instruction to students to improve their metacognitive awareness through metacognitive questions, self-questioning, and think-aloud protocols (Chatzipanteli et al., 2014). Turner, Remington, and Hill (2017) stated that the use of visual aids like question cards or mind maps, support understanding for students with LD. Other skills such as paired problem solving, reaction to feedback and revising, reflection on learners' ideas, and journal keeping can also promote students' metacognitive skills (Erdoğan & Şengül, 2017).

The below strategies are a sample of how teachers can teach students with LD metacognitive skills for a math problem-solving task and reading:

Modeling and thinking aloud. The purpose of modeling and thinking aloud is to make LD students follow learning processes seeing the teacher as a model. The teacher can model the task while thinking aloud the steps to achieve the task. Thinking aloud instruction benefits students with LD (Ness & Kenny, 2016; Henter & Indreica, 2014).

Learners verbalize what they are thinking when they are reading, solving the problem, or implementing any demanding cognitive task (Silby & Watts, 2015)

Group work and self-evaluation: In group work and self-evaluation, students with LD will work individually for 10 minutes and later join the group to solve the problem. Students are asked to evaluate the useful and difficult part of the activity process. At the end of the process, students fill an error evaluation form to monitor and to evaluate their learning process. The teacher reviews the forms and gives feedback. Teachers providing explicit input on reliable information can boost the performance of students (Dunn & Risko, 2016; Henter & Indreica, 2014).

Before, during, and after reading: With before, during, and after reading, learners make a prediction and find out that their prediction is wrong; this cognitive imbalance leads to the motivation for learning (Özel, Olarak & Türk, 2017). Also, this skill is used to identify new vocabulary words. Learners will skim the text and relate strategically the vocabulary to the context. During reading process, learners will use graphic organizers for comparing and contrasting the content. After reading, learners can pair and discuss their understanding of the content (Hairrell et al., 2011).

Solve it. Solve it is a metacognitive skill that helps LD students to improve math problem solving (Krawec et al., 2013). The *Solve it* skill help students with strategies to comprehend, represent, and plan solutions for math problem solving through explicit instruction. The explicit instruction includes modeling, verbal practice, and receiving corrective feedback (Myers, Wang, Brownell, & Gagnon, 2015; Montague, 2014).

Think, talk, write: Think, talk, write is a metacognitive skill that enhances writing for students with LD (Thom, 2017; Listiana, Susilo, Suwono, & Suarsini, 2016). Think, talk, write is easily implemented in the classroom and applied in all subjects. According to Indahyanti (2017), the first stage of writing is the ability of leaners to think by reading the text in the form of questions. At the second stage, leaners have the chance to talk about the investigation of the first stage. At the last stage leaners will be able to write down their ideas that are acquired at the first and second stage.

Students with LD have difficulty in developing metacognitive skills by themselves. Therefore, metacognitive prompting is essential at the beginning of the process. It helps students with LD focus on aspects of their problem-solving process, in addition to developing monitoring and controlling skills (Erdoğan & Şengül, 2017). The following metacognitive prompting can support the development of metacognitive skills.

Peer-modeling of thinking and peer coaching: Peer-modeling of thinking and peer coaching skills are supported through the use of reciprocal teaching. Elementary students can demonstrate reading strategies to their peers. Pratt and Martin (2017) stated that by modeling these strategies, students internalize them and increase their metacognitive skills instead of asking help from their teachers.

Prompting cards: Prompting cards present a set of questions that the students need to ask themselves and their friends. One copy of these questions is displayed in the classroom where the teacher emphasizes it during the problem-solving process (Erdoğan & Şengül, 2017).

Putting action cards in line: The purpose of this skill is to help learners to remember the problem-solving process and to monitor and self-evaluate the learning (Erdoğan & Şengül, 2017). Students can put a set of cards that lead them step by step to achieve the task.

Paired problem-solving and thinking aloud: Paired problem-solving and thinking aloud facilitates abstract thinking. Learners will acquire how to ask questions, be aware of their deficiency in their knowledge and understand others' thinking (Erdoğan & Şengül, 2017; Hunter, 2014). Students will discuss with their peers the problem-solving process.

Reflecting on and reflecting learners' ideas: With this strategy, learners reflect on their own work and others learners' idea to develop awareness (Erdoğan & Şengül, 2017). Reflective writing helps learners to acquire and apply metacognitive knowledge and make it visible to themselves and teachers (Menz & Xin, 2016).

Journal keeping: Through journal keeping, learners recall what they learned in class and think about how to apply it, which will facilitate their own metacognitive development and self-evaluation processes (Erdoğan & Şengül, 2017).

Chatzipanteli et al. (2014) stated that social interaction between students promotes metacognitive skills. Similarly, Molenaar, Sleegers, and van Boxtel (2014) stated that group interaction enhanced students' metacognitive knowledge. The implementation of the below teaching strategies can empower the development of metacognitive skills:

Cooperative learning strategy: Cooperative learning strategy empowers the development of metacognitive abilities. This strategy focuses on the learning process;

The group will evaluate the work of each member, assess it, evaluate the social interaction and put an effort to improve performance (Henter & Indreica, 2014; Listiana et al., 2016; Sharan, 2015; Erdoğan & Şengül, 2017).

Reciprocal teaching and peer interaction: Reciprocal teaching and peer interaction is a metacognitive intervention for reading comprehension difficulties that encourage the learner to explore the text collaboratively (Turner et al., 2017). Students work in pairs, providign feedback to each other (Chatzipanteli et al., 2014).

Teachers' Perception of Metacognitive Skills and the Barriers to Implementation

Previous research has confirmed that **s**tudents with LD lack metacognitive skills that allows them to self-regulate their learning; teachers play an essential role in developing those skills. According to Spruce and Bol (2015), these skills must be taught to all learners because even high achievers need support for and explicit teaching on these skills. The researchers investigated the teachers' perception of ten elementary participants about metacognitive skills and how it was related to their instructional practices. The findings revealed that there was a discrepancy between teachers' perception and the implications in the classroom. This discrepancy might be related to how teachers perceive students' abilities and how they can value the theory of metacognition but do not view the practical side to implement it in the classroom (Spruce & Bol, 2015).

Taylor and Ntoumanis (2007) believed that teachers' self-perception and expectations of students can affect their classroom instruction. Lichtinger and Kaplan (2015) confirmed that students' motivational beliefs and self-perceptions are a huge value for children to use metacognitive skills and are influenced by teachers' perception and

support to students with LD. On another hand, if teachers are equipped by metacognitive skills that they can implement it in their classroom, their perception is different, and they believe that metacognitive skills should continue working on self-monitoring their reading. In one study by Pratt and Martin (2017) concluded that after training teachers how to teach metacognitive skills to students, they teachers decided that they should address these skills and should also differentiate the way they are teaching it.

In addition, Iwai (2016) believed that preservice teachers should learn metacognitive skills at university level, so they can implement it later in their teaching environment. The researcher investigated the perception about metacognitive skills among 110 pre-service teachers. The findings revealed that high level of teachers' awareness of metacognitive skills and their positive attitude are the key element when teaching students metacognitive skills in the classroom. Díaz Larenas, Ramos Leiva and Ortiz Navarrete (2017) confirmed that professional development is necessary for pre-service teachers who do not know how to approach metacognitive skills.

Moreover, research has indicated that the quality of the relationship between students and teachers may play an important role in developing students' metacognitive skills and might be a barrier for not developing it. A study conducted by Zee and de Bree (2017) revealed that high-quality relationship between teachers and students; warm, supportive environment and low-level of discordance, can determine if the students feel safe and emotionally secured to develop these metacognitive skills. Similarly, Cadima, Doumen, Verschueren, and Buyse (2015) stated that emotional and instructional support

might lead students to express their needs, feelings, and helping in asking for support, which can lead them to work independently.

Summary and Conclusions

The development of metacognitive skills for students helps them to become self-regulated learners (Listiana et al., 2016). It is not easily acquired, as it needs explicit teaching to make it visible for both learners and teachers (Menz & Xin, 2016). Self-regulated learners assume responsabilities for their learning progress that may help them determine which skills can benefit them to accomplish the task.

Dimasi (2017) stated that metacognitive skills improve learners' performance. Students with LD will use efficiently attention resources and develop greater awareness of comprehension components. Teachers are required to teach metacognitive skills to students with LD. This literature review included the conceptual framework of metacognition, the characteristics of students with LD vis-à-vis metacognitive skills, the best practices that teachers can implement in the classroom, the teachers' perception about metacognitive skills and the various barriers for not implementing it.

Based on this literature review, no research has been found that links the implementation of metacognitive skills within the Lebanese educational system. This study filled the lack of research in the field of explicit teaching of metacognitive skills in Lebanon for students with LD by researching what are Lebanese teachers' perception about metacognitive skills. In the following chapter, I will be discussing the methodology of my research.

Chapter 3: Research Method

The problem guiding this study was that teachers in Lebanese schools were still applying traditional and outdated teaching strategies, focusing on memorization without encouraging the development of metacognitive skills for students with LD. According to Bahous et al. (2016), teachers in Lebanese schools focus on rote memory to ensure that students acquired the concept. In Chapters 1 and 2, I described the background of the study and the conceptual framework grounded on metacognition theory. I also provided a literature review to explore the relationship between metacognitive skills and students with LD, metacognitive skills and learning/teaching, the best practices that teachers can implement in the classroom, and the various barriers that can hinder teachers' explicit teaching of metacognitive skills for students with LD.

This chapter includes a description of the rationale for choosing a qualitative exploratory case study to research elementary teachers' perceptions about metacognitive skills for students with LD. I define my role as a researcher, provide details about the sampling method and size, data collection, data analysis plan, and the steps taken towards ensuring trustworthiness and ethical practices. Teachers and school leaders might benefit from this research through the contribution of their teachers' perceptions that may produce recommendations related to the explicit teaching of metacognitive skills for students with LD. This study might also provide an opportunity for educators to share their concerns and the perceived barriers that hinder their explicit teaching of metacognitive skills for students with LD.

Research Design and Rationale

The purpose of this qualitative exploratory case study was to increase the understanding of how Lebanese elementary teachers were supporting students with disabilities to use metacognitive strategies to control their own learning and what their perceived barriers for providing effective metacognition skills were. This research tradition was selected because it involves an interpretive and naturalistic view of the world and focuses on the meaning that participants attach to educational phenomena (Check & Schutt, 2012). Researchers use this approach because they want to understand a contemporary case in depth and in a real-life setting, particularly when the boundaries between the context and phenomenon are not very clear (Miles, Huberman & Saldana, 2014; Yin, 2016).

According to Patton (2015), the qualitative case study approach is an appropriate mode of inquiry that integrates the complexity and subjectivity of real people's experiences that the researcher makes meaning out of through methodological means. Ravitch and Carl (2016) added that in a qualitative research, the answers are neither right nor wrong, and there is no static truth but multiple perspectives. The qualitative approach allows researchers to comprehend how people think and act in certain educational settings rather than to generalize a specific phenomenon (Check & Schutt, 2012).

Researchers collect and summarize data using observation, interviews and document analysis and believe that understanding of the phenomena is linked to the context (Lodico, Spaulding & Voegtle, 2010). A case study "is the study of the particularity and complexity of a single case, coming to understand its activity within

important circumstances" (Check & Schutt, 2012, p. 189). The case study captures the reality of a phenomenon as participants perceive it and focuses on human subjectivity. It related to the purpose and the research questions of the study. I collected information from multiple sources to understand the teachers' perceptions about metacognitive skills and what the perceived barriers were for not providing these skills to students with LD. The information helped me to formulate an understanding about the phenomenon. The findings helped me understand how elementary teachers in Lebanon are helping students with LD to know the way they learn and to be able to control their learning, especially because there are very few earlier studies that can be used as a reference for further studies.

According to Yin (2016), *what*, and *how*, questions are exploratory questions, and they are a justifiable rationale for conducting exploratory research. Yin (2016) stated that a multiple sources approach is when the researcher uses more than one participant to understand the phenomenon, in this case, of metacognitive skills. The participants were elementary teachers who had a BA in education or a diploma in special education from several schools and they were different from each other with regard to years of experience and school settings. A case study approach uses various sources of data, which can lead to triangulation among multiple sources of evidence. The various sources of evidence offer various measures of the same phenomena and add confidence to the findings (Miles et al., 2014; Yin, 2016).

Ravitch and Carl (2016) mentioned the following main approaches to qualitative research: action research, exploratory case study research, ethnography, grounded theory,

and phenomenology. An exploratory case study was selected for this research because the other mentioned approaches failed to provide an opportunity for a deeper understanding of teachers' perceptions regarding metacognitive skills for students with LD. In Lebanon, the problem is still unknown, and by conducting this research, I started providing a clear idea about the issue. According to Habib, Pathik, and Maryam (2014), exploratory research is the initial research to define and clarify the nature of the problem; as the problem is unknown, an exploratory case study research is expected. I collected data through observations and interviews. According to Yin (2016), a case study may rely on two pieces of evidence: direct observation of the event and interviews of the persons who are involved in those events. The case study offers the researcher a deeper understanding of the processes and outcomes (Miles et al., 2014).

I used an exploratory study because I aimed to gain better understanding of a specific situation within a specific context through collecting sufficient data from a small purposeful sample; the study was inductive, and it might trigger further understanding and research (Nieuwenhuis, 2015). Researchers believe that humans are complex creatures, and to understand their perceptions, they need to collect data from many aspects of their lives; hence, they conduct interviews, observations, and analyze documents (Lodico et al., 2010).

Action research was rejected because it deals with problems and issues derived from the lived experiences of everyday life. It is a meeting place for research and action where researchers are coinquiring who takes responsibility for the overall research (Ravitch & Carl, 2016). An ethnographic approach was rejected because it emphasizes

in-person field study, trying to decipher cultural meaning, and tending towards the description rather than the understanding of the problem (Miles et al., 2014; Ravitch & Carl, 2016). Grounded theory approach was also rejected because it aims at developing a theory that comes from data in the field using cumulative coding cycles and reflective analytic memo (Miles et al., 2014; Ravitch & Carl, 2016). The phenomenological approach was not selected because it is considered as a research method as well as a philosophy in which the researcher is interested in peoples' lived experiences of one core phenomenon (Miles et al., 2014; Ravitch & Carl, 2016).

This study was conducted through interaction with participants in a naturalistic setting. The results were used to understand better the teachers in their day-to-day instruction to help students with LD develop metacognitive skills. No standardized assessment was used; I was the primary instrument of data collection on the perceptions of the teachers (Miles et al., 2014).

Research Questions

The research questions were developed to examine the Lebanese elementary teachers' perceptions about developing metacognitive skills for students with LD. The questions were as follows:

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognition skills for students with LD?

Role of the Researcher

According to Babbie (2017), when researchers use field research methods, they are confronted with decisions about the role that they intend to play and the relationship with the participants they are observing. Creswell (2014) stated that one of the components of a qualitative design is the ability of researchers to define their role in the study. Also, researchers have the ability to identify and address reflexively their biases, values, socioeconomic status, personal background, culture, and experiences that can affect their interpretations. O'Grady (2016) stated that the role of the researcher is socially constructed and is grounded in meanings, values, and aims. Therefore, respect, honesty, and trust are linked to the participants' engagement.

My role in this research was as an observer and an interviewer. I was continuously assessing my identity, positionality, and subjectivity. I did not have any personal or professional relationship with the participants nor with the principals of the schools. The schools were selected based on their geographical location; the participants were elementary teachers who had different years of experiences teaching students with LD who could help me understand the problem. I was aware of my biases, mainly because I work at a center that focuses on developing metacognitive skills for students with LD. This is done because schools are failing to provide these skills. I used member checking, peer debriefing, and auditing to make sure of the trustworthiness of the findings.

Sometimes student teachers are not provided with enough techniques to help students develop metacognitive skills; often they come to the center to do their training, and they lack the evidence-based strategies to help develop metacognitive skills. When providing training to teachers in the schools, I observe that teachers with expertise are hesitant to adopt research-based teaching strategies for students with LD because they feel comfortable in the traditional way of teaching. According to Bahous et al. (2011), teachers in Lebanon are reluctant to abandon traditional teaching methods due to many challenges. These challenges are relateed to the pressure for completing the curriculum, insufficient resources, diverse level of proficiency in the same class, and high number of students, 30 to 40 students in one class. I controlled my biases through reflective memos and peer debriefing. These memos included documentation about broad fieldwork and specific data collection reflection and general impressions about the space, environments, and the participants. They also included my reflections on my positionality and its impact on data collection (Ravitch & Carl, 2016).

Rubin and Rubin (2012) stated that the interviewer should keep minimum confrontation with the interviewees and not try to retrieve a specific piece of information or try to guide the participant to give any information that the participant wished to withhold. I did not dominate the interviewee but tried to form a positive relationship with the participants built on trust. I conducted individual teacher interviews on the participants' break in a quiet, small room provided by the school's principal.

Methodology

This study was conducted in six Lebanese schools in five different geographical areas to eliminate regional biases. These schools were located in North Lebanon, South Lebanon, Bekaa, Mount Lebanon, and Beirut. Lebanon is a small sized country situated in the Middle East, area 10,425 square kilometers. Education in Lebanon is a national key priority, and since 1943, many efforts were established to raise the level of private and public schools (Shuayb, 2016).

The school in North Lebanon provides a full educational program from Nursery to High School designed to be aligned with the requirements of the Lebanese Ministry of Education. The school has developed a Special Education Department to integrate students with learning difficulties in regular classrooms. The program aims to help students reinforce their skills. This is done through the intervention of the special educator in the classroom or through pullout sessions in a resource room. Several modifications are done to the curriculum, lesson plans, exams, and homework to help the students attain the academic concepts and skills (Principal, personal communication, January 2018).

The primary goal of the school in South of Lebanon is to promote an inquiry-based environment that provokes the learners to question big ideas, investigate issues, consider a range of possibilities, and reflect on findings. Students at the school develop critical and metacognitive thinking as they pose real-life problems (Principal, personal communication, January 2018).

The school leaders in Mount Lebanon believes that elementary school is the key building block to students' development and success and are linked to the pedagogical approaches, which nurture inquiry and critical thinking, and real-life contexts for learning. The school uses differentiated instruction to meet the students' needs. They believe in small class sizes that ensure students receive personal attention and care. Students with learning disabilities can learn within the inclusive educational setting (Principal, personal communication, January 2018).

The first school in Beirut offers support to students with learning disabilities. They provide a stimulating environment using strategies that meet the students' needs. The school includes 150 students in the elementary classes. Teachers are regular and special education teachers working hand-in-hand to provide ongoing assistance to students (Principal, personal communication, January 2018).

The second school in Beirut is an international school that provides Lebanese and American programs to all students. It implements well-structured teaching approaches that are based on inquiry and conceptual understanding skills planned goals. It empowers its students with the approaches to learning skills they need to become independent learners (Principal, personal communication, January 2018).

The team of the school in Bekaa believes in an inclusive environment. They cater for students with learning disabilities along with regular students. The elementary school includes 220 students with 20 regular and special education teachers. They believe in equity and quality instruction to all students (Principal, personal communication, January 2018).

Participants

The population of the study was a total of 12 elementary general and special educators' teachers, and the sample was a purposive sampling. The participants have a bachelor's degree (BA) in education or a diploma in special education. A purposeful sample is used to access knowledgeable people and to attain a deep understanding of the phenomena which work in a specific place (Cohen, Manion & Morrison, 2007; Lodico et al., 2010, Ravitch & Carl, 2016). The 12 participants were elementary teachers from different areas in Lebanon—North, South, Mount Lebanon, Bekaa, and Beirut—who were invited to participate in this research. The participants were a homogeneous group who share similar attributes.

Purposeful sampling helped me gather information needed to answer the research questions. The sample was chosen because they had similar experiences and shared similar knowledge. The use of 12 participants was an adequate number because the population was homogenous (Guest, Bunce & Johnson, 2006). Mason (2010) stated that a population of six interviews with a high level of homogeneity could be a sufficient number to get meaningful themes and useful interpretations and reach saturation. In qualitative research, the sample size depends on the scope of what the researcher wants to know. The purpose is not to generalize, but to rigorously and ethically answer the research questions to get a deeper multi-perspective understanding (Ravitch & Carl, 2010).

The study followed inclusion and exclusion criteria in selecting the participants. All participants instructed students with LD and with typically developing students in

elementary classrooms. The participants have a bachelor's degree (BA) in education or a diploma in special education. The exclusion criteria included administrative staff or assistant to the teacher without any educational or teaching diploma. They were not able to participate in the research.

Gaining Access

A formal letter was sent through an e-mail to the principals of the schools to gain access to the local research site, and it included an introduction and the purpose of the research, and the process of the research. The letter included a description of the steps to be taken to ensure confidentiality and the rights of the participants. It also mentioned the benefits that this research might bring to the educational field in Lebanon.

The school principals provided the email addresses of the teachers in the elementary classes who have a BA in education or a diploma in special education, have less than three years year of teaching, and the other group of teachers who worked for at least three years with students with LD. Teachers with less than three years might give the researcher an idea about the pre-service training provided at universities, and teachers with over than three years of teaching might have more experience in teaching and constructing lesson plans. An invitation letter was sent to the teachers to participate voluntarily in the study making it clear that the principal was not expecting their participation and did not affect their status. The first two teachers from each school who agreed to participate in this research were accepted and sent them an informed consent to participate in this research. A copy of the e-mail was saved in the secure locked file on my computer. The first two teachers who signed the informed consent were chosen for

the study. No participants will be recruited, and no data will be collected until the receipt of a written Institutional Review Board (IRB) approval.

Instrumentation

The instrument of this study included an interview protocol for a semi-structured interview that was given to each participant (See Appendix A). According to Ravitch and Carl (2016), researchers use semi-structured interviews to guide their study and tailor follow-up questions. The interview protocol included eight open-ended questions to be asked of all participants, in addition to follow-up and probing questions, as appropriate, for deeper understanding, escaping any questions that are based on interpretations and judgment. These probes and follow-up question were used as needed throughout the interview. Each interview lasted for approximately 30 minutes during the teacher's break in a separate, quiet and small room in the school.

The participants provided through email the informed consent that included the use of the audio recording. A reminder that an audio-recorder will be used will be given before each interview. According to Rubin and Rubin (2012), recorders are unobtrusive, and participants should be reminded periodically. The interview sessions were conducted in the school outside the instructional time. I kept the second recorder as a backup procedure in case the first audio-recorder fails to work and transcribed the interview recordings verbatim in a Microsoft Word Document within three days after each interview as the responses will be fresh in my memory. Any other notes that were taken during the interview were stored in each participant's secured file.

Another data collection phase was the observations. Each participant was observed for a full class session either in English or Math. The instructional session in Lebanese schools is around 45 minutes. This observation was a focused observation with a checklist because it was supported by an interview and research questions which led my decision to what to observe and it reduced the unnecessary overload data that can affect the efficiency of the analysis (Miles et al., 2014; Blackey & Spence, 1990). I sat at the back of the classroom to reduce distraction, and recorded the data using handwritten field notes to preserve the natural teaching environment for each participant (See Appendix B). The observation involves the researcher watching, recording, and analyzing a specific phenomenon (Lambert, 2012). The observation was unstructured; small details were recorded for later analysis to answer the research questions. At the end of the observation session, I wrote a reflective field note. According to Lodico et al. (2010), reflective field notes allow the researchers to reflect and create awareness of how their own feelings, values, and thoughts can influence their observation

Lambert (2012) mentioned that observation has many advantages; it gives data about real life in a real setting. It is a flexible approach, and the data gathered from the observation will confirm, extend, or contradict the interview data. According to Ciullo et al. (2015), the observational studies focusing on elementary schooling and educators providing strategies to develop metacognitive skills for students with LD are rarely observed. To enhance the credibility of the data, I conducted peer debriefing, and member checking. Lodico et al. (2010) mentioned that participants are equal partners in

research and can serve the function of peer debriefing. According to Creswell (2014), debriefing enhances the accuracy of the data and adds validity to the research.

The validity of the research was established through data triangulation. I compared and cross-checked the consistency of different data resulting from the interviews and observations. Yin (2016) stated that researchers using different sources of evidence could construct validity. According to Lambert (2012), data triangulation is using more than one source to provide validity to the findings. Also, Tibben (2014) stated that triangulation is used in a qualitative study to promote consistency and precision. It encourages researchers to implement more than one view while collecting data. The results from the teachers located in different areas will also be triangulated to determine similarities and differences based on the geographical locations. According to Denzin (1970), data triangulation has three subtypes; Person, time and space. I collected data from a set of participants located in different settings. Triangulation helped me to understand the areas of agreement and disagreement between the participants.

Sufficiency of the Instrumentation

According to Patton (2015), researchers should reflect on the sufficiency of the instrumentation to gather the necessary data to address the research questions. Therefore, in my interview protocol (Appendix A), I made sure that the questions from one till six will answer my first research question and the questions seven and eight will answer my second research questions. Yin (2016), stated that every word from the interviewee is meaningful because it might highlight on one specific information that can give me sufficient information regarding my research questions. The interview and the

observation protocols need to have enough data to guide the researcher through the whole process.

Data Collection

According to Yin (2016), one principle of using a case study approach is to adopt multiple sources of evidence. For this study, I used interviews and direct observation, and they both had strengths in the research field. The interview was targeted and insightful; it was used to focus directly on the development of metacognitive skills, topics, and provides explanations in addition to personal views regarding the issue. The direct observation was immediate and contextual; it covered action in real time and within the case's context (Yin, 2016). Before the interviews, I conducted the external observations. Rubin and Rubin (2012) argued that doing observation before the interviews sensitize and familiarize the researcher with the key issue, the environment, and the language. The direct observation gave visual impressions of how the elementary teachers are supporting students with LD to develop metacognitive skills. These visual impressions will be recorded into a field note, which would become part of the case study database (Yin, 2016).

The classroom observation was conducted for every participant during their instructional session. The observation session was 45 minutes for each participant depending on the instructional session; it can be in English language, or Math sessions. I made sure to respect the site and will not disrupt as much as possible. According to Creswell (2014), researchers should limit and minimize their disruption during classroom observation.

I interviewed the participants using a mobile audio recording device. Before the interview, I checked the device and made sure that the voice was clear and placed it next to the participant. I conducted an individual responsive interview approach. A responsive interview focuses on one topic and explores it throughout instead of jumping from one topic to another. Individual responsive interviews involve three types of questions: main questions, probes, and follow-up. The main question addresses the research problem and structures the interview; probes help the researcher to manage the conversation, and the follow-up questions add a level of interaction with the interviewee (Rubin & Rubin, 2012).

The interviews were transcribed verbatim into a Microsoft Word document. The participants had a pseudonym to ensure confidentiality. The transcription document was saved on my computer in my home and kept for five years with a password that no one has access to except myself. Anyan (2013) stated that interviews are highly used methods for data collection in qualitative research. It will enable people to speak out loud about their experiences, feelings, expectations, and understanding. Patton (2015) stated that every fieldwork comes to an end and an exit strategy is needed. At the end of the research, I exited the study by sending a thank you email to participants. Also, participants had the right to exit the study anytime they want. I had a backup plan and made sure that I contacted the participants who indicated interest in participating but they were not chosen due to the criteria sampling. The first time, I sent the invitation letter to all elementary teachers; I made sure to save their emails on my locked computer. In case

I had teachers who exit the study, I resent the same invitation letter, and the first teacher who answered back and showed interest in the study was selected.

Data Analysis

The qualitative data analysis was conducted using an iterative approach. According to Ravitch and Carl (2016), the qualitative approach involves a back and forth processes which can change over time. It leads to a progressive enhancement at the conceptual and methodological levels. Also, Ravitch and Carl (2016) stated that data organization and management are an integral part of the analysis. As soon as the process started, I managed, organized and kept track of my data on a personal computer to create familiarity, facility to retrieve it when needed, and to support the making of meaning process. The data had a label with the time, date, location and the pseudonym of the participants.

The analysis of the data was based on thematic and inductive approaches. Before the analysis, I stated my priori codes. Priori codes are pre-determined codes that are developed from the general principles of metacognition theory. These priori codes included metacognitive knowledge that includes conditional, procedural, and declarative knowledge, and metacognitive control processes that includes planning, monitoring and evaluation. At the first stage, I transcribed the data of the interview. Researchers through transcription represent the data that they have gathered (Ravitch & Carl, 2016). I started with a pre-coding process. Ravitch and Carl (2016) mentioned that precoding is a process of reading, questioning, and engaging with the data. I highlighted, circled, underlined keywords or phrases that stood out and wrote my notes and questions in the margins. The

data collected was coded using the priori codes that I previously established that helped me to organize my emergent themes.

The thematic coding strategy that was used involves segmenting and labeling, which was conducted in an inductive approach. Ravitch and Carl (2016) stated that an inductive approach to coding keeps the researcher as close to the data as possible. I used the participants' words to label data segments. I reviewed the coded data, discover patterns, categories, and determine major themes.

During this stage, I used open coding and color highlights to differentiate between topics. I identified the topics and put similar topics into categories. The purpose of creating categories is to reduce the data (Wilkinson, 2000). The first round of coding was used to determine what stands out and the second round to determine how it was related to research questions (Ravitch & Carl, 2016). Coding involves a process that was used to disassemble and reassemble data. Disassembled data are broken into lines and paragraphs, and reassembled through coding (Cohen et al., 2007). I defined my codes to be clear about what they mean and why they differ from each other (See Appendix C). The definition of each code will be concise and clear; the researcher needs to revisit them when analyzing the data (Ravitch & Carl, 2016). I reflected systematically and critically on my data using coding memos (see Appendix D).

Once I clustered together similar topics, I used the codes to develop themes that related directly to my research questions. I presented my findings as themes and displayed every theme under each research question. The codes and themes continued until saturation, which was when no information was forthcoming and was considered as

counter-productive and nothing new add to the overall story (Rubin & Rubin, 2012; Mason, 2010). Data that did not fit under any theme will be considered as "Other' and also included in the findings.

At the second stage, I read carefully the data collected from the observation notes and made sure that all the quotes taken from the teachers were clear. I followed the same process as the interviews. According to Lambert (2012), it is important to use the same coding system across the same qualitative research study. I highlighted the main idea and keywords that were related to my priori-codes. I coded the data into categories that were related to my conceptual framework; metacognitive knowledge and metacognitive control processes. Once my categories were identified, I grouped them to develop my themes.

Once my observation and interview data were analyzed, I grouped them and made a list of the themes identified. Lambert (2012, p. 170) defined this process as "integrating" the data. I examined the data and saw how a specific theme had a large of evidence related to it. I compared and contrasted and examined how these various themes relate to each other. In the end, I dug in the deep analysis to find complexities in ideas. According to Lambert (2012), this process is "interrogating your data" to gain as much understanding as possible (p.170).

Trustworthiness

Trustworthiness is revolved around issues of credibility, confirmability, transferability, and dependability (Cohen et al., 2007). This section will address these issues and how I planned to check the validity, credibility, and accuracy of the data.

Researchers need to strengthen the data that they have collected. It should be accurate, thoughtful, and well balanced (Lambert, 2012). Researchers need to ascertain that their research findings are faithful to the participants' experiences (Ravitch & Carl, 2016). They can strengthen the validity of their study by including rich data in writing such as accurate and verbatim account in the transcriptions (Babione, 2014).

Accuracy

Audit trail. I developed an audit trail to reflect on the data collection process, so other researchers will know how the findings were achieved. Wolf (2003) stated that audit trail is also called the confirmability audit. The audit trail will include dates of the interview, observations, and field notes. Researchers use an audit trail to keep track of the interviews and the specific time and date for the observations (Brantlinger, Jiménez, Klingner, Pugach, & Richardson, 2005; Cope, 2014; Greene, 2014).

Validity and Credibility

Member check. Member checking is considered a validity measure to establish credibility. According to Lodico et al. (2010), it will ensure that researchers' own biases will not influence their findings. It is a respondent validation to assess intentionally and correct real errors and to give the participant a chance to put information on record **(**Cohen et al., 2007). I constructed a draft of the findings and sent to each member for their review. Each participant reviewed the interpretation of his/her own interview and observation data used in the findings to ensure the accuracy of my interpretation. Later, I set a brief follow-up over the phone to give each participant an opportunity to speak with me about the findings. The member check ensured that the data is accurate and assessed

if the information presented reflects the real situation to ensure trustworthiness of the data (Creswell, 2014; Birt, Scott, Cavers, Campbell & Walter, 2016; Cope, 2014).

Peer debriefing. I shared my findings with a colleague. This colleague has a BA in psychology, diploma in special education and master's in educational psychology. According to Greene, (2014), peer debriefing allows the researcher to think critically and acknowledge any feelings that might affect his judgment. Spall (1998) stated that the credibility of the data can be supported through peer debriefing and confirmed that the findings are honest and worthy. Collins, Onwuegbuzie, Johnson, and Frels (2013) mentioned that peer debriefing is an efficient way to make the research more transparent.

Research bias log. Research bias log is considered a validity measure to establish credibility. I sent my bias log to the chair of my research to ensure that my biases were controlled and not influencing the findings. Creswell (2014) stated that the research bias mentioned under the researcher's role should be articulated and clarified in writing. Roulston and Shelton (2015) stated that the treatment of biases would ensure to lessen the effect of validity threats.

Triangulation. I used data triangulation to ensure credibility and validity. Researchers use triangulation to find consistency among evidence from multiple resources (Brantlinger et al., 2005; Cohen et al., 2007; Greene, 2014). Data were collected from the interviews and the observations, and an in-depth comparison will be conducted between the data to ensure internal validity. Triangulation allows researchers to examine and compare data from different sources which provide high quality, in-depth

information, rich and authentic data (Ravitch & Carl, 2016; Casey & Murphy, 2009; Williamson, 2005).

Thick description. To ensure external validity and transferrability, a rich and thick description of the context, selection of participants, and setting will be shared (Akinlar, & Dogan, 2017). It allows readers to picture the setting in their own minds and contextualize the meaning of the research. Ravitch and Carl (2016) mentioned that thick description is an important aspect in increasing the complexity of the research. In-depth description pushes the researcher to write detailed note-taking to facilitate transferability (Creswell, 2014; Greene, 2014).

Ethical Procedures

According to Lambert (2012), researchers need to take into consideration ethical issues that arise from qualitative research. I had a duty to respect the rights, needs, and preferences of the participants. Creswell (2014) stated that the researcher needs to promote the integrity of research and take into consideration personal disclosure, authenticity, and credibility. While collecting data, the researcher should respect the site, avoid deceiving participants and respect potential power imbalances. A main ethical issue could arise while collecting data is data security. I took these ethical and confidential practices into consideration. Prior to the study, I made sure to gain permission to access the research site and participants according to the policy of the school. I also maintained a healthy relationship with the participants, making sure to be transparent and clear about my research. I provided participants with the opportunity to reflect and openly share

aspects of their practices and share with them a full detail about the purpose and the process of the study.

Ravitch and Carl (2016) mentioned that good researcher ethics practice requires that the researchers consider what they are taking from participants in addition to what they are giving them. I informed the participants about their rights to withdraw at any time from the research and provided them assurance that I will treat the data ethically regarding confidentiality. I did not conduct this research until I got the written approval from Walden University's IRB and school principals.

Prior to the data collection, I sent an email to all six school principals providing them with full details about the purpose and the process of the study. I sent an invitation letter asking them to participate in the research. After receiving the first two participants. I sent them the informed consent using their individual or their institutions' e-mails. Ravitch and Carl (2016) mentioned that the informed consent is an important concept and process in qualitative research because transparency and honesty are central to ethical and valid research. The informed consent will be meaningful dialogue with the teachers about the research and their participation. It included a description of the study, which discusses the purpose, methods, and timeline. I included a statement mentioning that their participation is voluntary and they can withdraw at any time for any reason, or have the right not to answer any questions during the interview.

Subject Confidentiality in Data Collection

Prior to the study, I gave a pseudonym for each participant to track all the data while respecting their confidentiality throughout the study. According to Ravitch and

Carl (2016), confidentiality is related to the participants' privacy, and it requires a decision about what information will be shared. Confidentiality serves to protect the real case and do not put them in an undesirable position (Yin, 2016). I provided participants the option to send me the signed documents through e-mails or hard copies.

I kept the electronic data and paper documents private for the whole process of the study. Every participant has a file inside a filing cabinet in my home that is locked at all time. The file has the participant's pseudonym that includes the signed informed consent, and a printed copy of the interview transcription Microsoft Word document. I recorded the interview using a mobile device and was saved in the secure locked file on my computer. Every participant has a folder on my computer with the same pseudonym. These individuals' folders include any documents that are delivered through an e-mail. These files are secured by a password and no one will have access to these files and will be destroyed after five years of the completion of the study.

Summary

This section discussed the methodology of the study, the research design, and rationale. The purpose of the study was to increase the understanding of how Lebanese elementary teachers were supporting students with disabilities to be aware and to control their own learning, and what their perceived barriers to providing effective metacognition skills were. I conducted open-ended, semi-structure interviews and classroom observation to ensure the validity of data. I took into consideration ethical issues and biases to make sure confidentiality of participants and data are secured. Chapter 4 will include data

analysis, and chapter 5 will include a summary of the findings and recommendations for educational implications.

Chapter 4: Findings

The purpose of this study was to increase the understanding of how Lebanese elementary teachers were supporting students with learning disabilities to use metacognitive strategies to control their own learning and what were the teachers' perceived barriers to providing effective metacognition skills were. In this exploratory case study, the aim was to understand the teachers' perceptions through interviews using open-ended questions and focused observations. In the previous chapters, I described the background of the study and the conceptual framework founded on metacognition theory. I also provided a literature review to explore the relationship between metacognitive skills and students with LD and metacognitive skills and learning/teaching. In addition, in the literature review, I explored the best practices that teachers can implement in the classroom, and the various barriers that can hinder teachers' explicit teaching of metacognitive skills for students with LD. In this chapter I will include a review of the setting of the study by elaborating on the participants' demographics and characteristics such as stating the number of participants, location, frequency and duration of data collected. I will also address the process of data analysis, the results for each RQ, and evidence of trustworthiness.

In this chapter, the answers to the following research questions will be provided:

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognitive skills for students with LD?

Setting

There were no personal nor organizational conditions that influenced participants in their answers at the time of the study that may have affected interpretation of the study results. I conducted semi structured interviews using open-ended questions and used a focused observation tool. Each interview took between 20-30 minutes and each observation took 45 minutes. The participants were from 12 different schools located in six different districts in Lebanon. Participants were regular or special education teachers instructing elementary students with LD or typically developing students. All the teachers had either a bachelor's degree in education or a diploma in special education. The participants' ages varied from 24 to 51 and all participants were female. The participants' demographic characteristics are described in Table 1.

Table 1

Participants Demographic Information

Participants name	Age	Years of experience	Degree	Any explicit instruction of metacognitive strategies
Hala	24	3	Bachelor's degree	No
Rana	36	2	Bachelor's degree	No
Noha	27	5	Bachelor degree	No
Mirna	45	8	Bachelor's degree	No
Dina	27	5	Bachelor's degree	No
Cheryl	29	4	Bachelor's degree	No
Mona	32	10	Bachelor's degree	No
Rola	25	4	Bachelor's degree	No
Salma	39	21	Teaching Diploma in special ed	No
Elsa	34	13	Bachelor's degree	No
Amal	51	16	Bachelor's degree	No
Karen	30	6	Bachelor's degree	No

Data Collection

After the Walden University IRB approval (05-30-18-0385370), I started my data collection. Schools sent me e-mails of their elementary teachers who were relevant to my study. In return, I sent the informed consent and waited until two teachers expressed their willingness to participate in my study and signed the hard copy of the informed consent. There were 12 teachers from six different schools; two teachers from each school. The schools were located in Northern and Southern Lebanon, in Bekaa, Mount Lebanon, and two in Beirut.

I visited each location once and conducted two separate interviews for two different teachers from each school. In addition, at a later stage I did one focused observation of each teacher. I used the interview protocol to make sure I was following the right process and asking the right follow-up questions. In addition, I used the observation protocol and added my field notes to make sure I was focusing on the main topic.

I reminded the participants that their participation was voluntary and confidential. In addition, I mentioned that the interviews were recorded, and they were free to withdraw from the study at any time. The interviews were audio-recorded using an audio device and personally transcribed on a Microsoft Word document on the same day or within 48 hours. The Microsoft Word document was printed for analysis purposes. There was only one variation in my data collection from the plan mentioned in Chapter 3. I conducted the interviews prior to the observation because at the time I had the IRB

approval, the school-year had ended and only the teachers were present at their schools. I had to wait until schools reopened their doors in September to do my observations.

When schools reopened I conducted my observation in the classrooms. I went one time to each location and conducted the observation for each teacher on a specific time that the school allocated to me. On my observation sheets I mentioned the time, the date, the teaching subject, the number of students, and the physical map of the environment. At the same time, I wrote my field notes and recorded exact quotes of teachers that could support my analysis later. The teacher observation and the field notes were coded based on the teachers' metacognitive instructional strategies to students.

Data Analysis

I started data analysis as soon as I finished data collection. I gave all my participants pseudonyms and printed the interview transcripts and the observation sheets. At the beginning, I started reading, questioning, and engaging with my data. I used the below process to identify my codes:

- I highlighted, circled, and underlined any keywords that triggered my attention and precipitated notes in the margins, words such as *objectives, group work, checklist, KWL, rubrics, graphic organizers.*
- I reviewed my sentences to identify any patterns that were related to my priori-codes that I previously established to help me organize my emergent themes. My priori-codes comprised metacognitive knowledge that included declarative, procedural, and conditional knowledge, and metacognitive control processes that included planning, monitoring and evaluation.

- I included all the participants' answers related to each of these priori-codes, for example, *graphic organizers, peer-tutoring, verbalization, self-questioning, kinesthetic, hands on activities,* and *checklists.* From these priori-codes emerged various codes such as *manipulatives, group work, teachers' instruction, metacognitive strategies, checklist and rubrics,* and *modalities of teaching*.
- In addition, from the interview data emerged additional codes that were related to RQ3 such as *cultural barriers, parents' barriers, school barriers, teachers' self-perception,* and *trial and error.*

From these codes I tried to put them under the same category such as barriers, teachers' professional development, teachers' instruction, and metacognitive practices. After I grouped my codes under the same category, 12 themes emerged. I was reflecting systematically using my coding memos. The thematic coding strategy used involved segmenting and labeling. I used an inductive approach to narrow down my data. I used my codes to develop categories and patterns. I presented my findings under themes and displayed every theme under the research question. There were no discrepant cases to report. The codes and themes process continued until saturation, and data that did not fit under any theme was considered as "Other' and was also included in the findings.

Results

I used an exploratory qualitative study to increase the understanding of how Lebanese elementary teachers were supporting students with disabilities to use metacognitive strategies to control their own learning, and what the teachers' perceived

barriers for providing effective metacognition skills were. The problem is that Lebanese elementary teachers are still using traditional methods of teaching students with LD. The research design that I used helped me to better understand the participants' perception of metacognitive skills for students with LD and provided me with rich data that addressed the research questions. During the interview, I was seeking to understand the teachers' perceptions on how to help students with LD to plan, monitor, and evaluate their learning and what the barriers for providing metacognitive skills were. During the observation, I was seeking to see how the teachers were providing explicit instruction and supporting their students with metacognitive skills. There were discrepancies between my data collection from the interviews and the observations. The teachers were able to share their understanding about the different metacognitive skills. However, during my observations, most teachers were not instructing their students to develop metacognitive skills.

The findings revealed 12 themes and under each theme emerged several subthemes:

- Theme 1: Differentiated instruction. This theme contained data from the interviews. It provided me with rich data of the teachers' perceptions on metacognitive skills. Teachers believed that by using differentiated instruction, students are able to acquire metacognitive skills.
- Theme 2: Inquiry curriculum. This theme addressed the importance of the inquiry approach in providing metacognitive skills for students. Teachers shared their perceptions regarding the inquiry curriculum and how through

this approach, they can support students with LD to develop metacognitive skills.

- Theme 3: Students' interaction. This theme shed light on the importance of students' interaction for developing metacognitive skills. Teachers perceived that through students' interaction, they can develop those skills.
- Theme 4: Evidence-based practices. Teachers' perceived that by implementing evidence-based practices, students with LD can acquire metacognitive skills. Teachers emphasized the importance of graphic organizers, checklists, and rubrics.
- Theme 5: Traditional instruction. This theme addressed the teachers' instruction in the classroom. During my observation, I was able to notice the real situation in the classrooms and the instructional practices provided to students.
- Theme 6: Traditional curriculum. This theme included a description of the type of curriculum that the teachers were using while I was observing.
- Theme 7: Individual work and passive learning. This theme addressed the type of work that the teachers were assigning to students during the session. During my observation, most of the time I noticed that students were working individually and were recipients and passive learners.
- Theme 8: Characteristics of students with learning disabilities. This theme covered the students' characteristics as a barrier for the development of metacognitive skills. Teachers perceived that students with LD have different

abilities than the typically developing students, which can affect their learning of those skills.

- Theme 9: Lack of Time to provide explicit instruction of metacognitive skills. Teachers believed that lack of time during the day can impede their explicit teaching of metacognitive skills. Teachers perceived that the load of materials to instruct students interrupted their explicit teaching of those skills.
- Theme 10: Parents, school, and cultural impact. This theme tackled the issue of the parents, school and cultural impact on teachers' instruction. Teachers perceived that sometimes many external factors affect their instruction.
- Theme 11: Teachers' self-perception. This theme shed light on the teachers' self-perception. Teachers believed that the way teachers perceived themselves can affect the way they teach. Teachers cannot instruct appropriate metacognitive skills if they do not apply it in their teaching.
- Theme 12: Lack of formal instruction. This theme addressed another barrier, the lack of formal instruction. Most teachers perceived that lack of formal training could be a barrier for not providing metacognitive skills for students with LD.

Every theme was connected to each research question and is explained in the following section. A summary of how these findings are aligned with the literature review is included in Chapter 5.

Research Question 1

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

The below themes contain the interview data. This data answered my first research question. It was intended to give me a better understanding of the teachers' perception on how they are supporting students with LD to use metacognitive strategies.

Theme 1: Differentiated instruction. Teachers were focusing on their instruction to elementary students in order to enhance metacognitive skills. Participants emphasized their way of teaching to help students be aware of their own learning. They used different teaching methodologies to make sure students with LD are aware of their own learning. Various types of instruction were noted in the 12 interviews.

Many subthemes emerged from the data such as visible objectives, modeling, open-ended questions, different modalities of teaching such as kinesthetic and tactile approach, problem-solving approach. Teachers shared that by implementing differentiated instruction, learners could acquire many metacognitive skills and could be aware of their own learning.

Visible objective. Of the 12 participants, 50% (6/12) mentioned that displaying visible objectives in the classroom and discussing it with the students helps them be more aware of what they are going to learn.

Salma stated, "I can start by writing the objectives on the board, so they are aware of what is coming as if I am taking their approval or I am including them in the learning process." Mirna is first grade teacher and believed that even at an early age the teacher

should write the objective and help students to be aware of their learning process. She said, “I always write the objective, even at this age, I write the objective on the board. Sometimes they can’t read it but with time, they will know.”

Rana believed that for every session, the teacher should have a clear and defined objective with guided questions to make sure students are aware of the lesson. Her response was:

> It is so important for the teacher to, for example for me, when I enter the class is to have an exact objective for every session when I meet my student. The objective should be very clear. It should be written on the board and when I finish my session also to try to remind them what we have taken and ask them some questions, so they can be aware what we have taken during the session. When we write it on the board, it is always clear, they see it and we go back to it with every activity we do.

Cheryl explained that the teacher should clarify the objectives of the lesson and revisit them often until she makes sure that students are aware and acquired the concept:

> This is one way of teaching them how to be more aware of their learning. By clarifying those objectives for them. So, they know what they should be acquiring by the end of the session. Its effect is more evident on the second or third day when we revisit the lesson and students start confessing: Ms. you know I knew what nouns are, but I couldn’t use them, please can you re-explain.

Modeling. Mona responded,

> Modeling, for me it is modeling. I think out loud, I highlighted when I am thinking out loud. So, they are aware of what am I saying and why I am saying it, and I do tell them that this is a skill you can do as well when you are thinking yourselves.

Open-ended question. Rana stated,

> We ask them questions: what were we talking about? What was our main purpose of this lesson? What have we taken? I ask them questions, so I take from them so that I know that they have understood, and I can continue.

Elsa said, "I ask them what did you learn, how did you learn it, how did you reach this conclusion; is it correct? We teach them how to self-assess themselves or self-reflect even." Karen responded,

> So, I ask what do you think we have to do in order to know? They set a plan, then in the middle of the plan, they say no I don't think this is right. I ask for different type of reflections, so we have written reflection, video reflection.

Different modalities of teaching. Teachers perceived that using manipulatives and sensory material could enhance metacognitive skills. Mirna responded,

> They have to touch it, maybe they have to smell it, eat it. Manipulatives are very important, kinesthetic activities also . . . with their body, they have to feel the numbers before I teach them any number . . . they have to feel it.

Problem-solving learning. Noha explained that problem solving approach is an efficient way of learning: "Problem solving (PBLs) because they like to see the transition,

and to move from not knowing very much and then they build up from the knowledge of other people."

Theme 2: Inquiry curriculum. Four participants shared that using an inquiry curriculum can help and encourage the use of metacognitive strategies in the classroom. International Baccalaureate Primary Years Programme (PYP) is one of these that uses essential questions which part of an inquiry approach is called Understanding by Design (UBD).

International Baccalaureate Primary Years Programme. Thirty-three percent of participants (4/12) used in their schools the PYP. They shared that PYP is a curriculum that includes multi-disciplinary skills. Karen stated, "The first one, we have the thinking skills, analyzing, asking questions, planning, and the last sage is metacognitive skills which is actually we are hoping to achieve it, but unfortunately sometimes it is difficult to achieve it." The participant identified the importance of the inquiry approach but shared few challenges that are stopping her from successfully implementing the inquiry approach. She shared that she lacks the strategies on how to teach self-reflection. Karen's responded, "How can I teach self-reflection skill? What are the strategies that help me to implement it?"

The four participants also shared that PYP is based on inquiry approach; this curriculum helps students be aware of their own learning. Karen believed that inquiry approach is a way that helps learners to figure out their learning:

> It is one of the approaches that helps students figure out their own way of learning. So, they start based on their prior knowledge, then they move to the

> intentions. In the intention phase they write their own questions and starting from this step they do identify what they want to learn about. So, in this stage, I can say that they are involved in their own learning. So, they set their own questions and they carry on the inquiry.

Essential questions. Dina also uses an inquiry approach at her school where they start their day with the essential questions and make students aware and self-reflective on their own learning. She said,

> With every essential question we introduce a video, it is a very Inquiry base video because it goes with the essential question directly ad it shows children how they can reflect with their own background experiences about the video they are watching, it goes under the big question and then sometimes we hold morning meetings about the essential question, they reflect about their own experiences.

Theme 3: Students' interaction. Several subthemes emerged from the data to determine theme 3: Group work and active learning, exchange ideas, and problem solving. My interview data provided me the teachers' perception about the best way to teach metacognitive skills.

Group work and active learning. Group work was also a main point that participants answered when I asked about their perceptions of metacognitive skills for students with LD. They believed that students should interact with each other to become more aware of their learning. Students can learn from each other and can reflect on their own learning. While students are interacting with each other, they are verbalizing, brainstorming and exchanging ideas. Rana stated,

> I put them in pairs, I put a weak student with a strong student. The strong student will help the weak student using his own way. So, they teach each other. Sometimes, it is important and they like this style. They know how to take from each other. So, pair work.

Mona's response was that

> a lot of times when the kids get in the habit of these conversation skills, they start pointing it out to each other. This is at a later stage. What happens is I do a lot of classroom discussions, and I believe a lot of the learning happens when students talk to each other's, and the teacher being as a facilitator."

Noha explained that group work is an efficient way of learning. She stated, "Mainly group work, it is an excellent way of learning . . . they like to see the transition, and to move from not knowing very much and then they build up from the knowledge of other people." However, Karen stated, "I have to confess that with students below level, I am not a facilitator, I am reteaching, I am moving from inquiry approach to more structure and traditional approach."

Exchange ideas. Noha emphasized the importance of exchanging ideas between students so they can learn from each other and be aware of the learning process:

> They can verbalize, they can exchange ideas, brainstorm, maybe draw a mind map front of them. These are excellent ways, they can learn from each other, and they can see what already they know and what they need to add to their knowledge.

Theme 4: Evidence-based practices. Another theme emerged from the interview questions related to metacognitive control process is the implementation of evidence-based practices during instruction. Participants emphasized the importance to use evidence-based practices to help students to be more mindful of their own learning. Many subthemes emerged from the data such as *graphic organizer*, *checklist, rubrics, mnemonic devices, reading aloud, self-reflection, students' conference, problem-solving steps, self-correction, self-reflecting,* and *mental images.* According to teachers, these evidence-based practices could help learners to monitor and evaluate their own learning.

Graphic organizers. Graphic organizers such as KWL, Think-Puzzle-Explore, Road Map, Thinking Hats, Traffic lights, Frayer model, Pause and reflect chart, Think-Pair and Share and Exit card are important evidence-based practices to enhance metacognitive skills for learners. Karen's response was:

> We have those visible thinking routines inside our classrooms […] I still remember I had a student in my classroom, he was struggling at the investigation phase . . . lets together put a plan, and you have to follow this plan. My role is to facilitate going through this plan. So, step one, what do you want to work on now? We just write it. I ask him, I want to see your thinking . . . I want your thinking to be visible. Thinking out loud. So please let's use this graphic organizer, these are visible thinking routine. Basically, I use with them those routines, especially if they are diagnosed as students with, we say students with special needs. O.K so I use with them for example: Connect, Extend, Challenges; connect this unit to your previous learning, great, after that, lets extended . . . I am

> struggling at the extending phase, they ask for help because they are used to do this from KGs up to grade 5 phase."

Problem solving steps. Maria shared that sometimes she put the problem-solving steps in front of them on their desks, and they crossed it out whenever they finish. This technique helps them monitor and control their learning.

> We put the steps, we post the steps in front of them on their desks, on their copy books and they follow one by one even, even for younger one, we teach them, I finish number one, I can highlight it, I can cross it.

Mental image. Noha responded,

> For example, imagine that there is a tree and then there is this, so they can build a picture in their head, mental images, this is really helpful . . . I teach students with learning disabilities, this is really helpful for them when they build an image because some of them are really, they are like visual people, this is how they study, they are visual learners.

According to Spruce and Bol (2015), using imagery is a good strategy to enhance students' learning but it does not develop students' self-monitoring skill.

Mnemonic devices. Two out of 12 participants use mnemonic devices. Noha and Dina added that mnemonics devices are also an important tool for learners. Noha stated that *"For example, to know the order of operations My Dear Aunt Sally: multiplication, division, addition, and subtraction."* Dina stated,

> This is where we go also for strategies like mnemonics, for example we teach them, let say RIDE (it is read, identify key words, determine the strategy you are

> using, and then evaluate), so when you go over these steps, students are in control through every step about their own learning, and they stop, they go back, they see if things make sense, they eliminate irrelevant information. This is very important, especially in word problem and comprehension.

Students' conference. Mona added that students' conference is when she sits on one-to-one conference basis could help them think about their own thinking process.

> Where I sit, and we talk about the writing, the reading, the problem solving, the thinking that is happening in the particular task that they have to complete. I believe this is the golden time when all of this happens, and they are made aware of this more and more."

Participants guide students to use checklists and rubrics to self-evaluate and to self-monitor their learning.

Rubrics. Teachers perceived that by providing a rubric, the student will be able to monitor their learning. Elsa said,

> By asking questions, by encouraging them to ask their own questions for example, self-questioning. We have assessment, whenever, we have writing, assignment, we have rubrics that they have to follow it while doing the assignment, it is self-assessing themselves at the end of the day, and they have to follow it.

Self-reflection. In addition, self-reflection can be an effective way to self-evaluate. Salma stated, "By writing reflections, they reflect on their work, they write a reflection. Through checklist, so the checklist for example a rubric from 1 till 3, did I got it right, almost got it, or no." She added,

> We use a lot of tools, checklist, rubrics and in the rubrics and checklist, there is always some specific criteria that targets their own thinking. So, they have to elaborate on, why they think they scored this, or why, or how they can do better . . . they self-reflect.

Checklist. Amal responded,

> Rubrics, checklist, journal, reflection, they can use the journal to reflect. They do reflection on a daily basis, on their journal copy book they reflect. . . . We pose questions that [are] related to the topic or the issue and then we, or we ask them for example to, if they have any difficulty, to tell us what is the difficulty, what is the main purpose? how could you use it in another way? What if questions. these are the type of questions.

Cheryl added,

> We usually we give them also rubrics and checklist we refer to KWL; let's see what I' ve learned . . . The thing is when they are evaluating for most of my students at least… they either over estimate or they underestimate their learning. It is not like they know, really know where they've reached or what they have acquired in most cases . . . We do use *Thinking Hats,* I think I made a mistake here, I think this is wrong, we do use also checklist…We give them something like a hat just to feel comfortable to say they didn't do well. Ok this is your thinking hat, this is, it is a hat, it is an actual hat, they put it and they say; I think I did a mistake, it is like their safe zone, so when they are wearing the hat, they can

say whatever they think. We used before *Traffic Lights* as well red, orange and green, it is like monitoring more than evaluating".

Fifty-eight per cent (7/12) of participants cited using checklist, and 66% (8/12) of participants used rubrics for self-evaluation. One hundred percent (12/12) of participants used graphic organizers to plan, monitor and evaluate their learning. Fifty percent (6/12) of participants cited self-reflection, and 16% (2/12) cited self-evaluation. Sixteen percent (2/12) of participants cited using mnemonics devices to monitor their learning.

Research Question 2

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

The rich data collected from my observations provided a clear understanding on how Lebanese elementary teachers were supporting students with LD to use metacognitive strategies to monitor and control their learning.

Theme 5: Traditional instruction. During my observation, two out of 12 teachers displayed the objective of the lesson on the board that is related to the lesson. Elham wrote on the board, "Reviewing the type of sentences though an activity, view a picture to write four types of sentences." Noha wrote on the board, "Objective: Learn how to divide 2 digits' numbers." Salma had no objectives on the board; she just mentioned that they were learning about predicate and subject. She read sentence #1: My grandparents <u>live on an island</u>; she underlined *live on an island* and asked, "What is live on an island? Predicate or subject?" Students answered, "Predicate." She asked again, "Simple or complete?" And students answered. One student said "Ms., I am not

understanding how we need to do it," and the teacher replied, "It is okay, we are going to practice and do many more sentences."

During my observation, one out of 12 used modeling while teaching. It was Hala in Grade 1 who modeled how to write the letter *t*. The teacher was speaking out loud when writing the letter, but students just imitated her and wrote the letter without thinking or saying it out loud.

During my observations, almost all teachers used guided questions to clarify the students' knowledge about the task. Mona asked students how to go through an experiment: "So what do I need? What else do I need? Then what do I do? What do I do to dissolve sugar and water?" During a math session Rana asked her students:

Rana: How many bugs Maya have?

Students: Three.

Rana: How many bugs came?

Students: Four.

Rana: 3 + 4 = 7.

Also, Rasha asked her students, "Why do we have to add here? It is correct, but can you explain why you are going to add?"

Rola and Mirna were the only teachers who encouraged their students to use manipulatives to solve the math equation. Rana during her math session did not use any manipulative nor implemented group work. The task was paper pencil and when she was circulating between the rows, she told the student, "This is wrong, fix it." The feedback was not constructive and did not teach the students any strategy to self-reflect or self-

correct. Students should be able to talk about their learning and it is their right to provide them with feedback. Strategic learners seek feedback to draw conclusions about their weaknesses and strengths and how to improve their learning (Dignath, Buettner & Langfeldt, 2008).

Teacher-centered approach. During my observation, 70% of classes were using a teacher-centered model in teaching. The physical map in the classrooms were set in a traditional way where students were sitting in rows. The teacher was facing students and standing in the middle of the class as if she is the only source of information. In this context teachers were the authority figure. Rana asked her students to stop drinking. "Stop drinking, this is the last time." When teachers provided feedback, they did not give the students a chance to self-reflect.

Student: Miss 5 x 4= how many?

Elsa: Four groups of five.

Student: *Five-10-15-17* . . .

Elsa: No, group of 5.

Student: . . . 18-19-20.

Elsa: Yes*, 20.*

Noha had three students on the board solving one-digit number division, and the rest were working on their copybook. One of the students while working on his copybook, called the teacher to help him. The teacher said, "Start to imitate the example so you remember how to do it. Please follow the example. Practice; I know it is hard, but we have to practice." The teacher only evaluated the work instead of giving the student a

chance to self-evaluate or to self-reflect on the work. Noha added, “You did it correct, excellent, continue.”

Theme 6: Traditional curriculum. A new theme emerged from my observation data: traditional curriculum. During most of my observations for teachers’ instruction, I noticed that they were implementing the traditional curriculum without developing any metacognitive skills. Eight out of 12 of participants were using the curriculum in a very traditional way. Students were following the book and writing on their copybooks.

Hala: Students, turn the page; I want you to write the letter *t.* I want a very nice handwriting. How many times I should write the letter *t*?

Students: Three times.

Hala: Yes, 3 times.

When I observed these classes, I did not see any explicit instruction to one metacognitive skill. Students were not encouraged to plan, monitor, or evaluate their learning. In addition, teachers did not encourage their students to use the learning log, so they could be aware of their own learning.

Theme 7: Individual work and passive learning. My observation data revealed a new theme: individual work and passive learning. During my observation, three out of 12 participants used group work. Students were engaged and happy to work together. However, it was a little bit chaotic since students were competing within the same group and not discussing the process of thinking. Each group picked a paper from the box, added a punctuation mark to the sentence, and decide where to put the sentence, under which category: is it a statement, exclamatory, command, or interrogation. Teachers did

not provide students any checklist, rubrics or any documents that would help them monitor and evaluate their learning.

During my observations, students were working individually. Every student was following through the copybook and trying to finish the task. Rana instructed, “Open your book to page 16 and start with exercise #1.” Salma said, “Students, follow with your copybook and start with the first sentence.” Rana was teaching students to add one-digit number; there were no manipulatives, no pair work, no group work. Every student was working individually and following a paper/pencil task.

In Rana’s teaching session, she exclaimed, “Students put your books front of you and open on page 15. Write the addition equation inside the box. I want to see it. Where is the addition equation?” The student did not answer? The teacher moved to another student and asked him, “What is this? Is this for English or math?” The student was lost with the material. The teacher picked the math copybook and gave it to him. She said, “Here, write on it.”

During my observations, I did not observe any graphic organizer nor checklist, self-reflection paper, etc. Teachers did not share with the students any checklist or graphic organizer to help them evaluate or monitor their learning. However, I saw in one class a list of options to use when to work, written on a very small paper and displayed on the wall. The title was *Strategies* and under it was written: use graphic organizer, Frayer model, think-pair-share, Mr. Box, brainstorm. However, I did not observe any explicit teaching for these strategies.

Four participants helped their students recognize what they know and what they want to know. One participant implemented *think aloud strategy,* so students could follow her thinking process. Not a single participant modeled the vocabulary needed to think and talk about their own thinking. None of the participants recommended the use of journal so students could be aware of their own learning. I did not observe any participants encouraged students to plan, monitor and evaluate their learning.

Research Question 3

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognitive skills for students with LD?

The teachers' perceptions about the different barriers that affect their instruction of metacognitive skills for students with LD varied between the characteristics of students with learning disabilities, school barriers, cultural barriers, parents' barriers, time, and teachers' self-perceptions. My data collected for the above-mentioned questions was only from the teachers' interviews.

Theme 8: Characteristics of students with learning disabilities. The above theme was discussed and shared by teachers. I was trying to understand the barriers that teachers perceived for not being able to provide metacognitive skills for students with LD.

Students with LD have lower abilities than typically developing students. Fifty-eight percent (7/12) of participants shared that the different abilities of students with LD can affect their teaching of metacognitive skills. Students with LD are not able to plan, monitor, and evaluate their learning. Cheryl responded, "One of them is the learning

difficulty of the student, one of them but basically, I think this is the only thing, the characteristics of the children." Rana's response was, "We have very important barrier that is affecting our teaching methods. Having students with learning disabilities in our classroom."

Dina added,

> Actually, students with learning difficulties sometimes are not aware of their own learning strategies and the way they learn. We have to teach them about the best ways to think and to reflect. Sometimes they are not very authentic with the way they evaluate the learning process.

Amal's response was,

> When it comes to written task in language, some students face difficulty in using their journal copybooks since they have difficulty in writing tasks. . . . The behavior and the language are main barriers. Some students have writing difficulty or reading difficulty, language mainly. In math, it is a little bit less. Language is the main barrier. Even if some students want to speak orally, to give us feedback orally, also they cannot express in the English language well.

Theme 9: Lack of time. Twenty-five percent (3/12) of participants cited that lack of time was also a barrier that can affect the teacher's instruction of metacognitive skills. Cheryl's responded, "It is time consuming when I have to use two different strategies with 2 different students because of their different difficulties." Rola added, "Time, Time, it is time consuming. It is not something you can reach easily, and no one sees it…you know, it is a long-term process and it is time consuming." And Mirna echoed,

> The time is very important. At school we are limited in 45 or 55 minutes, sometimes, it is not enough. To me this is the one of the most important barrier if we need to focus more on metacognitive skill.

Theme 10: Parents, school, and cultural impact. The cultural background and the educational background of parents, the relationship between parents and children at home, the pressure that it can be put on teachers from the schools' culture, rigidity of the curriculum, the inconsistency of the implementation of metacognitive skills across the subject and grades, and the teachers' self-perception and background are the main subthemes that were collected from the data.

Cultural and educational background of parents. Twenty-five percent (3/12) of participant cited that parents represent the main barrier and one-third of participants cited that cultural background can be a barrier toward metacognitive skills instruction. As per Karen responded, "The barriers, I believe that, we face a problem with parents, this is number one." Salma added:

> Well, parents, because sometimes, here in this Lebanese you know society, they want them to read, write, go home, and that's it. It is a traditional way . . . I got several phone calls telling me what this is, what does it mean to reflect on my day . . . parents are not aware of the new approach . . . they want the teacher to be the lecturer."

Mona's response was, "There is a lot of barriers, the major one is the cultural background. The cultural background of the parents, the educational levels of the parents because I believe a lot of it comes from home rather than school."

Parent/child relationship. Mona believed that the relationship between parents and the child is affecting the instruction of metacognitive skills. She said,

> There are many factors in the parent/child relationship I feel that is a barrier too. Their own metacognition, there is a lot of parents' expectations that are set at home, the communication between the parents and the child, the way they phrase their questions, the way they state their expectations for their children at home, I believe is a very big barrier, it either enhances expansiously or it limits devastatingly.

Inconsistency and school culture. Dana indicated that the inconsistency across subjects and grades can affect negatively the instruction of metacognitive skills:

> You've got the classroom community also, some teachers encourage metacognition, and you've got other teachers they don't encourage, or they are not aware of encouraging it in the classroom, so we will have an inconsistency in the environment for the children. So, this consistency, affects as well, like any other skill they need to acquire, consistency is a key. The lack of consistency across disciplines, across grade level, across teachers, across programs. Basically, the culture of the school has to gear towards, or to cater to this awareness of metacognition.

Theme 11: Teachers' Self-Perception. The teachers' self-perception as a learner might negatively impact the teachers' instruction of metacognitive skills. This theme tackles how teachers think of themselves. According to Çankaya (2018), teachers' self-perception can affect their performance and actions. In addition, it can determine what

teachers do with their knowledge and skills. The interview data revealed that if the teacher perceived herself as a good teacher without having the skill, it can hinder her to learn a new method of teaching.

One teacher expressed that sometimes it was about the teachers' self-awareness. They are not aware of their own strengths and weaknesses. Teachers might not be attentive to their way of teaching or understand the metacognitive skill by itself. As per Mona responded:

> The teacher's awareness of her own weaknesses and strengths, her perception of herself as a thinker. It is not about the skill; it is about her perceiving herself as a learner holistically rather than specifically, this is a big barrier.

Theme 12: Lack of formal instruction. Teachers shared their perceptions of their professional training in regard to metacognitive skills. They mentioned that no formal instruction at university level was provided for them. On the contrary, it was trial and error, personal effort, social media, workshops and support at school level.

Trial and error. Noha exclaimed, "It is by trial and error before training," while Cheryl's response was "We've got here at our department. We did for two consecutive year schools' workshops but outside I haven't no I haven't received any training." Mona added: "No official training, it is just me, my own professional development."

Personal effort. Cheryl believed that it needs personal effort to become a better teacher.

> My thrive to become a better teacher, a better facilitator, I read, I learn, I research, I try. I inquire into my own practices, I self-reflect a lot, I think a lot about my own habits in the classroom, outside the classroom, so it is very much self-taught.

Mirna added, "Definitely not my degree. We had a teacher here who I go back to her in each and every step."

Social media. Salma's response was that,

> I wasn't really trained, it was mainly a little bit of you know, I am a mother, so I started with this and then I read a lot, I watch God bless social media. In some way, I mean, I have lots of mentors around me.

Workshop at school. Amal stated,

> "We always attend workshops, either at school or outside, and we share experiences with each other. Also, we visit other classes and give feedback, and get feedback. Also, we are always exposed to reading, and write reflections about the reading and feedback."

Evidence of Trustworthiness

Several procedures and strategies were implemented to ensure validity, credibility, and accuracy of the data. It included verbatim transcription of the data, an audit trail, member check, peer debriefing, and bias log. To ensure external validity and transferrability, an in-depth and exhaustive description of the context, selection of participants, and setting was shared.

I developed an audit trail to reflect on the data collection processes. I included the dates of the interviews, the observations, and field notes to make sure to keep track of the

development of the whole process. Another way to ensure validity and credibility is member checking. It ensured that my findings were not influenced by my biases. I constructed a draft of the findings of each participant and shared it with them. Every participant reviewed the interpretation of her own interview and observation data used in the findings. At a later stage, I conducted a brief follow-up over the phone to give each participant an opportunity to speak with me about the findings. This strategy ensured that my findings were accurate and reflected the participants' perceptions.

To strengthen the credibility of my findings, I shared my findings with a colleague. She has BA in psychology, diploma in special education and master's in educational psychology. She confirmed that my findings were honest and trustworthy. My last tool to establish credibility was my bias log. I sent my bias log to my chair to ensure that all my biases were controlled and not influencing the findings. I also used triangulation between data to ensure credibility and validity. According to Yin (2016), data from different sources strengthen the findings of the study. The data from the teachers' observation and the teachers' interviews helped me construct validity of my exploratory case study.

Summary

The themes and categories emerged from the data were related to teachers' perceptions of metacognitive skills for students with LD. The categories were related to the teachers' instruction, to the various practices and strategies of metacognitive skills, the various barriers to integrate metacognitive skills in their teaching, and the teachers' professional development. The teachers' perceptions about their instructions were based

mainly on the importance of setting clear objectives and of implementing inquiry approach instead of a traditional one.

Another theme was related to teachers' perceptions about the metacognitive practices; the findings were linked to the use of graphic organizers, checklist, and rubrics. The third theme was related to the barriers of implementing metacognitive skills in the classroom and teachers shared that cultural, parental, time, language were the main barriers. The last theme was related to the teachers' professional development. The findings revealed that no major training was provided for teachers other than internal school workshops. However, the observation data revealed that the teaching instruction is still a teacher-centered approach instead of student-centered approach.

I will discuss in the following chapter my interpretations of the findings, limitations of the study, and my recommendations. This is in addition to the implications of this study on the field of special education in Lebanon and the social impact that it could have on the community.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to increase the understanding of how Lebanese elementary teachers were supporting students with learning disabilities to use metacognitive strategies to control their own learning, and what their perceived barriers to providing effective metacognition skills were. In this exploratory case study, I aimed to understand the teachers' perceptions through interviews using open-ended questions and focused observations. This exploratory case study was conducted because the teachers in Lebanon are still using a traditional way when instructing students with LD.

The findings emphasized that elementary teachers in Lebanese schools have heard of metacognitive skills, read about them, or had some training in this area, but there were gaps in practice. They mentioned some techniques or resources to help students to be aware or to monitor their learning but, on the ground, there were gaps in their instruction. These gaps might be related to various barriers that the research uncovered, such as the students' different abilities in class, time consumption, and inconsistency across the grade levels and subject areas. In addition, they focused on cultural barriers that can affect the parents' interaction with their children.

Based on the findings of this study, I will provide a series of recommendations to school leaders and to universities that can positively influence the academic achievement of students with LD. In this chapter, I include an interpretation of the findings, limitations, recommendations for teachers and school leaders, implications for social change, and a personal take home message.

Interpretation of the Findings

The overall findings of the interview questions revealed that teachers used broad knowledge when sharing their perceptions about metacognitive skills for students with LD. However, the findings from the observations were not aligned with the interview findings, which revealed gaps in practice. Teachers may value the theory of metacognition but not view it practical to implement in the classroom. In addition, teachers' belief and knowledge about metacognitive skills might affect their instructional practices. According to Spruce and Bol (2015), the teachers' belief impacts their readiness to adopt innovative educational tools as well as instructional practices. Teachers start their careers with their personal experiences of teaching and learning; they use their own beliefs, prior knowledge, and observations to make decisions about their classroom instructions (Deaton, Deaton, & Koballa, 2014).

In addition, the lack of training on how to explicitly instruct metacognitive skills might widen these gaps in practices. Teachers who participate in direct training for specific metacognitve skills are more capable of implementing them in their classrooms (Spruce & Bol, 2015). According to Fuchs (2010), teachers might be reluctant to implement new skills in the classroom due to the lack of formal trainings or support from administration or educational community.

The conclusion of the findings served to answer the following research questions:

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognitive skills for students with LD?

Interpretations of Findings Related to Research Question 1 and Research Question 2

The findings related to RQ1 and RQ2 revealed that, although teachers might have a broad knowledge of what metacognitive skills are and a general idea of how to support students with LD to use metacognitive strategies to control their learning, they were not able to implement this knowledge. During my observations, teachers were not able to instruct almost any metacognitive strategies explicitly to students with LD to enhance their metacognitive skills. The interpretations of findings from the data related to each emergent theme are explained and connected with the literature review below. I decided to combine my themes from the interview and the observation data in order to conclude if there were any gaps in practice.

Differentiated and traditional instruction. Based on the teachers' responses, one method elementary teachers in Lebanon support students with LD to use metacognitive strategies is through implementing differentiated instruction. They perceive that by making the objectives visible—using modeling, asking open-ended questions, implementing different modalities of teaching such as kinesthetic and tactile approach, and problem-solving learning—they can enhance the metacognitive skills for students with LD. However, during my observations, the objectives of the lessons were

not displayed, and teachers were focusing on delivering the information without stimulating the students' critical thinking. Students were receptive, and whenever they made a mistake, the teachers were correcting them without providing any constructive feedback.

According to Bryant (2005), differentiated instruction is an instructional adaptation that can be implemented in the classroom where students with LD can be helped to learn the instructional objectives. However, with differentiated instruction where students with the same abilities are in the same group, teachers need to provide specific metacognitive strategies to help them reach those objectives. Differentiated instruction is a response to the students' needs. Teachers differentiate the content, process, and the product based on the students' readiness, interest, and learning styles (Landrum & McDuffie, 2010).

According to Brown, Peterson, and Yao (2016), when teachers provide effective feedback, learners implement learning strategies that impact their academic outcomes and their self-regulated learning. The teachers' response included the use of modeling and open-ended questions. According to Regan and Berkeley (2012), modeling is required when teaching metacognitive strategies. When teachers instruct any metacognitive strategy, they need to model what strategy to use (declarative knowledge), how this strategy is used (procedural knowledge), and why the teacher is going to use it (conditional knowledge). In the findings, Mona was the only participant who mentioned that she uses think-aloud strategy.

According to Regan and Berkeley (2012), the teacher presents the question and thinks aloud while students listen. This strategy helps learners to become strategic thinkers, and with appropriate time and amount of modeling, students can independently use it and do self-talk to control their attention, self-monitoring, self-regulation, and self-reinforcement (Regan & Berkeley, 2012). However, I did not observe any teacher explaining the importance and purpose of this strategy to students to help them monitor their learning.

Iwai (2016) stated that intensive metacognitive instruction and modeling can improve students' academic achievement. However, in my observation, teachers were using traditional methods of teaching. They were asking students to open their books on a specific page and start working on the task. Only one of the 12 participants asked her students to highlight the key words and draw and use cubes before working on a math problem.

Mirna used a multisensory approach to enhance metacognitive skills for students with LD. She believes that teachers should provide students with LD a different learning opportunity. As per Mirna's response, teachers should take into consideration the students learning styles and should expose them to different modalities of learning such as visual, kinesthetic, auditory, and tactile. According to Landrum and McDuffie (2010), teachers should focus more on students' thinking styles than their learning styles. It has been controversial as to whether teachers should focus on the students' learning styles to meet their needs or focus on the way they think and guide their thinking process for better outcomes. It is essential that teachers focus on the students' thinking rather on their

learning styles. Thinking styles are considered the students' preferred way of processing and organizing information and essential for their academic performance (Lei, Sun, Lin & Huang, 2015).

Teachers mentioned the use of problem-solving learning where students are aware of their own learning because they see the transition from not knowing to acquiring the skill. According to Cote (2007), problem-based learning students "need to know how to identify a problem, find the answer, and evaluate their choice" (pp. 9-10). It is a student-centered approach and the teacher plays the role of a facilitator. In addition, Cote (2007) added that students with LD could be taught to solve problems so they can use this technique in their daily lives. Therefore, it is essential to teach them to ask the following questions: What do I want to learn? What can I do? And what action did I take? (Cote, 2007). These questions tackle three components of metacognitive knowledge: the declarative, the procedural, and the conditional metacognition.

During my observations, the teaching was a teacher-centered approach instead of student-centered approach and did not assist students to ask the above-mentioned questions. According to Ve, Ġle, and Görüġlerġ (2016), teachers who implement a teacher-centered approach believe that learning is a quantitative increase of knowledge. In addition, they believe in repetition to retain the information. They lead students to become passive learners instead of active receivers. In the student-centered approach, learners are actively engaged and are constantly constructing their learning (Ve et al., 2016).

Inquiry and traditional curriculum. Another approach to teaching metacognitive skills that was responsive to RQ1 was through the implementation of the PYP curriculum and use of essential questions while teaching. They perceived that these two elements could enhance students' metacognitive skills and help them to be aware of, to plan for, and to monitor their learning. Six teachers in three schools shared that their schools use the PYP curriculum. According to Aydeniz, Cihak, Graham, and Retinger (2012), inquiry-based instruction increases elementary LD students' understanding for concepts much more than lecture-based instruction. Inquiry-based learning supports them to acquire acquisition of the concepts and leads them to develop positive attitudes towards learning. McGrath and Hughes (2018) mentioned that through inquiry activities, students with LD are able to understand challenging vocabulary and concepts in sciences but need support in reading and writing.

Observational data from RQ2 revealed that teachers are implementing the traditional curriculum where teachers follow the book and make sure that students are covering the chapters in a very traditional way. According to Frayha (2009), schools in Lebanon are still using books published in the 1970s for elementary classes. Although there has been reform in the Lebanese curriculum, Awada et al. (2016) stated that the Minister of Education Bou Saab declared that the Lebanese curriculum in 2015 is not developing students' critical and higher order thinking.

Students' interaction. Teachers perceived that students' interaction could enhance their acquisition of metacognitive skills. Group work and exchanging ideas provide learners with opportunities to share their knowledge and understanding.

According to Hargrove and Nietfeld (2015), students develop their metacognitive skills through individual construction and peer interaction. Students are motivated and more willing to learn metacognitive skills when they interact with each other (Kaddoura, 2013).

Wismath and Orr (2015) stated that problem-based learning, inquiry instruction, collaboration, and peer interaction are required skills in the 21st century. Various pedagogical approaches provide learners with life-long skills to become independent and self-determined. Teachers are required to facilitate and provide adequate environment where students can learn and implement various metacognitive skills. This concept aligned with the literature review where cooperative learning, collaboration, reciprocal teaching, and peer interaction empowers and facilitate the development of metacognitive skills. Group work could be used as a teaching method where students work together to acquire the skill (Dignath et al., 2008).

However, the observation data revealed that students work individually and if anytime there is a group work, teachers did not share with students the appropriate skills and knowledge of how to exchange ideas and come to a common understanding of the concept. Within the same group, students were competing and making sure that others know and feel that they are superior and smarter. In the study conducted by Diab (2011), students should be engaged socially and affectively; they should be ready to work on the task and eager to interact and exchange ideas with others. In my observation, I concluded that teachers were able to engage students affectively in the task but not socially.

Evidence-based practices. The participants' perceptions about metacognitive skills for students with LD is to provide them with evidence-based practices to tackle metacognitive knowledge and metacognitive control processes. Teachers use checklists, rubrics, graphic organizers, self-reflection, self-evaluation and mnemonics devices. These tools aligned with the literature review. According to Awada and Gutiérrez-Colón's (2017) graphic organizers, the use of mnemonic devices, visual display will enhance comprehension, reading and writing and provide tools to students to monitor and evaluate their learning. What was missing in the participants' answers was whether they explicitly instruct their students on how to utilize these tools and what is the purpose of these tools and how it might help them.

During my observations, I did not observe any explicit teaching nor a distribution of any of the above-mentioned evidence-based practices. I did not observe the teachers distributing any checklist, nor rubrics that can help students to monitor or to evaluate their learning during individual or group work. It might be due to the various barriers that the teachers mentioned and will be discussed later in this chapter.

The overall interpretation of my findings revealed that although the interview data suggested that the Lebanese elementary teachers know the student-centered approach, but the observation data disputed that. It suggests that they do not use it despite knowing it. Teachers are implementing the teacher-centered approach and still focusing on the lower thinking skills of students. They are not promoting critical and higher-order thinking. Researchers in Lebanon discussed this issue several times and mentioned that the Lebanese educational system is focused on material and rote memory (Bahous et al.,

2011). According to Jabbour (2013), the Lebanese classrooms are teachers-centered and lack active learning. Only the teacher plays the role of provider of information.

It is important to note that there is a gap in practice based on the literature. Researchers recommended various metacognitive strategies that can stimulate students to take charge of their own learning. Based on my observation, teachers did not provide any explicit instruction to those strategies. Jitendra and Gajria (2011) recommended to include Reciprocal Teaching in the classroom, implement questioning, summarizing, and provide cognitive mapping for students with LD to enhance their reading comprehension. These strategies should be taught explicitly since it allows students to self-regulate, ask questions, make connections with the text and retrieve the main idea (Jitendra & Gajria, 2011). Teachers should provide direct instruction for these strategies, modeling, proper feedback and create opportunity to practice (Jitendra & Gajria, 2011).

Another evidence-based practice was missing while observing was Think-aloud strategy. According to Regan and Berkeley (2012), teachers should model think-aloud strategy to help students become strategic learners. Teachers model their thinking process while using self-talk to control their attention, focus on the task, self-monitor, self-reinforce and self-evaluate (Regan & Berkeley, 2012).

Reciprocal and collaborative teaching can stimulate the development of metacognitive skills. This approach was missing during my observation. According to Burns, Maki, Karich, & Coolong-Chaffin (2017), teachers and students take turn and create dialogue about a text, predict, clarify meaning of difficult vocabulary words, summarize and ask questions. For every step, teachers should provide explicit instruction

of how to implement it. For example, to teach prediction, teachers should help students to retrieve the main idea, flip the pages, look at the illustration to find any clue that could help them to predict (Burns et al., 2017).

Another evidence-based practice that I did not observe during math session is *Solve i*t strategy. According to Montague, Warger, & Morgan, (2000), *solve i*t is a research-based strategy that help students with LD to solve math problem. It stimulates the metacognitive thinking of students and guides them step by step. Students will be able to read, understand, visualize and verbalize what they need to do. In addition, students will create an image by drawing a picture, estimate the answer, execute the computation, and evaluate (Montague et al., 2000).

Interpretations of Findings Related to Research Question 3

The findings related to RQ3 revealed five themes: Characteristics of students with LD, lack of time, parents, school and cultural impact, teachers' self-perception, and lack of formal instruction. These themes are all related to different barriers that hinder providing effective metacognitive skills for students with LD**.** The interpretations of the findings from the data that are related to the emergent themes are explained and connected to the literature review below.

Students' characteristics. Participants perceived the different abilities of students with LD could impact negatively on supporting them with metacognitive skills. These findings are not aligned with Pfannenstiel et al.'s (2014) study who concluded that students with LD are able to learn metacognitive strategies and are able to implement them. Thus, explicit instruction is vital for teaching metacognitive strategies. Montague et

al. (2014) and Krawec et al. (2014) revealed in their studies that teaching a metacognitive strategy, for example "*Solve it,"* could enhance students with LD math achievement.

Time Consuming. Participants perceived that providing metacognitive skills to students with LD require a lot of time. According to Wang, Jong and Towey (2016), time constraint is a main issue for teachers when thinking of implementing any new instructional practices. The researchers recommended that teachers overcome this barrier by having a positive attitude and belief towards that change. In addition, they need to create a peer encouragement environment where teachers can reflect on their own practices.

Cultural and educational background of parents. Participants shared that the parents' cultural background can affect the way students learn. This statement is aligned with Jabbour (2013) who mentioned in her study that the cultural and religious history in Lebanon hindered the educational system to switch from traditional ways to more active approaches. Culture and religion are rooted in the Lebanese thinking in addition to emphasis on family values, respect for the teachers' role, and learning (Jabbour, 2013).

Inconsistency and school culture. Teachers expressed their concern as to when to implement metacognitive strategies and shared that the inconsistency across levels or subjects is not helping students to generalize the skills. In addition, they mentioned that it might relate to the schools' overall beliefs of the instructional approach. This barrier was aligned with Shabeeb and Akkary's (2014) study who stated that self-reflection on the instructional practices within a school should be embedded in the school's culture. Every school should have a "professional learning community" where teachers come together

across subjects and levels for learning within a safe, supportive, and self-created environment (Shabeeb & Akkary, 2014, p. 381). In this school setting, teachers will unify their vision on identifying the learners' needs and provide collaboratively solutions to meet these needs based on the latest research-based interventions.

Another finding related to RQ3 is the professional development of teachers and the teachers' self-perception that can impede the development of metacognitive skills for students with LD. Participants in this study believed that sometimes the teachers' perceptions about their strengths and weaknesses were not representative and might affect the delivery of metacognitive strategies to students with LD.

Teachers' self-perception. One participant shared that sometimes teachers are not aware of their weaknesses and they perceive themselves as capable teachers who are providing adequate tools for their students. In reality, they are not aware of their own teaching and they lack the knowhow of teaching. According to Yildiz and Akdag (2017), it is essential to determine the teachers' metacognition and their perception about their potential in teaching and provide the appropriate educational support before starting their professional path. Teachers should exhibit metacognitive behaviors in teaching, so students can develop those skills (Yildiz & Akdag, 2017),

Lack of formal training. Another barrier that can stop teachers from providing metacognitive strategies to students with LD is the lack of formal training. In this study, not a single teacher received any direct instruction of metacognitive strategies during her educational journey. According to Iwai (2016), student teachers should learn these strategies to implement in their future teaching. If teachers are not aware of these

strategies, they will not transfer them to students. Hence, students are not exposed to a variety of metacognitive skills that can impact their learning. Teachers who learn about metacognitive strategies during their education will apply them during teaching (Yildiz & Akdag, 2017).

Feeney (2014) raises two concerns: the first is that the opportunities when teachers experience a high-quality professional training are very limited, and the other is the transfer of new skill or knowledge after the training was conducted. He recommended the walk-through protocol that can enhance teachers' instruction. The model provides teachers the chance to observe and to be observed where they can collaborate and share new strategies and techniques that can improve the students' performance.

According to Odden, Archibald, Fermanich and Gallagher (2002), formal training for teachers encounter many challenges; time, financial, coaching sessions, and materials. Professional development for teachers is time consuming and teachers are not compensated for their time. It is very expensive for schools to provide professional development for their teachers (Odden et al., 2002).

Vázquez-Bernal, Mellado, Jiménez-Pérez and Leñero (2012) stated that teachers are very resistant to changing their conceptions and instructional practices. The researchers concluded that there is a correlation between educational change and metacognition where teachers need to develop their own metacognitive skills that can facilitate the awareness of the obstacles of the educational change and the barriers for implementing instructional strategies. Once they are aware of it, they can self-regulate and control all the challenges and implement the change.

Limitations of the Study

Qualitative research always has limitations. The first limitation is the sample because it included 12 participants. I was able to address this limitation through a thick description to ensure transferability. According to Patton (2015), purposeful sampling requires a limited number of participants. Patton (2015) shared three limitations related to purposeful sampling; limitations in the situation, time period of when the observation took place, and the selectivity of participants.

Another limitation can be that participants were reluctant to share their perceptions or behaved differently because they were being observed. The consent form included a sample of the interview questions, which could have provided an opportunity for the participants to read about metacognition before the interview.

Another limitation might be the different years of teaching experience of teachers, which can affect their interview responses. Teachers with many years of experience might have more knowledge about the different strategies that can enhance students' learning versus teachers with few years of experience. However, teachers with few years of experience might be more open to new teaching strategies. Although participants were English educated, their language might have hindered or created any ambiguity to their explanation of the metacognition concept.

Recommendations

This study is one of the very new research studies in Lebanon related to metacognitive strategies. The majority of the studies in Arab Countries are related to teachers' attitude towards inclusion, and the various barriers to inclusion (AlKhateeb et

al., 2016). Further research resulting from this study can be conducted by other researchers or practitioners who are interested in this area in Lebanon or any other country in the Middle East. Additional research on metacognitive skills for preschoolers or middle-high school can give further understanding of how Lebanese teachers perceive metacognitive skills for students with LD.

Future researchers could perform a quantitative study that can compare scores between elementary students with LD who were taught explicitly metacognitive skills prior to reading or math fluency tests and scores of elementary students with LD who were not taught metacognitive skills prior to reading or math fluency tests. The quantitative study can measure scores and can have implications on teachers' instruction of metacognitive strategies.

This study highlighted the elementary teachers' perception about metacognitive skills for students with LD. The findings revealed that there is gap in practice affecting the academic achievement of students with LD. Although teachers talked about metacognitive strategies, teachers were not explicitly teaching specific metacognitive strategies for specific tasks for elementary students with LD. The findings of my study aligned with another study conducted by Spurce and Bol (2015). The researchers revealed that often there is a discrepancy between what teachers say and what they do. Teachers know about the different strategies and practices, but they do not implement them. They want to provide the best instruction for their students, but many external and internal challenges hinder the progress (Spurce & Bol, 2015).

Teachers could encourage learners to set their goals, plan, and evaluate their learning using rubrics or checklists before starting their task. In addition, they should encourage monitoring through the use of checklists, self-questioning, note-taking and provide continuous feedback. They should value the use of self-reflection, and self-evaluation more than providing letter grading (Spruce & Bol, 2015).

Teachers can display a set of strategies for students to choose at the beginning of the sessions. It will give them a sense of responsibility and they will be in charge of their own learning. Every task should be attached with a specific strategy that the students can use at the beginning and at the end of the session. According to Spruce and Bol (2015), teachers are encouraged to use goal-setting in the planning phase that include metacognitive strategies that they can use to check their answers before, during and after finishing the task.

Another recommendation is to model think-aloud strategy. According to Ness and Kenny (2016), teachers should have a template of think aloud strategy to fill when they want to use it. At the beginning, it can be time consuming, but it is very helpful, and it will increase the teachers' confidence when teaching a lesson. The first column of the template includes:

> What the Text Says; Write out the last few words of the sentence before you will think aloud. Teacher Think- Aloud Script; Write exactly what you will say, in first- person narrative and Associated Reading Comprehension Strategy; Name the comprehension strategy you are employing in this think- aloud. (Ness & Kenny, 2016, p. 457)

I recommend that teachers in Lebanon instruct *Solve it* as a metacognitive strategy to their students during Math sessions. According to Krawec et al. (2013), *Solve it* can improve the problem-solving performance for students with LD. Teachers in Lebanon should encourage students to read first the problem, paraphrase, visualize and hypothesize about the solutions.

Students should be familiar with different kinds of checklist and rubrics to self-evaluate and self-reflect. According to Eker (2014), teachers' job is to train students through activities on how to self-evaluate using checklist. They need to teach them to describe what they know and what they need to know. In addition, they need to help them to express what they think and to keep a diary to self-reflect. Teachers need to provide explicit instruction to students to plan, monitor their learning and examine their thinking process (Eker, 2014).

Teachers shared various barriers that can impede their explicit instruction of metacognitive skills to students with LD. These barriers are related to the characteristic of students with LD, and they think it is time consuming. In addition, they believe that the school, culture and parents affect their teaching of metacognitive skills and they lack formal training. According to Bahous et al., (2016), it is vital to create a collaborative culture between parents, staff, and teachers. It is by creating a community of learning that leads to an improvement in students' performance. This community of learning has one main goal and that is to make a difference in students' life.

According to Boyle et. Al. (2016), students with LD are able to tackle metacognitive skills if teachers are providing step-by-step explicit instruction and

scaffolding of metacognitive skills throughout the session. Teachers should model the skill and provide opportunities for students with LD to practice inside and outside the classroom while giving them the appropriate feedback (Boudah, Weiss, & ERIC Clearinghouse on Disabilities and Gifted Education, 2002).

Implications

The purpose of this study was to understand teachers' perceptions about metacognitive skills for students with LD. It aims to answer three main research questions of how they are perceiving they are supporting students with LD to develop metacognitive skills, how they actually are supporting them, and what are the barriers that hinder providing it. Even though the teachers answered the interview questions and described few ways of supporting students with LD to use metacognitive skills, their answers were generally inadequate and inexact.

They did not mention any single metacognitive strategy that they taught to students with LD to be able to monitor, control or evaluate their tasks. According to Henter and Indreica (2014), metacognition is a valuable skill that teachers need to develop and to use in their instructional practices. Teachers might understand the use of metacognitive skills but are unaware if it is implemented with fidelity. Some teachers cannot assess the effectiveness of their own teaching (Guckert, Mastropieri, & Scruggs, 2016).

The implication of this study include the need to fill the gap at university level and integrate a course that teach metacognitive strategies. Student teachers can learn about the different metacognitive strategies and can incorporate them in their daily

teaching for different subjects. Not a single participant shared that they learned about metacognitive strategies in their undergraduate studies. It is important that the course at university-level instructs teachers not only how to provide metacognitive strategies to students but also to be aware of their own metacognition and to be able to model it to students. According to Fuchs (2010), teachers need to be prepared at university level to accommodate the needs of students with LD. It is not enough to have the knowledge but also the skills and the appropriate practicum to enhance their teaching for students with LD.

Another implication for this study is to raise awareness among school principals to provide professional development to teachers, tackling specifically metacognitive strategies with clear coaching plans. A solid professional development may put in perspective the importance of teaching metacognitive strategies to students with LD to become partners in their learning. It is essential that the professional development is not conducted only at the start of the school year but is divide to several workshops across the academic year, across subjects and levels. This might lead to create a strong community of practice (Vázquez-Bernal et al., 2012).

Teachers expressed their concern about inconsistency at the school level, which can also have consequences on the students' mastery and generalization of metacognitive strategies. A coaching plan could be initiated using teachers' modeling in a real context, brainstorming, and discussing the implementation of the strategy to ensure its effectiveness. This professional development will equip teachers with several metacognitive strategies that can enhance the quality of their instruction (Vázquez-Bernal

et al., 2012), Also, when integrating these metacognitive strategies within the curriculum, it may reduce the tension of accomplishing their curriculum or the concern of not having enough time to teach it.

According to Vázquez-Bernal et al. (2012), the professional development for teachers might tackle different dimensions; the personal and social dimensions. Teachers need social support when they need to implement change in their instruction. They need to share their problems and find solutions in cooperation with other teachers. In addition, teachers are in continuous reflection about their classroom practices throughout their careers. The purpose is not to increase knowledge for teachers but to change rooted habits.

According to Yurtseven and Altun (2017), professional development is crucial for teachers to advance in their teaching career. It is required for the acquisition of new skills, knowledge, and instructional practices to meet the students' needs. Schools' administration and community need to support teachers' professional development and provide resources and tools to ensure the success for any required change in their instructional practices (Yurtseven & Altun, 2017).

Integrating a course for student teachers and providing a qualified professional development with coaching plan can reduce the gap between research and practice. Professional development has to be practical and feasible, and followed by mentoring and monitoring (Jimenez, Mims & Baker, 2016). In addition, it can reduce the achievement gap between students with LD and typically developing students. Decreasing the achievement gap between the two groups will have a positive impact on students,

teachers and schools. This positive social change will not stop at the elementary level, but students will be able to generalize and apply it in the upper classes until reaching university level and workforce.

Another implication for this study includes providing awareness sessions for parents to discuss more metacognition and its necessity for students. Students will be aware and in charge of their own learning. Parents can attend few sessions while teachers are instructing students with LD, so parents can implement same techniques at home. Parents in Lebanon assume that providing everything for their children means that they love them. According to Hargreaves and Ainscow (2015), parents must be involved in their children's learning. Teachers can conduct awareness sessions for parents and share with them strategies and techniques that they can implement at home.

Henter and Indreica (2014) stated that students learn metacognitive skills through observation and explicit learning; that is why the role of parents, peers and teachers is critical at this point. Beckman's model as described by Henter and Indreica (2014) included the following steps:

- describing the strategy to be used;
- the teacher's modelling of the strategy use;
- practice of the new strategy under the teacher's guidance;
- promoting self-monitoring and self-assessment in students' independent use of the strategy;
- encouraging students to use the strategy continuously and generalized to other learning contexts (p. 139).

Sometimes, parents have helpers at home to assist their children. The relationship between helpers and children could affect them negatively and hinder their independency. Teachers and schools could support parents in raising their children specifically in this area since they lack the knowledge and the background of the latest research about metacognitive skills and its impact on their day-to-day activities and learning. The school can implement a set of seminars for parents to create awareness and provide them with metacognitive strategies that they can use at home. The collaboration between teachers, parents and administration will enhance students' performance (Barnhart, Franklin & Alleman, 2008).

Conclusion

This study made me more determined to provide full support to students with learning disabilities, and to advocate their right to evidence-based instruction. It is their right to be exposed to the latest research that enhances their independency in learning even in their day-to-day activities. Metacognitive skills are not only related to academic achievement; it is related to the persons' awareness of his/her needs in order to function properly and effectively in the society.

I am passionate in providing high-quality instruction to students with LD in Lebanon. Teachers who ensure high-quality instruction in the classroom equip students with 21st century skills. According to Chalkiadaki (2018), the 21st century skills for elementary students are interrelated and divided into four components: Personal skills category that includes self-management, self-reflection, self-regulation, self-organization, critical thinking, creativity, and problem-solving. Social skills include collaboration,

communication, global awareness. Information and knowledge of being able to self-evaluate, self-improve, metacognition, independent learning, and the last category is digital literacy.

Students with LD have the right to acquire all these skills and teachers must provide explicit teaching of metacognitive skills that can empower those learners and prepare them for the next generation. They become future citizens, innovators, and leaders in a country that has the willingness to change but is affected by many external challenges that hinder that progress. As I am reaching the final milestone of my doctorate, I intend to support educators, parents, and schools, and try to make a change on a national level.

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Appendix A: Interview Protocol

The purpose of the study is to increase the understanding of how you are supporting students with disabilities to use metacognitive strategies to control their own learning, and what are your perceived barriers to providing effective metacognition skills. Responses will contribute to my understanding of the Lebanese teachers' perceptions about metacognitive skills for students with learning disabilities.

Metacognitive Skills are strategies that learners use in order to plan, monitor and evaluate their learning.

Interview Instruction and Details

The interview will be conducted at your school. Every interview will last a maximum of 30 minutes. The researcher will audio record the interview. It will consist of eight questions. Also, follow-up questions will be added to get more details about the research questions.

The research questions:

RQ1: How do elementary teachers in Lebanon perceive they are supporting students with LD to use metacognitive strategies to control their own learning?

RQ2: How are elementary teachers in Lebanon supporting students with LD to use metacognitive strategies to control their own learning?

RQ3: What are the Lebanese elementary school teachers' perceived barriers to providing effective metacognition skills of students with LD?

The Interview Questions:

1- Tell me how do you teach your students to be aware of their own learning?

2- Tell me how do you teach your students to control their own learning?

3- Tell me how do you teach your students to plan their learning?

4- Tell me how do you teach your students to monitor their learning?

5- Tell me how do you teach your students to evaluate their learning?

6- Tell me what are the best practices of metacognitive strategies instruction?

7- Describe the different barriers to implementing metacognitive skills for students with LD in your classroom.

8- Describe the training that you had to teach metacognitive skills.

Possible Prompts:

1- You mentioned that you do X… can you tell me more about that?

2- How often do you do X…?

3- How do you know that they are developing these skills?

4- What do you mean when you said…?

Appendix B: Observation Form

Teacher:		
Date:	**Subject:**	
Time:		
Physical Map of the Environment		
The researcher will observe the participant and put check in the right box	**Yes**	**No**
• **Teacher helps students identify what they know and what they want to know**		
• **Teacher thinks aloud so students can follow demonstrated thinking processes**		
• **Teacher models and discusses the vocabulary needed to think and talk about their own thinking**		
• **Teacher recommends the use of the journal or learning log, so students will be aware of their own learning**		
• **Teacher encourages students to plan their learning**		
• **Teacher encourages students to monitor their learning**		
• **Teacher encourages students to evaluate their learning**		
• **Teacher guides students to debrief their thinking process: review the activity, talk about the skill used and evaluate their success**		
Exact Quotes:		

Observer's notes:

Appendix C: Code Descriptions and Definitions

Theme	Code Description	Code	Code Definition

Appendix D: Coding Memo

1. How my codes categorically relate to each other?
2. The coding process: summarize – describe the pre-coding – how the codes were developed?
3. Define and refine specific codes
4. What does the code mean?
5. How does the code relate to and map onto my data?
6. How does this code relate to and map onto my research questions?
7. Am I using the code consistently?
8. What are other codes related to this code?