The Impact of Vygotsky's Theoretical Framework on the Role of Mediation for Students with Learning Disabilities

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Introduction

In the past three decades there has been a growing interest of research on the effect of mediation on the cognitive development and social skills of students with various learning abilities (e.g., Byrnes, Miller-Cotto & Wang, 2018; Englert & Mariage, 2003; García & Fidalgo, 2008; Guk & Kellogg, 2007; Maheady, Harper & Mallette, 2000; Radziszewska & Rogoff, 1991; Palincsar, 1986; Palincsar & Brown, 1984; Tzuriel, 2013) and diverse students' populations, including English language learners (e.g., Hajizadeh & Ahmadi, 2013; Richardson, 2010; McCafferty, 2002; McMaster, Kung, Han & Cao, 2008; Mustafa, 2012; Mustafa, Alias, Isa, Mat & Abdullah; 2019; Nassaji & Cumming, 2000; Pathan, Memon, Memon, Khoso & Bux, 2018). Most specifically, students with learning disabilities have been emphasized by various studies to promote their reading comprehension and social skills (e.g., Daneshfar & Moharami 2018; Hendrym 2009; Maheady, 2000; McMaster et al., 2007; Mastropieri et al., 2001).

The concept of 'mediation' and its relation to the cognitive development of learners, was thoroughly discussed by Lev Vygotsky in the early twentieth century (Gindis, 1999; Haywood, 2020; Kozullin, 2003; Taber, 2020; Wells, 1994; Wertsch, 2007). Vygotsky, in his original publication in the early 1930s, examined this relation within a sociocultural context. One of the main features about the sociocultural model is the assumption about the nature of the context of learning (Englert & Mariage, 2003). Human psychological processes, as conceived by sociocultural model, are joint-mediated activities, and thus, are social in origin (Englert & Mariage, 2003). Sociocultural theorists place a strong emphasis on the active position of the learner, which is crucial for the development of life-long learning skills (Kozulin, Gindis, Ageyev & Miller, 2003; Verenikina, 2008). As Wertsch (2007) argues, mediation is a central theme throughout Vygotsky's writing:

In his view, a hallmark of human consciousness is that it is associated with the use of tools, especially "psychological tools" or "signs." Instead of acting in a direct, unmediated way in the social and physical world, our contact with the world is indirect or mediated by signs. This means that understanding the emergence and the definition of higher mental processes must be grounded in the notion of mediation. (p. 178).

Mediation refers to human's intentionally insert items between their environment and themselves, so that they are able to modify it and gain specific understanding (Vygotsky,

1978). Mediation is the key advocator of Vygotsky's theory of constructivism (Kozullin, 2003). His theory offers a corresponding viewpoint to the behaviorist view. Vygotsky's theory of constructivism supports that the use of mediators who help the human to modify their environment, for a better interaction with the nature.

Students and followers of Vygotsky have expanded his original concepts of psychological tools, such as mediation, and divided the term into two distinguished faces of mediation, one human and the other is symbolic (Kozullin, 2003). The first type is human in which mediation is defined by Vygotsky (1978) through the notion that every human's act appears twice, once through the involvement with their surrounding, while the second time it develops internally as a type of psychological functions. Kozullin (2003) explains that much of the evidence on such transitions from external environment to internal awareness, which mainly brought upon the child's attention through an adult, was observed in a mother-child interaction in empirical conditions.

In the experiment that examines the interactions between a mother and her two and a half year old daughter during a child play with a puzzle, the researchers observed how the child mastered the skill in a gradual process starting from an external type of mediation and ended with an internal symbolic mediation. At the beginning, according to Kozullin (2003), the child would ask the mother where each piece of the puzzle should fit. The mother, then, would direct the child to the puzzle model using verbal cues, until she succeeds in assembling the puzzle. In a later stage, the child would refer to the model using similar verbal cues, signaling his or her ability to internalize the process that was initiated throughout the interaction with the mother in the first trial. Thus, according to Kozullin (2003), the model explained here aims to demonstrate how children can transfer their experience in a two-processed step from an 'interpersonal' where the human adult is the mediator, to an 'intrapersonal' learner, where the lead is being performed internally by the internalized processes of the child him or herself.

The second type of mediations is the symbolic mediators (Murphy, 2012). Vygotsky (1978) distinguished between experiences created as a result of direct contact with the environment and experiences produced by symbolic tools. Such symbolic tools are illustrated by Vygotsky (1978) as "casting lots, tying knots, and counting fingers" (p. 127). Counting fingers, as explained by Vygotsky serves as "a bridge between immediate quantitative perception and counting" (p. 127). The child would use the fingers of his left to count, then, when that proves insufficient, the child would continue counting the forearm, elbow, and the other hand's fingers until he completes the problem. This act of counting fingers demonstrates how an object, e.g. fingers, can serve as an external symbolic tool that organizes cognitive functions involved in basic operations (Vygotsky, 1978). Kozullin (2003) contends that one cannot expect that the child would be able to detect symbolic relations on his own. Therefore, they need an expert adult or a trained

partner to coach them. Further, symbols, according to Kozullin (2003) will remain "useless unless their meaning as cognitive tools is properly mediated to the child" (p. 24).

The Emergence of the 'Zone of Proximal Development' (ZPD)

Vygotsky (1978) argued that higher mental functions originate in shared problem solving between children and more skilled partners (Englert & Mariage, 2003; Gauvain & Perez, 2015; Gindis, 1999; Moss, 2013; Rassaei, 2017; Vygotskiĭ, 2012). Vygotsky (1978) referred to such processes that allows for maturation in the child's cognitive functioning as the zone of proximal development (ZPD). ZPD is defined as "the distance between a child's actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under guidance or in collaboration with more capable peers." (Vygotsky, 1978, p. 86).

Vygotsky (1978) explained how the ZPD is being constructed and internalized at the learner's level. The zone of proximal development "defines those functions that have not yet matured but are in the process of maturation; functions that will mature tomorrow, but are currently in embryonic state. These functions could be termed the 'buds' or 'flowers' of development rather than the fruits of development" (p. 86). Vygotsky (1978) suggested that "what is in the zone of proximal development today will be the actual developmental level tomorrow-that is, what children can do with assistance today they will be able to do by themselves tomorrow" (p. 87).

McCafferty (2002) and Moss (2013) explain that the ZPD is a function of co-construction in which assumes that when learners construct meaning, they share their social, psychological, and physical world. Thus, according to Wells (1999), the ZPD is not fixed; rather it is an emergent, "open-ended," "reciprocal" trait of a learner. McCaffery (2002) and Palincsar (1998) argue that the ZPD includes not only people interacting with each other but it can also refer to the setting and artifacts that are used throughout the learning process (e.g., books, technology, and various library and community resources), and that ZPDs are embedded in activities and contexts.

The Emergence of the Concept 'Scaffolding'

In the past three decades researchers used Vygotsky's ZPD concept as a springboard for various interpretations of learning and teaching including 'scaffolding', 'co-construction', and 'assisted performance' (Houng, 2007). The concept 'scaffolding', in particular, has been widely used by educators and researchers to support the learning of students in all discipline areas including reading and comprehension (e.g., Ankrum, Genest & Belcastro, 2014; Dabarera, Renandya & Zhang, 2014; Beed & Hawkins, 1991; Simon, 2008), social studies (e.g., Brophy, Alleman & Halvorsen, 2016; Beyer, 2008;

Vacca, 2008), sciences (Abels, 2015) and mathematics (e.g., Anghileri, 2006; Bakker & Smit, 2017; Fund, 2007). The scaffolding concept has become even more popular among researchers of English Language Learners struggling with reading (e.g., Proctor, Dalton & Grisham, 2007; Walqui, 2017) and was applied heavily in research that address students with learning disabilities, especially in the reading comprehension area (e.g., Broza & Kolikant, 2015; Calhoon, 2005; Clark & Graves, 2005; Palincsar, 1986, 1998; Palincsar & Brown, 1984).

The term scaffolding was originally used by Wood, Bruner and Ross (1976). Stone (1998) in agreement with Houng (2007) believes that these authors, especially Bruner, were influenced by the work of Vygotsky and the use of the concept "ZPD". Bruner, according to Stone (1998), was the author who wrote the introduction of the first translated edition of Vygotsky's book 'Mind in Society' in 1962. Thus, a closer look at the definition of scaffolding and the way it was explained by Wood and colleagues would shed light on the relationship between 'scaffolding' and "ZPD".

Nassaji and Swain (2000) define scaffolding as "the collaboration of both the learner and the expert operating within the learner's ZPD" (p. 36). Wood and colleagues (1976) define scaffolding as "that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts" (p. 90). Wood et al. (1976) describe the process as involving the adult's "controlling those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence" (p. 90). Stone (1998) elaborates on this definition and explains that children's new understanding of how to attain their goal is accomplished through continuous interaction where the adult provides careful and gradual assistance to the child to maximize the learner's competence in solving this shared problem. According to Daniels (2001) and Wells (1999), scaffolding as a metaphor term is in the heart of the zone of proximal development (ZPD) as proposed by sociocultural framework of Vygotsky.

Wood et al., (1976) describes the scaffolding process as having six crucial roles for the tutor, or more capable peer. These roles include: (a) recruitment, in which the tutor enlist the learner's interest in any given task and adhere to the requirement of the assignment, (b) reduction in degrees of freedom which means that the teacher or trained adult would reduce the steps and requirements of the required task so it would be easily followed and mastered by the child, (c) direction maintenance which requires varying goals that emerge from the learner throughout the task, (d) making critical features in which the tutor selects relevant assignments that would be of value and interest for the learner, (e) reducing frustration throughout the task so that it would not yield dependency on the tutor, and (f) allow for demonstration where the tutor models different types of solutions, which will provide the learners with opportunities for imitations until the task is mastered.

Van Lier (1996) adds that in a scaffolding learning environment, the tasks are continuously repeated with variations and are connected to one another like parts of projects. Further, in scaffolding mode, the teacher encourages students to explore knowledge in a safe, supportive environment and promotes access to means and goals in a variety of ways. Furthermore, it allows for mutual engagement and establishing rapport among students in a nonthreatening participation in a shared community of practice. Finally, Van Lier (1996) contends that in a scaffolding learning, students are increasingly taking over roles which ultimately enhance their self-esteem and empower them. Wells (1999) identifies three essential features that provide the educational scaffolding its unique character: a) the essential dialogical nature of the discourse in which knowledge is co-constructed; b) the significance of the kind of activity in which knowing is embedded; and c) the role of artifacts that mediate knowing (Wells 1999, p.127).

Due to its pervasive use among educators, according to some critiques, the "scaffolding" metaphor has been misused by researchers in the field (see e.g., Palincsar, 1998; Stone, 1998; Verenikina, 2008). Verenikina (2008) argues that the term 'scaffolding' appears to become an umbrella term for any kind of teacher support, due to its diverse interpretations, and thus, it does not provide educators with clear and definite guidelines on the exact methods that it should be applied to attain successful teaching. Verenikina (2008) adds that scaffolding tends to be interpreted as a variation of direct instruction, of a teacher-student one way teaching. As a result, "it loses the richness of the original meaning implied by socio-cultural theories and invalidates Vygotskian idea of teaching as co-construction of knowledge within student-centered activities" p. 162.

Stone (1998), in agreement with Verenikina (2008), argues that the use of the metaphor "scaffolding" has been used increasingly among educators in the field of learning disabilities as an instructional innovation. Stone (1998) contends that this metaphor has become popular among educators due to its appealing connotations, especially, because it appeared to provide temporary assistance to children as they strive to accomplish a task beyond their capability. In this approach, adults are perceived as providing a scaffold similar to that used by builders in erecting a building; and this metaphor seems very appealing to many educators and researchers. Further, the scaffold metaphor connotes a custom-made support for the "construction" of new skills, which can be gradually removed as the learners become more acquainted with the necessary skills. Furthermore, scaffold, according to Stone (1998), connotes a structure that allows for the accomplishment of some goals that would be difficult to attain otherwise.

Verenikina (2008) compared the metaphor 'scaffolding' to the original views of Vygotsky on the role of teachers within the "ZPD". Verenikina (2008) argues that Vygotsky viewed children and adults as both active agents between the learner and the mediator, which are dialogical in nature, become vital to the learning development. The metaphor

'scaffolding' in this case, as perceived by Verenikina (2008), doesn't capture the two-way interaction between the teacher and a student. Instead, it implies a one-sided view of this engagement where a teacher provides a support for the learner. This view is being perceived by researchers as a modified version of direct instruction ().

The Impact of Mediation on Students' Academic and Social Competence

Researchers have implemented the concepts 'mediation' and 'scaffolding' interchangeably within the ZPD, based on the sociocultural theory. in order respond to the needs of increasingly challenging classrooms with learners of various abilities, especially, with students with learning disabilities. As previously discussed, the concepts 'mediation' and 'scaffolding' within a ZPD were widely used to enhance the learning and social competences of students across various age and ability groups within the school system. Two areas, in particular were the focus of the research, the learning achievement in the core subject areas and the social competence of students. In the following section, I will discuss the use of such framework within the area of reading comprehension and social skills by providing examples from the field on how these approaches affect the learning and social competence of students with learning disabilities (LD).

Guk and Kellogg (2007) argue that the research cannot avoid the interaction between the teacher and students and students among each other, especially when encountering with a whole class instruction with students of various learning abilities. Vygotsky himself, according to Guk and Kellogg (2007), when working with children taught a whole class of learners in public education system. According to Houng (2007) the sociocultural theory developed by Vygotsky and his colleagues proposes that human thoughts arise in social interactions. Thus, a learning community in a classroom would make the natural interaction of all learners, particularly in the form of peer interactions in small groups and dyads.

Since the mid 1980's and early 1990s, among many other approaches, two main frameworks emerged from a social learning theory that emphasized a learning community in the form of classwide peer mediated learning strategies for reading comprehension (for reviews see e.g., Liang & Dole, 2006; Maheady, Mallette & Harper, 2006). The use of reciprocal teaching (RT) developed by Palincsar and Brown (1984), and the George Peabody College Peer-Assisted Learning Strategies (PALS) model developed by Fuchs et al., (1991), in particular, have been proven as promising approaches for students with LD in the area of reading comprehension (Maheady et al., 2006). In the next section, I will briefly describe each model separately and compare between the two models in relation to the use of mediation as perceived by Vygotsky's concept ZPD.

Peer-Assisted Learning Strategies (PALS)

PALS is a classwide peer learning strategies framework, whereby children work together with the monitoring of an expert teacher to support each other's learning (Dion, Fuchs & Fuchs, 2005). Since it was originally developed and implemented in grades 2-6 in the early 1990s by Fuchs, Fuchs, Philips, Hamlett, and Karns (cited in D. Fuchs et al., 2001), PALS framework has received a growing interest among researchers who investigated its impact on students' performance at all grade levels, including at the kindergarten and first grade levels (e.g., Mathes, Grek, Howard, Babyak & Allen, 1999; Mathes, Howard, Allen & D. Fuchs, 1998), and at the middle and high school grade-levels (e.g., Mastropieri, Scruggs & Graetz, 2003; Mastropieri, Scruggs, Mohler, Beranek, Spencer, Boon, Talbott, 2001). Further, PALS was extended to assess the learning of racially, linguistically and diverse ability students (Thorius & Santamaría Graff, 2018); and finally PALS was examined for its impact on students' social preference and friendship making (see Dion, Fuchs & Fuchs, 2005). Although, not all PALS applications yielded statistically significant results with all students (McMaster, Fuchs & Fuchs, 2007), the overall picture demonstrates its success among different subgroups of students, particularly, for students with LD (e.g., Calhoon, 2005; Fuchs, Fuchs, Mathes & Martinez, 2002).

The purpose of PALS is to support the capacity of the general education to meet the academic standards for all students, including students with disabilities (D. Fuchs, L. Fuchs & Burish, 2000). Most specifically, PALS reading was designed to develop students' reading fluency and comprehension (Fuchs & Fuchs, 2005). The original ideas of PALS were derived from the novice work of Palincsar and Brown (1984) on Reciprocal Teaching, and the Cooperative Integrated Reading and Comprehension (CIRC) which was developed in the 1980s (D. Fuchs et al., 2001). The recent studies on the reading comprehension instruction for students with disabilities indicate that appropriate grouping practice, specific cognitive strategy instruction, extended practice opportunities, and breaking down tasks into smaller components, are related to significant improvement in reading and comprehension skills (Calhoon, 2005). PALS framework engages students in all these components (Fuchs & Fuchs, 2005). PALS focuses on teaching a set of comprehension strategies that assist students to comprehend a variety of narrative and informative texts (Liang & Dole, 2006).

PALS framework incorporates structured activities that allow for continuous mediated interactions between peers who alternate in tutoring and tutee role exchanges, and immediate corrective feedback. Thus, students in PALS, contrast with traditional teacher-led instruction that reduces the practice time opportunities, stay engaged at almost all allocated time for the session. Fuchs and colleagues (2002) add that PALS structure one-to-one interaction allows for (1) frequent opportunities for students to respond, (2) facilitating immediate partner's feedback, (3) increasing academic engagement time,

(4) students' social engagement and support. PALS is set to be structured, according to Fuchs and colleagues (2000), because it has been scientifically proven that a lack of structured peer interaction activities would lead to ineffective results, and that the immediate feedback and reciprocity in role taking would significantly enhance learning.

PALS activities require considerable direct support from teachers' supervision and involvement throughout the entire process. The teacher moderates the learning of the strategies, and continuously prompts students to accurately apply the strategies, and provides feedback and rewards on the correct tutoring and team collaborative behavior (Liang & Dole, 2006). In spite of high teacher involvement, PALS provides more frequent opportunities for student's time spent on task, as opposed to traditional teaching methods which lead to a remarkable loss of valuable instruction time (McMaster et al., 2007). Students in PALS, according to McMaster and colleagues (2007), are engaged most of the time with numerous opportunities for responses through verbal interactions between the partners. Partners' are continuously engaged in providing immediate corrective feedback to one another's performance. Such high interaction among students contends McMaster and colleagues (2007) ensures higher rates of academic success.

Maheady and colleagues (2006) compared four classwide peer tutoring models that are scientifically based interventions, in the area of reading and reading comprehension, for their effectiveness in preventing the reading failure of struggling students who come from various backgrounds, such as students with learning disabilities, English Language Learners, and students who come from a low socioeconomic background. The programs include, PALS, ClassWide Peer Tutoring (CWPT), START, and Classwide Student Tutoring Teams (CSTT). The researchers report that PALS is one of the most extensive classwide peer assisted intervention to support the reading comprehension of diverse ability students (Maheady et al, 2006). PALS is being described as tutoring model program in that it is the only program in which high functioning readers go first in all tasks, which provides an opportunity for a modeling role for the low performing readers; that the pairs utilize materials that are instructionally appropriate for the lower performing students.

Because students with reading disabilities lack the ability to monitor their own work (Calhoon, 2005; Greenway, 2002), and they need sometimes guidance on how to provide constructive feedback, praise, and encouragement; hence, the teacher must provide them with cueing cards for such specific task (Ramsey et al., 2007). Such cueing cards, according to Ramsey and colleagues (2007) are helpful during PALS sessions and should be practiced prior to engaging in the activity. In addition, teacher's encouragement to those who use such cuing correctly is essential for the success of such implementation, as well. Once the partners are in their respective dyads, the higher functioning partner models his or her role in the task, such as, reading aloud in front of the lower functioning

partner; then, the second partner takes a turn and models the reading, through which both partners in the dyad are fully engaged in providing constructive feedback on each other's reading (Ramsey et al., 2007). The dyads reciprocally continue to play the role of tutor and tutee, as needed. Once the procedures are mastered by the students and become more familiar among all class members, the teacher, later, switches between the partners in the dyads so that students receive fair chances of enriching and being enriched by other partners in the class.

Reciprocal Teaching

Reciprocal Teaching (RT) was originated and described in the 1980s by the novice work of Palincsar and Brown (1984) with middle school struggling students in English literacy classrooms. Shortly, after its wide success, RT has became highly popular and was recommended by a remarkable body of research (see e.g. Greenway, 2002; Hashey & Connors, 2003; Kelly, Moore, Tuck, 1994; van Garderen, 2004) who reported on impressive gains across all grade levels and students with various needs, including students with LD (Lederer, 2000) and English language learners (Klinger & Vaughn, 1996; Proctor et al., 2007). Many studies have demonstrated the effectiveness of RT strategy on the reading comprehension level of students with various abilities, particularly students with LD at various grade levels (see e.g., Brown & Palincsar, 1982; Klinger & Vaughn, 1996; Lederer, 2000; Palincsar, 1986; Palincsar & Brown, 1984).

Palincsar and Brown (1984) describe RT as an instructional strategy that aims to enhance students' reading comprehension. The process is best characterized as a dialogue between teacher and students (Slater & Hortsman, 2002). Thus, the term "reciprocal" describes the nature of the interactions among the learners and the teacher. This dialogue is structured by the use of four strategies: predicting, questioning, clarifying, and summarizing (Palincsar & Brown, 1984). These strategies, according to Palincsar and Brown (1984), can be conducted, flexibly, in any order. Palincsar and Brown (1984) explain that the rationale behind choosing these four strategies, in particular, because they provide for reciprocal interaction that can be both comprehension-fostering and comprehension- monitoring activities. By engaging students in the process of predicting the content and events of passage, briefly stating the main ideas, generating questions related to the passage, and by clarify the various new concepts, students will be actively involved in the so called "self-monitoring" strategy. Consequently, by engaging in these activities, the readers will become more aware of their reading process (Palincsar & Brown, 1984).

The main premise of RT as described by Palincsar and Brown (1984) and their extended articles (Palincsar, 1986; Brown & Palincsar, 1989; Palincsar, & Klenk, 1992) is to help poor readers become good readers, by teaching them strategies that work for good

readers when encounter new reading tasks. Students would be encouraged to look for meaning in the text, at both levels the sentence and the passage. In addition, the purpose behind teaching RT strategy is to demonstrate how poor readers can benefit from self monitoring strategies through a set of procedures that can be implemented at any order (Palincsar & Brown, 1984; Slater & Hortsman, 2002).

Greenway (2002) asserts that RT makes explicit metacognition strategies by emphasizing on student's understanding of the main idea, by asking students about their understanding of the passage which will ultimately assess them in monitoring their own comprehension strategy, by connecting their previous knowledge to the one that is being read, and finally by prompting them to summarize their information into meaningful memorable segments. RT, as described by Palincsar and Brown (1992), is implemented gradually beginning with guided practice. Further, it includes other components, such as instructional concepts of expert modeling 'the teacher', expert support as the students emerge to implement the strategy, students support and guide each other, and gradually the support will be faded as the students demonstrate competence in their skills (Palincsar & Brown, 1992).

Greenway (2002) noted that RT is not the only reading comprehension intervention that was implemented with students with various needs. Other reading programs were used as well and provide valuable improvement, such as, Inference Training (IT), and the Correction Reading (CR). RT, however, was the only program of the three to invite the student to take over the teacher's role, which is by itself a powerful strategy that allows for student's self-monitoring and would increase his or her self-esteem (Greenway, 2002).

Over the past two decades, RT has been used in various learning content areas including, science, mathematics, and social studies, and with almost all ages, including kindergarten and at the college level. Rosenshine and Meister (1994) reported in their meta-analysis of the 16 empirical studies that were implemented between the years 1984 and 1994, on positive gains with an average effect size of .88 across all studies under investigation (cited in Proctor et al., 2007). Later the National Reading Panel (2000) reported on additional 11 studies that were not listed in the Rosenshine and Meister report with positive gains. The following three studies are only a few of the many examples that illustrate the various gain effects on students learning and social outcomes.

The first study was reported by Greenway (2002). The researcher investigated the application of RT in a literacy based 6th grade classroom in an inner city school in Britain. The purpose of the study was to improve the achievement scores of students in reading comprehension on standardized assessment test. The students had average decoding skills but performed poorly in reading comprehension. The researcher used a quasi-experiment intervention for a full year with one classroom after a long introduction

and guided practice was given to the teacher who taught the children. The strategy implemented was guided by the main four strategies used by Palincsar and Brown (1984) and was called SPIQ, which stood for summarize finding the main idea, predict what will happen next, investigate unknown word, and question or interrogate the text. The results as reported by Greenway (2002) show increased level of reading comprehension significantly from 6.08 comprehension age at pre-test to 7.75 comprehension age at post-test time. In addition the researcher reports on an improvement in the self-esteem rate based on students' self-reporting.

The second study was conducted by van Garderen (2004). The author reported on a modified reciprocal teaching strategy which was implemented in mathematic lessons with students who experience difficulties in word problems solving, and who spoke English as a second language, at the middle school levels. According to van Garderen (2004), mathematic textbooks depend heavily on increasing number of abstract concepts and solving word problems that students have to process in order to comprehend the content. The teacher in a mathematic reciprocal teaching lesson, based on the original four components strategy of Palincsar and Brown (1984), would divide the whole class into small groups, and a group-leader would be assigned for each group. The modified strategy includes the following components: (a) clarifying, (b) questioning, (c) summarizing, and (d) planning. The leader would instruct the group members to silently read the problem, and ask for *clarification* about any new term or phrase that they encounter. Any group member then would provide the meaning for the new phrase. After all new concepts are cleared and discussed the group leader would pose *questions* for understanding the problem by analyzing its parts. Next, the leader would *summarize* all the possible answers and guide the members through a *plan* to solve the problem. Finally, students would attempt to solve the problem and check whether it makes sense before they submit their answers (van Garderen, 2004).

Finally, Klingner and Vaughn (1996) investigated the efficacy of a modified RT as an instructional intervention for reading comprehension with 26 seventh and eighth grade level students with LD and who use English as a second language. Klingner and Vaughn modified traditional reciprocal teaching as described in Palincsar and Brown (1984) by including a strategy to activate prior knowledge. This strategy benefits ELL students with LD because students have the opportunity to dialogue, express their ideas, and collaborate with each other. By adding the activation of prior knowledge to RT, the researchers helped the students to connect what they already know to the new concepts which facilitated and impacted their learning and comprehension. Although the results were statistically insignificant, the Klingner and Vaughn report that there was an impressive increase in the reading comprehension abilities of the students who participated in the study compared to the comparison group, and that both groups would

benefit from minimum adult instruction when the strategy is explicitly explained and modeled to all students prior to the intervention.

It can be concluded from the aforementioned studies on RT that these strategies embrace the reciprocal roles of learners among each other, and teachers and students role exchange. Students who are engaged in this process tend to constantly monitor their role sharing, and therefore, they become aware of their reading process. Further, it can be assumed that students, when engaged in the RT strategies become socially more involved with each other. Consequently, students gain academic and social skills in a supportive responsive learning environment.

The Impact of Mediation on the Social Competence of Students with LD

Another dimension that can be directly connected to the sociocultural learning domains inspired by Vygotsky's framework is the impact of the collaborative work that characterizes the type of learning on students' social skills (Palincsar & Herrenkohl, 2002). Social competence of students at risk for school failure has been regarded by researchers as a crucial component for school success including academic achievement (e.g., Gresham, Sugai & Horner, 2001; Peterson Nelson, Caldarella, Youong & Webb, 2008). Peterson Nelson and colleagues (2008) define social competence as "the ability to interact successfully with peers and significant adults" p. 6. It is associated with peers acceptance, teacher acceptance, positive relationship between the children, and academic success (Peterson Nelson et al., 2008). Social competence becomes very critical for students with disabilities as they progress throughout the upper grades of their schooling years (Gresham & MacMillan, 1997).

Researchers address the issue of social competence of students with learning disabilities within a reciprocal constructivist and collaborative work among classmates on equal grounds within their own dyads or in small groups (Palincsar & Brown, 1984; Palincsar & Herrenkohl, 2002). In a reciprocal constructivist approach, the teacher assumes less authority in the classroom and hands on the power gradually to students who become active learners and cooperative participants. (needs transition to next paragraph)

Palincsar and Herrenkohl (2002) argue that in a sociocultural framework, students are encouraged to collaboratively work together to create a meaningful experience for the learners. Given the complexities inherent in collaborative learning, Palincsar and Herrenkohl (2002) list three main features related to the instructional environment to which one could attend: (a) the support of interactive patterns. In order to promote collaboration between the learners a common ground on which to build shared understanding must be established. In such case the learning environment would allow for interactive patterns among students and their peers on a common goal, e.g., shared understanding of a text; (b) the nature of the problem space, which can affect the activity

of constructing meaning and promoting opportunities for attaining consensus; and (c) the process of creating a shared social context. In this process, Palincsar and Herrenkohl (2002) argue that through engaging in collaborative creating, the learners create a shared social world together.

Harper and Maheady (2007) argue that Peer-mediated instructional approaches, if implemented properly, allow for students' active engagement, permit frequent opportunities to respond one to another, immediate error correction and feedback on the correctness of responses and, consequently, motivate students learning.

A Comparison between PALS and RT

Although both models, PALS and RT, were developed based on sociocultural theory or other models that depart from a sociocultural framework, these two approaches, however, do not fully share the same understanding of the term' mediation' within the ZPD, as fully explained by Vygotsky (1978). When Vygotsky referred to the child's zone of proximal development, he meant cognitive development which occurs in an evolving process (Radziszewska & Rogoff 1991; Wells, 1999). The child is encounter with other challenging concepts and experiences that will lead to his or her understanding in a joint process, where both the child and the 'expert other' craft together a new understanding of the shared experience (Palincsar, 1998). Further, the notion 'mediation' as previously explained involves two phases, one is through human interaction, the other phase develops internally, as the child's understanding matures (Kozullin, 2003). This means that, in order for a cognitive development to happen, the child needs the 'expert other', at least at the beginning, to mediate the process of learning. The expert other based on the research, is either an older trained partner in a cross age tutoring condition, or as mostly the case, is the teacher or an expert adult (Englert & Mariage, 2003; Gindis, 1999; Kozullin, 2003).

In PALS, for example, the idea being explained is that a child masters specific skills, such as oral reading and asking questions (Fuchs & Fuchs, 205). Thus, such behavior does not necessarily explain how the child is cognitively developing. When children engaged in PALS, the students are given pre-prepared roles by the expert adult, the teacher, instructing them how to react and work on the tasks, e.g., the more advanced reader reads first for five minutes, followed by the second reader for five more minutes (Maheady et al., 2006; Ramsey et al., 2007). These roles are, mostly, written on cueing cards that are placed on students' tables. The more advanced tutor reads the instruction and prompts his or her less advanced partner to proceed with the various parts of the activities. Therefore, due to its high structure, PALS offer limited choices for students on how to engage in the assigned activities. In such cases, students are trained to be task oriented at all times. The role of the expert teacher is to monitor the role exchanges

and the application of the activities, and thus, the teacher becomes less engaged in a real dialogue with the students. Such process may hinder their creativity and limit their interaction. Consequently, this limits students' cognitive development.

In RT, on the other hand, the process of learning, although seems structured around the four basic strategies, it involves, however, multiple interactions between the teacher and students. Students are involved in a structured, yet flexible enough process that allows for an open dialogue between the teacher and his or her students. The teacher is constantly mediating the process by posing questions, reflecting on the different parts of the passage that is being read. Students, while engaged in the prediction activity are encouraged by the teacher to think about their own experience and share their lived experiences. They are encouraged to share their prediction with their peers, constructively refine their work, and represent the new information to the whole class. RT has more merit, compared to PALS, in creating a dialogical learning environment, where students and the teacher work together to construct new understanding. Students, in RT model, can see the change in their thinking and, thus, in their product. They become more aware of their learning process as constructive learners.

In conclusion, the concept 'mediation' as explained by Vygotsky (1978) has a deeper meaning than just a meeting between peers or a top-down traditional instructional delivery, where teachers direct their students, step by step, on how to acquire knowledge. In a cognitive learning process, an 'expert other', carefully and purposefully mediates the learning collaboratively with the learners. Students are in charge of their learning and can take a major role in constructing their knowledge. Two models were explained and compared with each other in this article, PALS and RT. Although, both models share several important elements, such as, peers interactions, students' work together to construct knowledge, and a various teacher's roles, both models, however different in teacher's defined role and the level of involvement. In PALS, the teacher is setting the roles and the process, and thus, controls the interaction at all times. RT, on the other hand, has more flexibility and allows for an authentic dialogue between students and the teacher, which makes it closer to the intended mediation concept defined by Vygotsky.

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