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Socio-cognitive research in action: What can we learn from a single case?

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Abstract: Theory is an important element of literacy research. Research designs are informed by theories that explain what literacy is, how it develops, and how it should be taught and evaluated. Sociocultural theories emphasize the socially situated nature of literacies engagement and practices, whereas cognitive theories emphasize the underlying skills and processes used when reading and writing print. Research designs oriented in one of these theories are common in literacy research. Whilst some researchers have identified ways to unify across literacy theories, there is little ongoing dialogue about the ways in which a socio-cognitive orientation can contribute to literacy research.

This paper discusses a student case study from a research project that gathered and analyzed data on literacy difficulties in Victoria, Australia, using both sociocultural and cognitive understandings of literacy. It uses findings from this case to explore the utility of a socio-cognitive theoretical perspective when engaging in print literacy research, proposing that it helps to identify students' loci of print literacy difficulties, recognize factors enabling and constraining literacy development, and pinpoint pedagogical elements that may require adaptation. This paper outlines broader possibilities and challenges with taking a bi-focal stance in literacy studies and invites others working across literacy paradigms to connect and share their work.

Keywords: cognitive, literacy difficulties, literacy theories, sociocultural



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In 2013, I migrated from New Zealand to Australia to take up a PhD scholarship. I grew up in an aspirational blue-collar family and was first generation university/college educated. I had taught in three countries and had been a primary/elementary school teacher, a specialist literacy intervention teacher, and a literacy coach across a rural region. Much of my teaching experience had been with students of promise in communities with moderate to high rates of poverty and social challenge. When I left my role as a literacy coach, teaching colleagues urged me to study something that was practical and not to become an academic whose work was irrelevant to schools and classrooms. I too was keen to explore practical questions and hoped to ‘make a difference’ through my research.

On entering academia as a research student, I observed the significant role that theoretical orientation and theorist allegiance played in the academy, not just in terms of framing and informing research, but in aligning academics and students in groups and foreshadowing the contents of conferences and journals. “Who is your theorist?” was a common question when meeting other students and I found myself wondering whether I needed a dead, white, male, European theorist such as Bourdieu or Foucault to be successful in this new and unfamiliar environment.

As an experienced classroom and intervention teacher, I had taught a range of literacy curriculums and programs, grounded in different theories of literacy development. Some of these differences were framed by the ongoing reading wars (Castles et al., 2018) which position socially constructed and cognitive theories of learning to read in opposition. In teaching contexts, I was accustomed to drawing pedagogies from both social and cognitive.

understandings of literacy development. Yet the literacy research I read to prepare for my doctorate

was dominated by singular theoretical designs with the unspoken implication that researchers typically choose one side in the reading wars. I was interested in what I might see when utilizing a particular theoretical lens and was also conscious of what I might miss. I utilized the small body of research in this area, with specific reference to Purcell-Gates, Jacobson, and Degenger’s (2004) Print literacy development: Uniting cognitive and social practice theories, in developing a ‘bifocal’ research design which utilizes both cognitive and sociocultural theories of literacy development. In this paper I unpack this design and illustrate its potential and challenges as a framework for literacy research with reference to a single student case study.

This paper explores two key questions:

- To what extent was a socio-cognitive lens helpful in understanding the literacy difficulties, learning opportunities, and literacy trajectory of a case study student?
- What are the possibilities and challenges in engaging in socio-cognitive literacy research?

Theoretical Frameworks

Theoretical understandings of print and broader literacy development provide a framework for conceptualizing the process of acquiring and using literacies. Theories are variously utilized to explain what it is to be literate, the process of literacy acquisition, to identify causes of literacy difficulties, to develop instructional and intervention pedagogies, and to consider what literacy growth is and how to assess it. Through the process of selecting and applying theories, researchers orient themselves in scholarly spaces and define what is and is not important to them and their work.

Two major groups of theories—sociocultural and cognitive—are commonly used in contemporary literacy research. Street’s (2003) concepts of literacy as either ideological, variable practices grounded in

particular sociocultural contexts; or autonomous, a universal set of measurable, cognitive skills, illustrate how these understandings of literacy have been positioned in opposition. This section provides an overview of broad principles underpinning these two groups of theories, together with those of constructivism, which has strongly influenced school literacy pedagogies in Australia and internationally. It uses seminal literature, together with some contemporary research, to outline these theories and show their contribution to literacy education. It discusses how the underlying principles of each theory impact on pedagogical approaches. It then identifies some models and research working across or seeking to unite theories.

Literacy development theories drawing from cognitive science and psychology were redeveloped and disseminated in the 1960s with the work of Chall (1983) and Flesch (1966).

Cognitive theories explain the development and execution of broad cognitive, and print literacy specific, skills and processes; including: receptive and expressive language; working memory; rapid automatized naming; phonological awareness; word decoding; and reading comprehension (Castles et al., 2018; National Institute of Child Health and Human Development, 2000; Scarborough, 2009; Snow et al., 1998). Cognitive literacy theories and models typically focus on the development of print literacy (reading and writing print) which is understood as a biologically secondary process acquired through instruction (Paas & Sweller, 2012). Cognitive models of reading include Ehri's (2005, 2020) phases which describe the development of word reading, the Simple View of Reading (Gough & Tunmer, 1986; Hoover & Tunmer, 2022) which posits that reading is the product of skilled decoding and language comprehension, and the Dual Route Cascading Model of Visual Word Recognition and Reading Aloud (Coltheart et al., 2001) which shows the specific

contributions made by earlier phonological and phonic, and later orthographic methods of processing written words. Cognitive models inform instruction which often builds from smaller to larger units; and may isolate skills from the act of reading for meaning for the purposes of instruction (National Institute of Child Health and Human Development, 2000). Assessments drawing from cognitive literacy paradigms assess sub-skills like phonemic awareness, word and non-word reading, reading fluency, and broader domains such as oral language and reading comprehension. Assessments may be formal, standardized, and normed. Print literacy difficulties are understood to occur because of poor instruction (Buckingham et al., 2013; Flesch, 1966; Graham et al., 2020; Tunmer et al., 2006), and or individual medical, sensory, or cognitive differences (Hecht et al., 2000; Scarborough, 1998; Snow et al., 1998).

A sociocultural turn in literacy studies emerged in the 1980s with the research of Street (1984) and Heath (1983) and was further expanded with the digital and multimodal work of the New London Group (Cazden et al., 1996). As noted earlier, Street's (2003) concepts of literacy as ideological or autonomous frame some of the key theoretical differences discussed in this paper. Street's research (1984, 2003, 2011) drew on ethnographic case studies to explore his ideological concept of literacy, investigating the local, culturally specific, and contextually relevant literacies that different groups around the world use to participate in their communities. Heath (1982) used community case studies to demonstrate literacies uses in three settings, highlighting that Maintown, the middle-class community, experienced the most coherence between ways of doing literacy at home and at school. The New London Group (Cazden et al., 1996) explored how literacy was changing with the advent of new communication technologies and increased cultural and social diversity. They developed a theory of multiliteracies to encompass the varied modalities

people use to communicate across their personal, school, work, and community lives.

Commonalities across these theorists' work are their uses of ethnographic methods of inquiry and their honoring of the varied and located literacy experiences and practices of groups. In sociocultural theory, literacy is understood to be a social practice rather than a skill, and practice types are broad, including oral, visual, place-based, and digital literacies. Print literacy is considered one of many literacies, with some contesting its primacy in facilitating social, financial, and cultural capital (Street, 2011). Key theories within the sociocultural paradigm include social practice, critical literacies, and multiliteracies, each with slightly different conceptualizations of literacy and how it should be taught (Perry, 2012). Yet there are broad commonalities across sociocultural literacy instruction which is typically based around students' home and community literacy practices and personal interests (Kamler & Comber, 2005; McNaughton, 2011; Moje & Hinchman, 2004; Moll et al., 1992; Subero et al., 2017), often with an emphasis on critically reading the world rather than the word (Freire, 2000). Students read, view, and create a range of informal, digital, and formal texts (Cazden et al., 1996; Subero et al., 2017) rather than being limited to print books and formal written genres. Within school contexts, where some form of assessment is usually mandated, sociocultural educators employ observations, work portfolios, and self and peer modes of assessment (Afflerbach, 2007; Kalantzis & Cope, 2012) rather than standardized testing which is critiqued for its focus on a narrow set of skills (Freebody & Wyatt-Smith, 2004; Luke, 2010; Street, 2003). To some sociocultural scholars, literacy difficulties are viewed as a social and political

“Students read, view, and create a range of informal, digital, and formal texts (Cazden et al., 1996; Subero et al., 2017) rather than being limited to print books and formal written genres.”

construct arising from narrow conceptualizations of literacy (Street, 2011). Others reason that literacy difficulties arise from a mismatch between school instruction and students' home and community literacy practices and funds of knowledge (Davidson, 2010; Heath, 1983; Llopart & Esteban-Guitart, 2017; Luke, 2008).

Connected to, but distinct from each of these theories are constructivist understandings about literacy acquisition which emphasize learners' active meaning making with texts. Vygotsky's (2005) constructivist theory positions students as active learners who construct their own knowledge in social

contexts. Parents, teachers, and more able peers support students to achieve tasks that they are not yet capable of achieving independently. The importance of context in learning is emphasised, and resources and activities may draw on students' own interests (Smagorinsky, 2013). Constructivist literacy theories and pedagogies broadly emerged from whole language and psycho-linguistic theories (Goodman, 1967, 1977; Smith, 2012; Smith, 1997) which

conceptualized learning to read and write as natural processes occurring through immersion in print-rich environments. Clay's (1991) theory of reading is a “message getting, problem-solving activity which increases in power and flexibility the more it is practiced” (p. 6) draws on Vygotsky's work (Clay & Cazden, 1999). Clay influenced early reading pedagogies in schools in Australia and internationally (Hill & Crévola, 1999; Pinnell & Fountas, 2006), primarily through her creation of the intervention program Reading Recovery.

Whilst sociocultural and constructivist theories both position learners as active participants in their

learning trajectory, constructing knowledge in social contexts with more able others as facilitators; constructivist literacy pedagogies have historically focused on oral and print literacies and have not necessarily attended to home funds of knowledge or social and cultural difference in literacies practices (Heath, 1983; Stahl & Miller, 1989). Constructivist literacy theories have also not addressed the fine-grained development of reading and writing skills to the extent that cognitive theories do. Instead, constructivist pedagogies focus on the reading and writing of whole texts with skills taught within a meaning-centered context. Students engage in shared, guided, and independent reading and writing activities (Hill & Crévola, 2003; Hill, 2021) and are assessed through teacher observation, running records and classroom activities (Department of Education and Early Childhood Development, 2009; Hill, 2021; Pearson, 2004). Constructivist intervention pedagogies place an emphasis on individualized instruction with a skilled and experienced teacher to accelerate the literacy learning of students at risk of early difficulties (Clay, 1991, 2016; Hill & Crévola, 1999, 2003).

These three major theories have influenced literacy education in many parts of the world. The two socially oriented theory groups, sociocultural and constructivist, are often pitted in opposition to cognitive understandings of literacy development by researchers, teachers, and social commentators (Castles et al., 2018). Although the best method of teaching children to read and write has always been a topic of significant interest (Barry, 2008), the reading wars grew in prominence in the 1970s and 1980s when whole language literacy pedagogies were embraced by many jurisdictions. Whilst whole language and constructivist theorists argued that reading and writing were ‘caught’ through engagement in real texts (Goodman, 1977; Smith, 2012), cognitive critics contested the notion that literacy could be naturally acquired through immersive pedagogies, noting the

critical role skill development played in literacy learning (Chall, 1983; Ehri, 2020; Moats, 1994). In recent years, there has been broader acceptance of the importance of skills instruction in early literacy education. Contemporary reading wars are often concerned with the nature and quantity of skills instruction, and its position within a broader literacy curriculum. For example, the balanced literacy movement retains its emphasis on reading and writing as meaning centered activities, including some skills instruction alongside constructivist literacy pedagogies (Fisher et al., 2023; Pressley & Allington, 2014). In contrast, the science of reading movement advocates for a structured approach, building skills synthetically and systematically (Ehri, 2020; Shanahan, 2020). These ongoing reading wars and debates illustrate the impact literacy theories have on educational policies, school pedagogies, and interventions for students with literacy difficulties.

Literature Review

Despite research designs based on a singular theory being common in literacy research, some researchers have sought to work across or unify theories. Purcell-Gates et al. (2004) explain how print literacy involves both social and cognitive processes, with the contextualized use of literacy as the ultimate goal of literacy instruction. Davidson (2010) contrasts the key elements of sociocultural and cognitive theories of literacy, arguing that each is too narrow to conceptualize literacy development. Ruddell and Unrau (2018) model the interrelationships between cognitive and sociocultural knowledge, and skills and beliefs, within meaning-centered classroom literacy events, showing how teacher and student prior beliefs and knowledge interact to inform instructional decisions and knowledge development. Freebody and Luke (1990) outline four resources that are necessary for reading, comprised of code-breaking, understanding, using information, and thinking critically, providing a pedagogical

framework for a comprehensive literacy program. Pressley and Allington (2014) discuss a balanced approach to literacy instruction, describing high achieving classrooms that teach literacy skills clearly and sequentially, and engage with rich literary texts to develop vocabulary and comprehension.

Some researchers have engaged in literacy research in which one theory is dominant and others are also utilized. For example, the Better Start to Literacy project (Gillon et al., 2019; Gillon et al., 2023) aims to improve young children's oral language and early reading skills through school based whole class intervention. Ongoing research into the program is focused on students' skill development which is tracked through language and literacy assessments. Yet this project also attends to the students' sociocultural context and incorporates cultural values, language, and representations in its teaching and learning materials.

Literacy research designs using an explicitly bi- or multifocal framework where each theory has equal importance are less common. An interesting exception is Hall (2003) who brought together literacy researchers from different theoretical backgrounds to analyze data from a single student case study. These researchers were provided with case study notes about Stephen's reading, together with transcripts and recordings of him reading aloud and discussing a book. The researchers summarized their understandings of Stephen's literacy strengths and needs and recommended next steps for his learning. Unsurprisingly, the researchers prioritized different elements in the data and often made different recommendations for Stephen's next steps. This research demonstrates the application of different theories to a single case and shows how theory can shape scholars' understandings of a phenomenon. In Hall's research, each researcher remained within their theoretical framework rather than utilizing ideas from other theories. However,

Hall's drawing together of these ideas allows the reader to access the theorists' diverse understandings and build a multi-dimensional picture of Stephen's reading.

These models and studies show the value of exploring literacy from different perspectives simultaneously. They also highlight the relative dearth of research that explicitly examines literacy through more than one lens. This paper extends existing research by showing how a single researcher can draw from different theories simultaneously. It aims to demonstrate the potential of a socio-cognitive perspective, drawing on the data of one student as she transitioned through an intervention to improve her print literacy learning.

Methods

This paper reports on and discusses a subset of data from a larger study investigating print literacy interventions for primary/elementary students in Victoria, Australia, in 2014 and 2015. The larger study explored the types of interventions offered by 150 schools across the state (Quick, 2019); and utilized school and student case studies to investigate intervention provision and outcomes in two contrasting school settings, and for three case study students in each of these schools. Ethical approval was gained from university and school-system authorities before commencing the research, and all participants freely consented to participate in the study. All school and participant names used in this paper are pseudonyms.

In framing this research, I took the view that literacy is both social and cognitive, comprised of socially constructed practices that are enabled by cognitive skills and processes. Like Purcell-Gates et al (2004) I positioned print literacy as a unique case within the broader field of literacies as it tends to be developed through formal education (Center, 2005; Moats, 1999) and is difficult to acquire for approximately

Table 1
Codebook example

<u>Focussed theme</u>	<u>Definition</u>	<u>Sub themes</u>	<u>Coded example</u>
Locus of difficulty	Contains reference to possible causes of the student's literacy difficulty, and/or their current and/or future literacy needs.	Cause of difficulty: - findings from initial assessments/observations - child health/disability - home deficit - findings from Response to Intervention Literacy needs of student	I really struggled at school with reading. Her Dad was dyslexic. So I don't know if it's hereditary or things like that.

20% of the population (Lyon & Moats, 1997; Pressley & Allington, 2014). I situated myself with parents, students, school educators and policy makers who regard print literacy as an important skill associated with life-wide advantages (Mullis et al., 2012). I reasoned that teachers draw on more than one theory of literacy (Hill, 2021; Hall, 2003; Xue & Meisels 2004) and therefore a comprehensive grasp of common literacy theories must be needed to explore literacy development in school contexts.

I used case study methodologies to explore the impact of literacy interventions within real life contexts (Yin, 2009). Data collection for my student case studies took a socio-cognitive stance, gathering interview, literacy practices questionnaire [LPQ] (Quick, 2022), and assessment data on students, their print literacy development, in and out-of-school literacy practices, and student, parent, and classroom and intervention teacher perceptions of students' literacy difficulties, learning opportunities, and literacy learning trajectory. This paper utilizes

Georgia's case study to explore the utility of a socio-cognitive literacy research design. Georgia was a preparatory/year one [kindergarten/first grade] student who participated in this research for nine months between 2014-5. She attended a mid-sized Catholic school in an urban, mid-low socioeconomic status area of Victoria, Australia¹. I visited and interviewed Georgia, her Mum, and one or more of her teachers on three occasions between December 2014 and July 2015—near the start, at the end, and three months after the conclusion of her literacy intervention program.

Data analysis

Participants' interview data were transcribed soon after each interview and analyzed thematically through an iterative and inductive process of identifying and grouping recurring ideas. Open coding was used to describe ideas (such as dyslexia as a cause of literacy difficulties or guided reading as a type of instruction) and focussed or selective coding

¹ The Australian school year runs from late January to late December and comprises four terms, each running for approximately 10 weeks. There is a national curriculum which describes content to be learned but does not mandate how it should be taught. States, territories, and government and independent school systems interpret the curriculum and may place more prescriptive requirements on schools as to how to teach and assess. Victorian government and Catholic primary schools have historically promoted a constructivist approach to

literacy which emphasized the reading and writing of whole texts and of learning literacy skills within the context of meaning-centered activities (Hill & Crévola, 1999, 2003). Reading Recovery was the recommended and funded early intervention for these schools from the mid 80s to the mid 10s (Reynolds & Wheldall, 2007; Personal communications with the Department of Education and Training, Victoria and Catholic Education, Melbourne).

was simultaneously employed to identify the major concepts within which the more detailed and descriptive codes sat. These focussed codes consisted of seven overarching themes: locus of difficulty; literacy development; learning; expertise; logistical considerations; relationships; and outside influences. These were consistently identified by participants as powerful interacting factors that impacted on students' literacy development through and beyond an intervention. A descriptive code book was constructed setting out each focussed theme, its sub-themes, a description of data coded under that heading, and an example from a data source, as shown in Table 1.

Georgia's formal assessment data were tabulated to compare her progress over time and, where possible, in relation to standardized norms for students of her age and/or school year level. Her literacy practices questionnaire data were tabulated to identify common and preferred practices and changes in literacies engagement over the course of the study.

These data sets were synthesized to construct a narrative account of Georgia's: a) background; b) school, home, and intervention learning opportunities; and c) literacy development. These narrative accounts were then analyzed thematically to identify beliefs, understandings, and practices that reflected or were indicative of constructivist, cognitive, and sociocultural theories of literacy development. For example, references to skill deficits or skill instruction were coded as cognitive, references to meaning centered pedagogies such as shared reading were coded as constructivist, and references to home and community literacies engagement were coded as sociocultural. Methodologically, this research design draws on Hall's (2003) multi-researcher analysis of Stephen's reading, in that it views Georgia's literacy trajectory and learning opportunities from a range of theoretical perspectives. It differs from Hall's work in

that it demonstrates the potential for one researcher to draw on a range of perspectives when exploring a case.

The following findings section provides a narrative account of Georgia's background, literacy learning opportunities, and literacy development. This is followed by a theoretical findings section that discusses the ways in which sociocultural, constructivist, and cognitive understandings of literacy acquisition and development were represented in the data.

Findings: Georgia's Case Study

Background

Georgia was a Caucasian-Australian preparatory/kindergarten student when I first interviewed her towards the end of 2014, and a year one student at the time of our final interviews, mid 2015. Georgia spoke English as her first language, as did most of her peers at Sacred Heart School, a small-medium sized Catholic primary school serving approximately 150 students in a metropolitan area of Victoria. For the duration of the study, Georgia lived with her mother, sister, aunt, and grandmother. Her parents had recently separated at the time of our first interview.

At home, Georgia enjoyed posing for selfies, making cards for people, and reading environmental print. She helped with cooking and making the shopping list. She enjoyed being read to and her extended family were involved in community print literacy development activities, with relatives variously owning a local bookshop and volunteering in the literacy tuition program at Georgia's school. Both of Georgia's parents had experienced difficulties in learning to read and her father had a diagnosis of dyslexia.

In her preparatory/kindergarten year at school, Georgia could write her first name and the initial of her surname. She liked listening to stories and enjoyed relaying news at sharing time. She was identified as being in-need of additional literacy support by Kathryn (her classroom teacher), who had noticed that she was not learning to recognise sounds or sight words, did not understand writing conventions such as leaving spaces between words, and was not able to read emergent reading texts with her classroom peers. Kathryn also noticed that Georgia forgot instructions easily and could demonstrate skills one day but appeared to have forgotten them by the next. She, Maria (Georgia's Reading Recovery teacher), and Amy (Georgia's Mum) described Georgia as having a short attention span.

All participants—including Georgia herself—described Georgia as a reluctant reader who had significant avoidance strategies around reading. Amy explained: “she just lies down and she's like ‘I don't want to do it’... she tries to drag it out as well, she looks elsewhere and things like that.”

Learning opportunities

In her preparatory year, Georgia's classroom literacy program included: oral language and digital literacy activities; phonological awareness, phonics and use of the THRASS analytic phonics program resources (Davies, 2003; Davies & Ritchie, 1996); shared, modelled, and guided reading with children's literature and levelled, predictable texts; and writing on a range of topics. Georgia received some additional support from the classroom integration aide, including sessions to reinforce her phonic knowledge and skills. In the first half of Georgia's year one year, her literacy classroom program followed the same broad foci as that of her preparatory year. She

continued to receive some support from the classroom integration aide. When asked about her learning at school, Georgia stated that “we just do work work work.” At each of our interviews, she shared which set of the class's high frequency sight words she was “up to” and this appeared to be a personal marker for her reading progress.

Georgia participated in Reading Recovery, which was her school's nominated early literacy intervention, for 20 school weeks (between term four, 2014 and term two, 2015), and was present for approximately two thirds of the total possible 100 lessons. Her program followed the general structure and routine outlined in Clay's texts (Clay, 2005, 2016). Each daily lesson

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began with reading familiar predictable books, followed by reading the previous day's instructional text, at which time Maria took a running record. Next came word and letter work, which varied depending on Georgia's needs. Maria explained: “we sometimes use magnetic letters, we might use the sand box to do letters, we might just talk about letter formation, if she's got a particular

letter she's not forming or a confusion.” Writing followed, based on Georgia's own life or a recently read text. Next, a sentence from that writing was selected, written on a card, cut up, and reconstructed.

Finally, a new book was introduced and read at the end of the lesson. Maria explained how she adapted Reading Recovery for each student, emphasising elements that related to their individual needs. She was clear that her Reading Recovery lessons included phonic decoding skills, and gave examples of teaching with the THRASS chart, using Elkonin boxes, and modelling analytic phonic strategies. Georgia observed that had learned to “sound out” in Reading Recovery and, when asked what she would

Table 2
Georgia's Observation Survey and Record of Oral Language data

<u>Literacy skill assessments</u>													
	<u>Letter identification</u>		<u>Concepts about print</u>		<u>Word reading</u>		<u>Burt word test</u>		<u>Writing vocabulary</u>		<u>Hearing and recording sounds in words</u>		<u>Record of oral language</u>
	Score /54	Stanine	Score /24	Stanine	Score /15	Stanine	Score /110	Age band	Score	Stanine	Score /37	Stanine	Score /42
Entry to RR	39	2	12	4	1	2	2	-	8	3	22	3	34
Beg. Y. 1	51	4	20	6	5	1	12	-	15	3	25	2	36
Exit RR	48	3	19	5	9	2	19	-	30	5	31	3	38

Notes: Scores and stanines are shown for each of the subtests in the Observation Survey enabling comparison between Georgia's scores and the average achievement for other students of her age. The R.O.L. is not norm-referenced, and, whilst the Burt word test (Gilmore et al., 1981) is normed by age, Georgia did not score the 20 or above needed for the first age band of 6 years).

do if she were the Reading Recovery teacher, she said she would get the students to: "try to do it... just help them sound it out. I would just say 'sound it out.'"

Sacred Heart School's daily homework expectations were to read aloud to an adult, and to practice alphabet cards and sight words. Georgia's additional Reading Recovery homework consisted of: reading one or more books; sight words to practice; and a cut-up sentence from that day's writing to reconstruct. Georgia's teachers felt that homework was done irregularly, whereas Amy explained that it was usually completed, but with great effort. At our final interview, Amy volunteered that Georgia was no longer guessing at words, but was rather having "a good go at them." Neither Georgia or Amy reported formal literacy learning opportunities such as family or private tuition occurring at home.

Print literacy development

On entry to Reading Recovery (in the fourth term of her preparatory/kindergarten year), Georgia was reading at level zero on an informal reading inventory

(Alpha Assess, 2007); meaning at that point she was not able to read short predictable texts containing a repetitive sentence and supportive illustration on each page. She initially made rapid text level progress, finishing her preparatory year reading at level six, then dropping one level over the summer break. At the conclusion of her 20-week program, Georgia was reading between levels seven and eight (Alpha Assess, 2007) and appeared to be at risk of not meeting the state goal of level 15 by the end of year one. One term later, Georgia was working with a classroom guided reading group on level 11 texts, though further reading level assessments had not been conducted.

Several additional assessments were utilised to track Georgia's progress in literacy sub-skills through her Reading Recovery program. These comprised the five skill assessments that comprise The Observation Survey of Early Literacy Achievement (Clay, 2013); together with the Burt word test (Gilmore et al., 1981), and the Record of Oral Language (R.O.L.) (Clay et al., 2015). Table two summarises the data from these assessments.

Georgia's Concepts About Print [C.A.P.] scores were consistently average for her age, whereas her Letter Identification and Writing Vocabulary scores varied between average and low, and her Hearing and Recording Sounds in Words (H.R.S.W.) scores were consistently low. Word reading appeared to be particularly difficult for Georgia, and this was evidenced both in her low Word Reading stanines², and in her Burt word test (Gillmore et al., 1981) scores. Georgia's Record of Oral Language raw scores showed a slight increase in the complexity of sentences she was able to repeat at each data point.

Literacy practices engagement

The literacy practices Georgia engaged in frequently and enjoyed the most were using a digital device, listening to stories, and doing her own writing. She enjoyed writing for a social purpose, such as creating cards for people or retelling special events and loved to take glamorous and funny selfies. Georgia reported feeling good or excellent about a number of other activities that she engaged in less frequently, including cooking, reading menus, labels and signs, and doing art and craft. She reported that she did not read books of her own choice, though Kathryn and Amy clarified that she did look at and listen to books at school and at home. At our final interview, Georgia reported decreased enthusiasm about reading schoolbooks, explaining that it was "boring because sometimes I ohhh don't want to do my reader." Other reported changes in her literacy practices over the course of the study appeared to be attributed to timing (such as feeling more positive

about making lists and looking at junk mail in our interview shortly before Christmas) rather than literacy growth.

Kathryn gave many examples of the ways in which Georgia used literacy at school, for example: listening to stories; playing literacy games on an iPad; creating scenes with felt boards; and playing Guess Who. Kathryn noted that whilst Georgia did enjoy looking at books; if she was given a range of options, she would usually choose to do another activity. Amy described Georgia's passion for art and craft,

identifying this as her favourite activity, and giving examples of her engagement in other practical literacies at home such as helping with cooking and doing chores. At our final interview, Amy had noticed that Georgia was now reading words and signs at home and in the community.

Findings: Theoretical Understandings

A socio-cognitive perspective, supported by understandings of constructivism, allowed the consideration of theoretical understandings about the locus of print literacy difficulties and the extent to which they applied to Georgia's case. It also showed ways in which information could have been missed had her data been collected and analyzed using a single theory. From a cognitive perspective, Georgia's literacy skill assessment data and reported family history identified two contributing factors. Firstly, both of Georgia's parents had experienced significant reading difficulties themselves and her father had dyslexia. This links with psychological and

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² A stanine scale ranks standard test scores from one to nine, with an average of five. Stanines one to three indicate very low

skill levels, four to six an average band of achievement, and seven to nine high achievement; relative to other students of the same age or year group.

medical understandings of heritable reading difficulties and disabilities (Grigorenko, 2004). Secondly, Georgia demonstrated typically developing oral language but persistent difficulties in word reading, together with some phonological, memory and processing challenges. These challenges link with cognitive research on core skill deficits underpinning reading difficulties (Gough & Tunmer, 1986; Scarborough, 2009; Snow et al., 1998; Snowling, 2013). From a sociocultural perspective, one explanation for print literacy difficulties is that people do literacy differently, and that some home literacy practices are built on and valued in classrooms and others are not (Heath, 1982; Luke, 2008; Rennie, 2006). The interview data with Georgia's Mum and teachers showed that Georgia's home literacy background was print rich and emphasized a love of books. A close family member owned the local bookshop, and another was involved in literacy support programs at Georgia's school. Georgia was an attentive listener at story time at school and helped to create the shopping lists at home. In her Concepts about Print assessment, a measure of students' familiarity with text conventions, Georgia consistently scored within the average bands for her age. In Georgia's case, this familiarity with books and congruence between home and school valued literacy practices did not enable her to acquire print literacy alongside her peers in the classroom.

Theories inform the types of literacy teaching and learning that are valued by policy makers, school leaders, teachers, and families. In Georgia's context, constructivist theories of literacy development were evident in her teachers' descriptions of classroom and intervention pedagogies, in the types of school reading materials Georgia read, and in the types of assessments used to measure student achievement. In addition, Georgia and her Mum discussed the importance of sounding out words across several interviews, suggesting that they valued the cognitive skill of decoding. An analysis of theoretical influences

across Kathryn and Maria's transcripts showed that they also attended to and valued cognitive skills such as working memory, phonological awareness, and phonics. Furthermore, their teaching practices connected to sociocultural theories in that they knew Georgia, her family, and her interests well (Moll et al., 1992).

Implications

Whilst understandings of these three theories were evident in Georgia's data, a deeper interrogation of the pedagogies each theory informs helps to identify ways to further support Georgia's learning. For example, Georgia was aware of small but subtly competitive elements of her constructivist classroom and intervention, with leveled readers and sets of sight words to attain, together with statewide goals for student achievement. These practices conflict with sociocultural teaching practices which emphasize intrinsic engagement and motivation and contextualized and child-centered assessment practices (Afflerbach, 2007; Barnes, 1996; Cremin et al., 2015; Kalantzis & Cope, 2012; Kamler & Comber, 2005). Whilst schools are required to teach and assess for appropriate literacy progress, competitiveness could be mitigated in a small way by having less visible markers of students' achievement. From a cognitive perspective, research suggests that a more explicit and systematic approach to phonics instruction, together with the use of decodable rather than predictable texts, may be more effective for Georgia and other students with word reading difficulties than the analytic approach used in Georgia's first two years of school (Castles et al., 2018; Johnston & Watson, 2005; National Institute of Child Health and Human Development, 2000; Rose, 2006). A socio-cognitive stance enabled an examination of any transfer effects between Georgia's literacy intervention learning and her uses of literacy in daily life. Some research has found that students do not necessarily transfer learning from participation in an

intervention to classroom and broader contexts (Freebody, 1990; Lankshear & Knobel, 1998). At times this has been assumed to be the result of decontextualized instruction within an intervention setting (Luke et al., 2003; Woods & Henderson, 2002). Transfer is important as without the regular use of new literacy skills, intervention improvement is not sustained over time (Bradford & Wan, 2015; Reynolds & Wheldall, 2007; Sylva & Evans, 1999). Whilst Georgia did not report notable changes in her frequency or enjoyment of most literacy practices in the LPQ, other than decreased enthusiasm for reading schoolbooks, her Mum reported that she was reading environmental print more at the end of the study. Yoon (2015) argues that such spontaneous and contextualized uses of literacy are important evidence and should be considered alongside more formal assessment data. Whilst the LPQ created for this study was intended as a measure of tracking participants' literacy practices over time, in this case it also highlighted the reciprocal link between skills success and engagement. Georgia enjoyed and voluntarily participated in activities that she felt successful in and could engage in independently such as writing a card and taking a selfie. Reading books was genuinely difficult for her and, understandably, she did not enjoy this activity, despite making progress in it. Georgia's future learning opportunities will need to build reading skills and motivation in tandem; a program or approach which emphasizes one and not the other is not likely to have great success (Hebbecker et al., 2019). Improving Georgia's reading skills is likely to boost her motivation to read whilst understandings of literacies as multiple and contextualized could inform teachers as they continue to engage Georgia in school literacy tasks, for example, by drawing on her as an expert in craft, cooking, and photography activities, and providing opportunities to connect print to her preferred literacies.

Exploring individual variables such as intervention progress without an understanding of their contexts is unlikely to provide useful information to teachers and school leaders (Freebody, 2007; McNaughton, 2011), who typically seek to learn what is working well and which aspects could be improved. Whilst literacy interventions were the specific focus of the research, the socio-cognitive design of this study showed that Georgia's participation in Reading Recovery was one of many opportunities to learn and engage in literacies. The research design identified factors that acted as barriers and enablers to Georgia's literacy development to be identified. For example, Georgia's specific and ongoing challenges in word reading and relatively poor school attendance were factors that acted as barriers to learning. Georgia's supportive family, positive school relationships, and multiple and contextualized literacies were factors that acted as enablers. The pedagogical programs offered at Georgia's school were consistent and supported Georgia to develop across some but not all components of print literacy. At a systemic and policy level, Georgia's school was well resourced and was able to offer both integration aide and intervention assistance when she was identified as needing support with print literacy. These factors were identified through a socio-cognitive research design which explored Georgia's literacy trajectory through and beyond her intervention, within her broader societal contexts.

There are instances where a single theory may be most useful for examining phenomena, for example, like-like studies in which the researcher's theory of literacy is congruent with that of the approach or program being studied. An example of this is Kamler and Comber's (2005) sociocultural exploration of strengths focused pedagogies for students with literacy difficulties. Another type of research considers whether and how a theoretical lens or model accurately captures the literacy learning experiences of a particular group, for example, Jones'

(2012) research into the relevance of aspects of the four resources model (Freebody & Luke, 1990) for a marginalized group of students. However, viewing pedagogies, programs, policies or assessments through a particular theoretical lens can result in foregone conclusions if these artifacts do not reflect the belief system of that theory. For example, using sociocultural theory to examine a print literacy program or intervention may lead researchers to critique it for its narrow view of what literacy is, as some have done with Reading Recovery (Barnes, 1996; Dudley-Marling & Murphy, 1997; Lankshear & Knobel, 1998; Woods & Henderson, 2002). Similarly, using cognitive understandings of literacy development to examine a program based on students' diverse funds of knowledge may result in criticism over a lack of attention to core reading and writing skills. Moss and Huxton (2007) emphasize that research evidence should not be interpreted through a single paradigm, noting that more research exploring literacy issues from one perspective is not necessarily of value. One realization from engaging in this research is that a critique or explanation from one perspective does not necessarily communicate accurately or respectfully to classroom practitioners who typically draw from more than one theory when teaching. Recommendations arising from research with teachers require nuance and depth to tease out the subtle ways that understandings of literacy development could be strengthened.

“A challenge when undertaking socio-cognitive research is that it requires the use of a number of tools and analytical techniques, typically drawing on both quantitative and qualitative methods.”

Limitations

A challenge when undertaking socio-cognitive research is that it requires the use of several tools and analytical techniques, typically drawing on both

quantitative and qualitative methods (Davidson, 2010). In this research, the broad spectrum of data gathered for this study enabled an exploration of students as they progressed through and beyond literacy interventions, both in their classroom and school contexts. But, given the time constraints of a doctoral program, it was not possible to gather in-depth data in any one area. For example, I relied on the school's literacy assessment data and did not administer additional literacy assessments (such as a pseudo-word reading or listening comprehension assessment) or use more in-depth methods for exploring Georgia's literacy practices and events (such as photograph or artefact collections). I did not

have the opportunity to observe in classroom or intervention settings, rather, used participants' interview data, triangulated across participants' transcripts, and clarified queries in subsequent interviews. In terms of data analysis, I was able to compare Georgia's assessment data to norms for her school year level, tabulate literacy practices changes, and identify common and recurring themes across the participant interviews. But I was

not able to use detailed analytical techniques like applied or critical discourse analysis to explore deeper questions of identity and power within the interviews. On the other hand, the broad methodologies used have meant that my research has been relevant to classroom teachers who routinely look at several components in their teaching and students' learning simultaneously.

Conclusion

Exploring literacy phenomena using a socio-cognitive lens has enabled me to observe both the fine-grained skill development and the broad social contexts of

literacy learning and literacies uses with my case study participants. This lens has allowed me to pose questions informed by each of these paradigms and consider how each theory's conceptualization of literacy difficulties and teaching pedagogies applies to each case. Whilst constructivist literacy pedagogies were dominant in Georgia's classroom and intervention learning, a strong understanding of both sociocultural and cognitive theories enabled a broader and deeper understanding of her literacy strengths and difficulties, and the specific ways in which her personal literacies engagement and teachers' pedagogies interacted with these. A socio-cognitive lens did not provide quick answers or fixes to the complex challenge of print literacy difficulties. Rather, it helped to identify factors acting as barriers and enablers to specific students' literacy learning and show the complex systems contributing to each student's literacy trajectory. The three paradigms explored in this research are a small subsection of the many theories used by educational researchers. They were selected because of their dominance and significance to the fields of literacy difficulties and intervention, both in academic research and in school

contexts. There are challenges in taking a socio-cognitive perspective; namely that one's methodological tools of inquiry are likely to be multiple, giving a broad picture of the whole, rather than a close-up of a specific element, and that academic audiences are often aligned to one or the other paradigm. This latter challenge led me to write this article as one method of connecting with others who are engaged or interested in socio-cognitive research.

Nine years on from my introduction to doctoral studies, I continue to ask the same questions of the theoretical work that I read: what does each theory enable me to see, and what might I miss by looking through a particular lens? Georgia's case resonates with me when I hear people advocating for purist cognitive, constructivist, or sociocultural pedagogies in school and intervention settings. I look forward to continuing to use bi and multifocal lenses in understanding literacy and welcome communication and feedback from others working in this space.

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