Parents' Reading-related Knowledge, Literacy Feedback, and Children's Reading and Writing Performances Across Three Contexts

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ABSTRACT

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The role played by children's social relationships in their development is unequivocal (e.g., Bandura, 1993; Bronfenbrenner & Morris, 2006; Vygotsky, 1978). Often, parents take on the role of children's first literacy teachers (Hiebert & Adams, 1987) and literacy competence is critical for academic success and beyond. Research supports the significant association between parents' underlying knowledge of English language (reading-related knowledge [RRK]; e.g., Ladd, Martin-Chang, Levesque, 2011) and children's reading. However, the means through which this knowledge is conveyed (i.e., parental practices), has yet to be examined. Moreover, whether the same association holds between parental RRK and children's writing is unknown. Thus, the primary goal of the present research was to fill these important gaps in the literature. To this end, the three manuscripts that comprise the dissertation focus on the relations between (1) parental RRK, parental feedback, and children's reading; (2) parental RRK and parental feedback on a writing sample; and (3) parental RRK, parental feedback, and children's writing. The sample consisted of 75 parents. All parents completed Study 2 tasks and their feedback was coded based on pre-established criteria. Seventy of their children participated in the parent-child studies. Therefore, Studies 1 and 3 consisted of 70 parent-child dyads. Dyadic exchanges were videotaped; all verbal and nonverbal exchanges were transcribed and coded for the presence of pre-established criteria specific to each study. Parental RRK was measured by parents' performances on a series of activities and children's literacy skills were assessed using reading and spelling subtests of the Wide Range Achievement Test-Fourth Edition (Wilkinson &

Robertson, 2006). Results are presented within the framework of the extant teacher and parent RRK literature, with a focus on the novel findings of each investigation. Overall, this corpus of research allows for an understanding of the relations between parental RRK and practice across three different contexts; the data indicate similarities in evaluative feedback and differences in miscue feedback across the three studies. Specifically, in Study 1, RRK was positively associated with praise and letter-sound (graphophonemic) feedback parents provided when listening to their children read. In Study 2, parental RRK was positively associated with the amounts of praise and modeling they provided on a writing sample. In Study 3, parental RRK was positively associated with the amount of praise parents provided their children in the course of writing a thank you note together; RRK was additionally negatively associated with dictation. The implications of these findings are discussed more elaborately in each study section in terms of future research employing different methodologies to gain further insight into parental RRK and literacy practices that can enhance children's learning.

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Contributions of Authors

The first author of each manuscript is Aviva Segal who collected the data, transcribed and coded dyadic exchanges, ran analyses, and wrote the three manuscripts. The second author of each manuscript is Sandra Martin-Chang who provided guidance at all stages of the research (e.g., research ideas, questionnaire content, choice of measurements and subsequent analyses, and production of the present document). The third author of the second manuscript is Shaneha Patel as she was integral in creating the coding scheme for that study and subsequently coded the parent feedback data.

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General Introduction

Numerous theories support the important contributions of parents and teachers to children's developing skills. For example, Vygotsky (1978) discussed the influence of social interactions and the contributions of adult guidance in scaffolding children's development. Likewise, the role played by adults in a child's life was also captured by Bronfenbrenner and Morris (2006) as well as Bandura (1993), who discussed the influential contribution of close relationships to children's developing skills. While there is a general consensus regarding the disciplinary knowledge and most effective practices teachers need for facilitating students' literacy skills (e.g., Cunningham & O'Donnell, 2015; Ladd, Martin-Chang, & Levesque, 2011; McCutchen et al., 2002; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003), there is a surprising paucity of research regarding parental reading-related knowledge (RRK) and practices required to optimize literacy teaching in the home (Ladd et al., 2011; Segal & Martin-Chang, in press). The present corpus of studies contributed to the literature through investigating the relation between parental RRK and feedback practices across three contexts: joint reading, responses to a writing sample, and joint writing. Findings from these investigations contribute to understanding how knowledge and practice converge when parents take on literacy teaching roles.

The Home Literacy Environment

The "home literacy environment" refers to the types of literacy experiences children are exposed to in the home (Sénéchal, LeFevre, Hudson, & Lawson, 1996). Home literacy exposure can occur through informal and formal means (Sénéchal & LeFevre, 2014). Although there can be some overlap between these types of experiences, the distinguishing factor among the two involves the degree to which parents orient their children to print. Specifically, informal literacy

activities, such as reading storybooks, focus on the message contained in the print; in contrast, formal literacy activities, such as learning letters and letter sounds from alphabet books involve a focus on the print itself (Sénéchal, LeFevre, Thomas, & Daley, 1998).

Given their varying foci, informal and formal literacy experiences, differentially impact children's literacy skills. Specifically, formal literacy activities predict children's early literacy and word reading in Grade 1; in contrast, informal activities predict later reading comprehension through language and book exposure in Grade 1 (Sénéchal & LeFevre, 2002). Interestingly, the different, yet significant, contributions of language and reading have also been captured in Gough and Tunmer's (1986) Simple View of Reading. According to this model, the relationship between language and reading is multiplicative in nature. Thus, if one skill is at zero (notably poor), reading comprehension cannot occur. More specifically, a child with a strong vocabulary but with no reading skills and a child who is a strong reader but has no vocabulary would both be unable to comprehend text.

What remains unknown is how parental RRK comes into play during these parent-child interactions. Drawing upon the teacher literature, it becomes clear that RRK contributes to effective literacy practices in the classroom (Cunningham & O'Donnell, 2015; Spear-Swerling & Brucker, 2004; Washburn, Binks-Cantrell, Joshi, Martin-Chang, & Arrow, 2016). Thus, it stands to reason that in the present context, parents' home literacy practices might also vary based on their levels of RRK proficiency.

Reading-related Knowledge

RRK refers to domain-specific knowledge that is required for teaching key literacy skills (Cunningham, Perry, Stanovich, & Stanovich, 2004). It is generally measured through both explicit knowledge (e.g., defining terms) as well implicit skills (e.g., identifying irregularly

spelled words; e.g., Washburn, Joshi, & Binks-Cantrell, 2011). Importantly, RRK is not synonymous with an individual's reading proficiency and the degree to which that person is well-read. In fact, reading fluency tends to impact the ability to revert to early reading and spelling levels. Specifically, the fluency and automaticity of highly proficient readers interferes with their capacity to revert to engaging with linguistic units in a step-by-step manner. This, in turn, diminishes the ability to understand the logic behind reading and spelling miscues that young children make (Cunningham & O'Donnell, 2015; Moats, 1999).

Considering the importance of providing early effective literacy instruction, a large portion of the research to date has understandably focused on teachers' RRK and opportunities for its enhancement (Cunningham, Etter, Platas, Wheeler, & Campbell, 2015; Foorman et al., 2016; Joshi et al., 2009; McCutchen et al., 2002). Notably, skills such as phonological awareness (syllabic and phonemic segmentation), knowledge of written syllable patterns, and identifying regular and irregular word spellings, have been included in assessments of teachers' RRK because they are key for guiding effective instruction (Cunningham & O'Donnell, 2015; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003).

Phonological awareness. Phonological awareness represents a metalinguistic skill, involving an ability to engage with subword sound components such as segments (rhymes, syllables) and individual speech sounds (phonemes; Bentin, 1992). Phoneme segmentation is particularly important because being able to isolate and manipulate phonemes (the smallest units of sound) within spoken words helps children to eventually map those sounds onto letters and letter combinations (Bentin, 1992; Goswami, 1991; Treiman, 1985). Namely, reading and writing is not purely a visual process of letter and word recognition; to read and write a language,

children must abstract the unit to be used from the acoustic stream of speech using phonological skills (Goswami, 1991; Liberman, Shankweiler, Fischer, & Carter, 1974).

Phonological awareness starts with the ability to engage with larger units of sound (e.g., syllables), proceeds to smaller sub-syllabic units (e.g., rimes), and eventually involves the ability to manipulate the smallest units of sound in language (phonemes; Liberman et al., 1974). This continuum exists because larger units are more readily identifiable than smaller ones (Treiman, 1985); more specifically, the structure of a syllable must contain a vocalic vowel, which often serves as an audible cue for syllable identification (Liberman et al., 1974). In contrast, phonemes are comparatively difficult to identify because continuous acoustic sounds need to be "unnaturally" divided into individual segments in order to identify phonemes in words (Bentin, 1992; Reading Rockets, 2008). For example, the syllable "bat" reflects one acoustic segment (bat). Even young preschoolers can identify rhyming words such as "bat" and "cat", which involves segmenting words into onsets (e.g., /b/, /c/) and rimes (/at/), to identify the similar subsyllabic end components of the words (Bentin, 1992). However, the ability to segment the word "bat" into its constituent phonemes (/b/a/t/), is quite difficult as isolated speech sounds are often not perceived in natural speech; in fact, they are often co-articulated, causing the individual speech sounds to become interwoven (Bentin, 1992; Liberman et al., 1974).

Knowledge of written syllable patterns. Teaching children to identify written syllable patterns often encountered in English can facilitate accurate reading and writing (e.g., Cunningham & O'Donnell, 2015; Knight-McKenna, 2008). Indeed, presenting strategies to identify predictable patterns in words bypasses rote memorization, and promotes an understanding of the logic behind word spellings (Farrell, Osenga, & Hunter, 2013). Reading accuracy also improves as children apply these patterns to words encountered in print (Moats,

2005). To do so, children need to zone into the vowels. Thus, syllable pattern knowledge depends on prerequisite phonological skills including the ability to segment complex words into individual syllabic components and phonemic awareness to identify vowel sounds.

Beginning readers start off making letter-to-sound correspondences and then blend these sounds into simple consonant-vowel-consonant words such as “bug” and “red”. These words are referred to as "closed syllables" because the vowel in the word is “closed in” by a consonant, making the vowel lax (short). Once the children have ample practice with closed syllables, open syllables are often introduced. It stands to reason that simple open syllables involve a vowel not being “closed in” by a consonant, which renders the vowel tense (long), as in the words “me” and “go”. The vowel-consonant-e (“magic e”) pattern is often then introduced, involving the letter *E* at the end of words “magically” making the vowel from the consonant-vowel-consonant word tense. For instance, the “magic e” changes “can” into “cane” and “fin” into “fine”. Vowel teams tend to be introduced shortly thereafter, with the associated mnemonic, “When two vowels go walking, the first one does the talking”; more specifically, in its simplest form, when two vowels are seen together in a word, the first is often tense and the second is silent, as in the words “bean” and “tail” (Knight-McKenna, 2008; Moats, 2005). The order of introducing the remaining syllable types (r-controlled and final stable) tends to vary across curricula (e.g., *Orton Gillingham* [Gillingam & Stillman, 1997]; *Reading Rockets* [Reading Rockets, 2008]) and teachers' approaches (see Appendix A for definitions and examples of the six common written syllable patterns). Because of the young ages of the children in the present studies, the focus of discussion is on the written syllable patterns commonly introduced to beginning readers and writers (open, closed, vowel-consonant-e, and vowel teams).

While the contribution of syllable pattern knowledge can be beneficial, familiarity with the terminology and categorization of patterns reflects technical knowledge proficient readers and writers might not possess or draw upon (Cunningham & O'Donnell, 2015; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). That is, fluent readers and writers do not need to draw upon strategies for accurate reading and writing to occur. Thus, the degree to which teachers can impart this knowledge to children may be limited.

Ability to identify regular and irregular word spellings. Early on in literacy development, children zone in on their knowledge of letters and letter-sound correspondences to read and write simple closed syllables (e.g., "sit" and "leg"). They then build on their expanding knowledge of predictable patterns in words to read and write more complex words accurately such as "coat" (vowel team syllable pattern) and "blame" (vowel-consonant-e syllable pattern). Thus, at this stage of their literacy development, knowing the written syllable patterns commonly encountered in English can be quite beneficial.

As literacy skills progress, children start to encounter words that are irregularly spelled. Although these words do contain some letters that respect typical letter-sound correspondences (Moats, 2005), other letters do not follow this principle and can neither be sounded out nor have their spellings inferred without associated guidance (e.g., "Wednesday"). For effective irregular word instruction to occur, teachers clearly need to be able to distinguish between regular and irregular spellings and adjust their pedagogical practices accordingly (Cunningham et al., 2004). However, the research supports this being a difficult task for literate individuals as they recognize regularly and irregularly spelled words with comparable ease. Consequently, boundaries between regular and irregular spellings become obscure (Cunningham & O'Donnell,

2015). For example, the irregularly spelled word "said" is encountered quite frequently in text, and it can be forgotten that the spelling of the word is indeed irregular.

RRK in parents. A recent, yet small, body of research explores the association between parents' RRK and children's reading. Consistent with the larger corpus of teacher literature, Ladd et al. (2011) showed that parents' RRK (phonemic awareness and identification of regular/irregular word spellings) accounted for unique variance in children's letter-word reading and phonological awareness in Kindergarten and Grade 1. Importantly, the link between parental RRK and children's skills was limited to the domain of literacy as null findings were found among correlations between parental RRK and children's mathematical and vocabulary skills. Associations among RRK and other forms of parental knowledge (print exposure, cultural knowledge) also did not reach statistical significance, which further supports the domain-specificity of the RRK construct.

Given the persuasive evidence regarding the diminishing contribution of the home literacy environment over time (Aram & Levin, 2004; Byrne et al., 2009), Segal and Martin-Chang (in press) examined the relationship between parents' RRK (identification of regular/irregular word spellings) and children's reading skills longitudinally, from Kindergarten to Grade 1. The authors specifically looked at whether the relation between parental RRK with children's reading abilities would decrease as school-related factors, including teachers' RRK, start to exert more influence on children's reading development. Unlike knowledge of children's literature and parents' general knowledge, RRK was the only parent variable that continued to account for unique variance in children's reading scores into Grade 1. Thus, the findings suggest that, at least into early elementary school, parents' RRK continues to predict children's reading scores, while the contribution of other parental variables, fade over time.

Limitations in the parental RRK literature. The extant research (Ladd et al., 2011; Segal & Martin-Chang, in press) provided the groundwork for examining the relationship between parental RRK and children's literacy skills. However, the focus was limited to reading, which represents only one component of literacy. This research gap is surprising, because the literature supports parental writing mediation[1] occurring naturalistically and parental practices being in tune with children's skills (e.g., Aram & Levin, 2001; DeBaryshe, Buell, & Binder, 1996).

Another limitation related to the parental RRK literature involves the contribution of genetics to any associations found between parents and their children. Indeed, there is unequivocal support for genetic predispositions in language development and specifically in literacy abilities (e.g., Byrne et al., 2009; Olson, Keenan, Byrne, & Samuelsson, 2014). Additional findings confirm links between dyslexia and chromosomal markers (cf. Démonet, Taylor, & Chaix, 2004) and twin studies report higher incidences of reading challenges in monozygotic compared to dizygotic twins (Olson et al., 2014). However, hereditability factors do not explain all the variance in children's literacy skills (Démonet et al., 2004), leaving contributions of other variables to explain the remainder. Indeed, the separate corpus of research demonstrating significant associations between teachers' RRK and students' literacy development, lends further support to this relation not being solely genetic in nature (e.g., Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003).

Finally, possessing knowledge is of little use unless the teacher transmits it to the learner (Hewison & Tizard, 1980; Vygotsky, 1978). The teaching literature suggests that teachers with higher RRK tend to display more linguistically sound practices when working with children; these practices, in turn, are positively associated with children's literacy outcomes (e.g.,

[1] Considering that mediational practices include feedback, for the purpose of these investigations, the terms are being used interchangeably.

McCutchen et al., 2002; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). In addition, sociocultural theory supports the important contributions of didactic exchanges in scaffolding students' growth; these supported situations include opportunities for cooperative exchanges and positive learning opportunities (Peer & McClendon, 2002). Moreover, consistent with Bandura's social cognitive theory (1993), praise is particularly beneficial as perceived self-efficacy affects children's abilities to perform challenging tasks such as reading and writing. Having said this, the parent literature has yet to pursue these same investigations, and as such, the present corpus of investigations take on this focus.

Parental Reading and Writing Mediation Practices

Reading mediation. A large portion of the home-based reading research focuses on parents reading to their children and the benefits of storybook reading to children's language development (e.g., Levin & Aram, 2012; Sénéchal & LeFevre, 2002). However, several studies also support the importance of children reading aloud to their parents (e.g., Evans, Baraball, & Eberle, 1998; Martin-Chang & Gould, 2012). In fact, Hewison and Tizard (1980) found that the home factor most strongly related to reading achievement involved whether mothers regularly coached their children during child-to-parent reading.

Importantly, reading miscues frequently occur when young children begin to read. For example, young children often guess words based on context and visual similarities among words that can make syntactic and semantic sense (Goodman, 1967). As such, an important component of mediated reading involves parental responses to such miscues. In this capacity, parents seem to be responsive (Evans et al., 1998). They also tend to provide sustaining feedback (e.g., try again) and actively guide their children to identify words by providing explicit graphophonemic feedback (e.g., encouraging sounding out, focusing on letter details) and

attending to context cues (e.g., drawing in information from outside the text, using picture cues). Importantly, consistent with Bandura's social cognitive theory (1993), which emphasizes the importance of the learning environment, graphophonemic feedback provided by parents (e.g., references to letter names, sounds, parts of words) is dually associated with maternal praise and children's engagement (Martin-Chang & Gould, 2012). Thus, parental miscue feedback appears to be quite sensitive as reading correction is accompanied by praise of children's efforts. In addition, the teaching parents provide when responding to their children's reading miscues, appears to be well received by children.

Writing mediation. Despite the limited research attention writing has garnered compared to reading, a corpus of investigations has supported the contribution of parental writing mediation to children's writing skills. One early study by DeBaryshe et al. (1996) found common mediation trends among parents working with their Kindergarten children. In particular, the majority of parents helped their children use conventional spellings of words, irrespective of children's actual skill levels. However, they also often provided mediation strategies that were consistent with children's writing abilities. Thus, while parents targeted conventional spellings in their mediational practices, which is necessary for developing literacy proficiency, they also displayed practices tailored to children's abilities stemming from an awareness of their children's writing skills.

Interestingly, Aram and Levin (2002) reported that the unique variance in children's literacy explained by maternal writing mediation was substantially higher than that of storybook reading mediation. Aram and colleagues supported these findings in a later study (2013), where maternal writing mediation predicted children's alphabetic knowledge, print concepts, and phonological awareness (after controlling for SES and the home literacy environment). However,

parents provided relatively low levels of writing mediation to children. Specifically, parents targeted readability of words (handwriting) and provided low-level graphophonemic scaffolding (models of whole words for copying and dictating letters). They also rarely drew children's attention to letter-sound correspondences or orthographic features in words, which are skills known to facilitate children's writing development (National Reading Panel, 2000).

Fortunately, parental mediational practices are responsive to interventions. Supporting evidence is provided by Levin and Aram (2012) who assigned parents to one of four groups; three involved mediation interventions (storybook reading, writing, visual motor) and one served as a control group. Writing mediation was the most predictive activity for enhancing children's alphabetic (phonics) skills. Moreover, benefits from the interventions were maintained in a delayed posttest analysis, while other groups did not display comparable success. However, while the writing mediation literature discusses the contribution of parents to children's spelling development (e.g., Aram & Levin, 2002; Aram et al., 2013; DeBaryshe et al., 1996), the relation between parents' underlying RRK and their writing mediation, remains unknown.

The Present Corpus of Studies

The present studies expanded on current investigations regarding parental RRK. Namely, studies to date have assessed parents' phonemic awareness and knowledge of regular and irregular word spellings (Ladd et al., 2011; Segal & Martin-Chang, in press). However, the teacher research has additionally investigated numerous other RRK skills including syllabic segmentation and knowledge of written syllable patterns (e.g., Cunningham & O'Donnell, 2015; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2004). Therefore, the latter skills were added into the battery of tasks parents completed to gain a more comprehensive measure of parental RRK. However, parents were presented with fewer questions than commonly provided

to teachers (e.g., Cunningham et al., 2004). In addition, other RRK subtypes discussed in the teacher literature (e.g., defining literacy terms, morphological awareness) were not included as these knowledge bases appeared more technical and limited to teachers who have received formal language arts instruction.

Considering that parents completed a somewhat abridged RRK questionnaire compared to those commonly administered to teachers and acknowledging the reported intercorrelations among RRK variables (Washburn, Joshi, Binks-Cantrell, 2011), a focus was not placed on performances from the individual subsets of RRK. Instead, a composite RRK score was calculated to gain a general understanding of the relation between parental knowledge and practice across three new contexts of study (joint reading, response to a writing sample, joint writing).

Research Questions. Two main research questions guided the present investigations: (1) is parental RRK positively associated with constructive and developmentally appropriate literacy feedback practices in reading and writing contexts?; and (2) considering the paucity of research investigating RRK in writing contexts, is parental RRK significantly associated with children's writing skills?

First, bearing in mind that practices are guided by underlying knowledge (Cunningham & O'Donnell, 2015), we believed that parents with higher RRK would display more evidence-based practices compared to those with lower knowledge. Considering that parents generally tend to provide emerging readers with graphophonemic-based feedback along with accompanying praise during child-to-parent reading (Martin-Chang & Gould, 2012), we expected parents with higher RRK to provide higher rates of these constructive and developmentally appropriate practices. Thus, it was predicted that across all three contexts,

parental RRK would be associated with praise and graphophonemic feedback. Although the association between parents' RRK and children's spelling skills has yet to be investigated, the teaching literature discusses the important contribution of orthographic awareness to students' writing development (e.g., Moats & Foorman, 2003; Ouellette & Sénéchal, 2017). This lead us to predict that parental RRK would likewise be associated with children's spelling. Additional predictions are discussed in each of the three papers.

Summary of Method

Participants

Seventy-five parents completed a series of activities, which included providing demographic information, completing RRK tasks, and responding to a writing sample (Study 2). Seventy parents from the original sample also agreed, a priori, to work with their children on joint reading (Study 1) and joint writing activities (Study 3). Parents of children attending Kindergarten and Grade 1 were recruited; this age group was chosen based on children's continued exposure in school settings to "relationships between sounds and written symbols [graphophonics]; Gouvernement du Québec Ministère de l'Éducation, 2001, p. 77) and continued experience with writing as "a communication system" (Gouvernement du Québec Ministère de l'Éducation, 2001, p. 86), before becoming fluent readers and writers.

Participating children (from Studies 1 and 3) were on average 6 years and 8 months old (*SD* = 7.7 months); 29 were girls and 41 were boys. Forty-six had completed Kindergarten, and 24 had completed Grade 1. The parents of these children were approximately 39 years old (*SD* = 4.7 years), with the majority being married, well educated, middle-upper class mothers. The data regarding the additional parents from Study 2 had similar mean parent ages, marital status, SES, and educational profiles as the sub-sample; sixty-five of the parents were mothers, and 10 were

fathers. A more elaborate breakdown of the participant information is provided in each study's Participant section.

Procedure

All studies took place in one session, either at the university or in the family homes, per families' preferences. The layout of the procedures varied across the three studies. More elaborate information regarding the individual studies and associated procedures are provided under each study category.

Parent-child interactions were videotaped using two recording devices (Photobooth recordings from a MacBook Air 13-inch computer and a Sony HDR-XR350 Handycam); machines were turned off when parents and children worked with the examiners. Sessions started with an ice breaker activity involving parents helping their children to write a thank you note to someone who was kind to them. When the notes were completed, children had the option of decorating the front cover. Parents proceeded to complete three tasks with a research assistant: (1) questions regarding family demographics; (2) the RRK questionnaire; and (3) a response to a writing sample written by a kindergartner. At the same time, the child completed the reading and spelling subtests of the Wide Range Achievement Test-Fourth Edition (WRAT 4; Wilkinson & Robertson, 2006) and the Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4; Dunn & Dunn, 2007) with the primary investigator. Children's WRAT 4 reading scores were calculated and an adapted text from the Gray Oral Reading Test-Fifth Edition (GORT-5; Wiederholt & Bryant, 2012) was then assigned based on reading performances. Children were asked to read the text to their parents; parents were asked to provide feedback as they usually would. Tapes of the dyadic reading (GORT-5) and writing exchanges (thank you note writing) were later transcribed and coded using preestablished criteria for verbal and nonverbal feedback.

Data pertaining to parental RRK, feedback during GORT-5 reading, and children's WRAT 4 reading scores were analyzed in Study 1. Parental RRK and responses to the writing sample were analyzed in Study 2. Finally, parental RRK, feedback during the note writing, and children's WRAT 4 spelling scores were analyzed in Study 3. Thus, each of the three studies in this dissertation uses diverse methods and provides different insights into the association between parental RRK and literacy practices.

“What Does an *O* Say When There's No *E* at the End?” Parents’ Reading-related Knowledge and Feedback During Child-to-parent Reading

Aviva Segal and Sandra Martin-Chang

Abstract

Although a large body of research has investigated teachers' reading-related knowledge (RRK), comparatively little is known about parents' RRK. Therefore, the present study examined the association between parental RRK and feedback during child-to-parent reading. Seventy parents completed a RRK questionnaire (phonological segmentation, knowledge of written syllable patterns, identification of regular and irregular word spellings) while their 6- and 7-year-old children were administered the Peabody Picture Vocabulary Test (PPVT-4) and the reading subtest of the Wide Range Achievement Test-Fourth Edition (WRAT 4). Based on children's WRAT 4 reading performances, they were assigned one of five adapted passages from the Gray Oral Reading Test-Fifth Edition (GORT-5) to read aloud to their parents; parents were asked to help as they normally would. GORT reading sessions were videotaped; the content was transcribed and coded for evidence of verbal and nonverbal parental feedback (evaluative feedback: praise, criticism; miscue feedback: graphophonemic, context cues, try again, terminal, ignoring miscues). Consistent with the teacher and parent literature, RRK was positively associated with children's WRAT 4 reading scores. Parents' RRK additionally accounted for unique variance in praise and graphophonemic feedback during child-to-parent reading beyond the variance already explained by children's reading scores. These findings suggest that even after accounting for children's reading abilities, RRK contributes to a positive affective atmosphere for teaching key literacy skills to young readers. Implications are discussed in terms of enhancing parents' RRK and associated practices in hope of positively contributing to children's literacy outcomes.

"What Does an *O* Say When There's No *E* at the End?" Parents' Reading-related Knowledge and Feedback During Child-to-Parent Reading

It is now well established that even proficient adult readers struggle when asked to manipulate language on a very small scale (e.g., Joshi et al., 2009; Ladd, Martin-Chang, & Levesque, 2011; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). For instance, when completing tasks involving phonological segmentation, recognition of written syllable patterns, and identification of irregularly spelled words, it is not uncommon for parents (Ladd et al., 2011) and teachers to perform quite poorly (Bos, Mather, Dickson, Podhajski, & Chard, 2001; Cunningham, Zibulsky, Stanovich, & Stanovich, 2009; Ladd et al., 2011; Moats, 1999). However, these poor performances are not indicative of limited literacy skills. On the contrary, familiarity with common spellings tends to impede teachers' abilities to attend to sound structures in words (Cunningham & O'Donnell, 2015; Moats, 1999). As a case in point, knowing that the names "George" and "James" begin with different letters may impact the ability of adults to identify that both names have the same initial sounds. This is in contrast with the skill of young children, who often show their ability to hear the correct speech sounds in words via their use of invented spellings (e.g., JORJ and JAMZ; Cunningham & O'Donnell, 2015; Ouellette & Sénechal, 2017).

Despite the challenges adults face when engaging with words at the level of individual speech sounds, research suggests that this knowledge is advantageous in shaping pedagogical practice (Cunningham & O'Donnell, 2015; Phelps & Schilling, 2004). Indeed, for the last three decades, research has highlighted the important contributions of teachers' knowledge of the English language to children's literacy development (e.g., Moats & Foorman, 2003; Piasta, Connor, Fishman, & Morrison, 2009; Shulman, 1987). Here, we adopted a similar mindset by

examining the association between three constituents of parental RRK (phonological awareness, recognition of written syllable patterns, identification of irregularly spelled words) and the feedback parents provide when listening to their children read.

Reading-related Knowledge

Phonological awareness encompasses an understanding that speech can be broken down into smaller units of sound (Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012). Early on, preschoolers become aware of larger units of sound, such as rhymes and syllables, and later engage with individual speech sounds (phonemes) in words. Phonemic awareness is particularly important as it facilitates blending speech sounds when reading and breaking up speech sounds when spelling. As such, children's early phonemic awareness represents one of the strongest predictors of their later reading and spelling skills (Cunningham & O'Donnell, 2015; Hulme, Nash, Gooch, Lervåg, & Snowling, 2015; Savage, Carless, & Stuart, 2003).

The significance of phonological awareness, and phonemic awareness specifically, is recognized by literacy initiatives created for both parents and teachers. For example, *Reading Rockets* is a website that provides strategies and activities to be used in the home and the classroom (National Institute of Child Health and Human Development, n.d.) and the National Reading Panel (2000) is specifically directed at teachers. However, even with these efforts to educate the general public about phonemic awareness (e.g., Reading & Van Deuren, 2007; Savage et al., 2003), dividing words into phonemes remains difficult for many parents and teachers (Joshi et al., 2009; Ladd et al., 2011; McCutchen & Berninger, 1999, Moats, 1999; Spear-Swerling & Brucker, 2003) as individual speech sounds in words are often co-articulated during natural speech, which obscures the boundaries among individual phonemes (Bentin, 1992; Liberman et al., 1974).

A second form of RRK involves the ability to recognize the six most common written syllable patterns (closed, open, vowel- consonant-e, vowel teams, r-controlled, final stable; see Appendix A), which can assist children in reading simple and more complex words (Foorman et al., 2016; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). In particular, teaching children to recognize letter patterns in words helps them predict associated vowel sounds, which in turn facilitates accurate word reading. Yet, to identify vowel sounds, children need to segment words into syllables and syllables into phonemes. Thus, phonological awareness is a prerequisite skill for syllable pattern identification.

The National Centre for Education Evaluation (NCEE; Foorman et al., 2016) discussed the importance of instructing students in common written syllable patterns. However, once again, despite efforts to provide activities to introduce and practice syllable pattern identification (e.g., Foorman et al., 2016; Reading Rockets, 2008), studies on teacher knowledge indicate that this information is not widely known (e.g., Cunningham & O'Donnell, 2015; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). Moreover, the subject of syllable pattern recognition among parents has not been investigated. Therefore, it is unclear how much parents know about written syllables.

Possessing phonological awareness and knowledge of written syllable patterns clearly contribute to children's abilities to read words with regular spellings. However, in actuality, English orthography is not shallow, and as such, not all English words can be sounded out in a letter-by-letter fashion or in a predictable manner (McCutchen et al., 2002). Thus, while children may be taught written syllable patterns, the orthographic depth of the English language presents young readers with words that do not conform. For example, the word "give" is often encountered in print. It presents as a vowel-consonant-e syllable pattern, but the vowel sound

made by the letter *I* is not tense. Likewise, the word "said" meets the criterion of a vowel team; however, not only does the letter *A* not make a tense vowel sound, but an /ɛ/ sound is heard instead. In understanding this, programs such as *Jolly Phonics* (Lloyd, 1992) present these "tricky" irregular words separately from words with regular spellings. However, other approaches are also used when encountering irregular words. For example, the word "Wednesday" can be presented orally as /wed-/nes/-/day/ for children to make the letter-to-sound correspondences (grapheme-phoneme connections). In addition, attention can be drawn to the familiar components of the word (e.g., the closed syllable "wed") to assure for partially correct spelling (Moats, 2005; Ocal & Ehri, 2017).

Clearly, to guide irregular word instruction effectively, teachers need to be able to distinguish easily between regular and irregular spellings (Cunningham, Perry, Stanovich, & Stanovich, 2004). However, classroom observations indicate that teachers sometimes fail to identify irregular word spellings because the spellings of all words have become automatic (e.g., Cunningham & O'Donnell, 2015). In such cases, teachers may erroneously direct students to sound out irregular words, which can result in confusion and frustration on behalf of the students (Piasta, Connor, Fishman, & Morrison, 2009).

Parents as Teachers

According to Bronfenbrenner and Morris (2006) and Vygotsky's sociocultural theory (1978), children are greatly impacted by their immediate environments, including interactions with their parents. Looking at home instruction specifically, parents may take on the role of their children's first literacy teachers (Hiebert & Adams, 1987); when they do, parents often provide a significant amount of feedback in line with children's skills (Evans, Baraball, & Eberle, 1998).

Consistent with guided participation framework (Rogoff, 1998), interactions from a literacy standpoint tend to be collaborative, involving knowledge transfer from the parents and active engagement on the part of the children (Martin-Chang & Gould, 2012). Children's reading miscues are also often not ignored and the feedback parents provide in response, tends to either be sustaining (try again, graphophonemic, context cues; cf. Evan et al., 1998) or terminal (parents providing misread words; Evans et al., 1998; Martin-Chang & Gould, 2012).

Importantly, the research supports that parental instruction is often accompanied by praise. In addition, attempts at instruction appear to not occur at the expense of children's engagement; in fact, to the contrary, Martin-Chang and Gould (2012) reported that parents' graphophonemic feedback during child-to-parent reading was positively associated with both praise and children's reading engagement. Therefore, parents' increased attentiveness and active involvement in mediating their children's reading appears to be enticing to young children. This is particularly noteworthy because the frequency of child-to-adult reading in the home is a stronger predictor of children's reading ability than the frequency of adult-to-child storybook reading (Hewison & Tizard, 1980; Tizard, Schofield, & Hewison, 1982). In fact, a meta-analysis conducted by Bus, van IJzendoorn, and Pellegrini (1995) revealed that only approximately 8% of the variance in reading achievement was explained by the frequency of parents reading to their children.

Surprisingly, given the importance of child-to-parent reading, no research to date has examined whether there are associations between parents' RRK with the feedback provided during child-to-adult reading. In fact, to our knowledge, only two studies have examined the variation in RRK that occurs within populations of parents.

Ladd et al. (2011) were the first group to study parents' RRK in reference to children's reading skills. The authors worked with parent-child dyads and found that parents' performances in phoneme segmentation and identification of irregularly spelled words were significantly associated with children's reading and sound awareness (phonology) in a mixed sample of kindergartners and Grade 1 children.

Segal and Martin-Chang (in press) extended the research to study the relationship between parental RRK and children's reading skills over time, when children were in Kindergarten and then again in Grade 1. The authors reported that RRK maintained its significant contribution to children's reading into Grade 1, while the unique variance contributed by other parent variables (general knowledge, print exposure) no longer did.

Although both studies (Ladd et al., 2011; Segal & Martin-Chang, in press) noted significant links between parental RRK and children's reading abilities, neither offered insight into whether or how parental RRK influences children's reading abilities through the feedback parents convey when working with their children. Thus, the impetus for the present investigation was to bridge this gap in the literature and examine the interplay between parental RRK, feedback practices, and children's reading skills. This topic merits investigation as from a sociocultural standpoint (Vygotsky, 1978), transmission of culturally relevant information must be provided to a learner to function in a literate society. One means through which information is conveyed is through feedback during literacy exchanges.

The Present Study

In this study, parents were given a RRK questionnaire (syllable counting, phoneme counting, syllable classification, and identification of irregularly spelled words), a subset of which has been implemented by Ladd et al. (2011) and Segal and Martin-Chang (in press).

An additional novel component involved videotaping children reading to their parents. These interactions were later transcribed and incidences of parents' verbal and nonverbal parental feedback were coded. Data analyses allowed for a preliminary investigation into the contribution of parents' RRK to the amount and kinds of feedback they provide their children. Two types of parental responses were investigated: evaluative feedback, which involved appraisal of children's performances throughout the session (praise and criticism; adapted from Martin-Chang & Gould, 2012), and miscue feedback, which encompassed responses to reading miscues and hesitations (graphophonemic, context cues, try again, terminal feedback, ignoring miscues; adapted from Evans et al., 1998; Table 1).

Drawing upon the parent feedback literature (Evans et al., 1998; Martin-Chang & Gould, 2012), we made three predictions regarding how parental RRK and feedback might be linked. First, parents with higher RRK would be more sensitive to the challenges novice readers faced, and as such, would provide more praise and less criticism during child-to-parent reading. Second, based on the linguistic awareness that constitutes RRK, parents with higher RRK would provide significantly more graphophonemic feedback. In addition, considering the reported negative correlation between graphophonemic feedback and context cues (cf. Evans et al., 1998; Martin-Chang & Gould, 2012), they would also provide fewer context cues. Third, parents with higher RRK would attempt to sustain the reading interactions and would consequently provide more feedback to try again; consistent with this view, they would also provide less terminal feedback and infrequently ignore miscues.

Method

Participants

Recruitment of parents and children started upon receiving ethical approval from the university ethics board. Parents were recruited from five local schools, advertisements in the community, word-of-mouth, snowballing, and through postings on social media. A sample of 75 middle-upper class[2] parents ($M_{\text{income range}}$ = \$90,001-\$110,000 Canadian) agreed to complete a series of activities; seventy of these parents agreed to work with their children. Thus, a total of 70 parent-child dyads comprised the present sample. On average, children were 6 years and 8 months old (*SD* = 7.7 months); 29 were girls and 41 were boys; 46 had completed Kindergarten, and 24 had completed Grade 1 at the time of testing. Descriptive analysis of the English PPVT (standard score) showed that children were performing at a 73rd percentile ranking for receptive vocabulary (*M* = 109; 90% CI [103,115]; range = 82-139; *SD* = 12.70), reflecting a Grade 1 spring (third trimester) grade equivalent.

The mean parent age was 39 years old (*SD* = 57 months); 61 of the parents were mothers, and 9 were fathers. Most of the parents were in a committed relationship (married, 82.9%; common-law, 10.0%); the rest were either single (1.4%), separated (1.4%), or divorced (2.9%)[3]. Overall, the parent sample was well-educated, with 12.9% having completed high school or some university, 41.4% having completed an undergraduate degree, 38.6% having completed a master's degree, and 7.2% having completed doctoral degrees.

Materials

Recording devices. Two recording devices were used to capture verbal and nonverbal dyadic exchanges. The first was Photobooth recordings from a MacBook Air (13-inch computer); the second was a Sony HDR-XR350 Handycam.

[2] The gross family income was classified as upper-middle class compared to the reported median provincial family income by Statistics Canada (2015) of \$75,530.

[3] One parent did not report her relationship status.

Children's materials. The Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4; Dunn & Dunn, 2007) was used as a descriptive measure for children's receptive vocabulary, a key contributor to reading comprehension (e.g., Sénéchal & LeFevre, 2002). Administration involves the examiner showing the child a set of four illustrations while relating a target word that the child subsequently needs to identify. The activity is discontinued when the child fails to identify eight or more words correctly in a set.

The Wide Range Achievement Test-Fourth Edition (WRAT 4; Wilkinson & Robertson, 2006) is a norm-referenced test that measures basic academic skills, including word reading. The word reading task involves letter and word decoding, starting with letter identification and proceeding to word recognition tasks. Testing is discontinued when a child responds incorrectly to 10 consecutive items. Wilkinson and Robertson (2006) reported a high internal consistency of .96 for Kindergarten and Grade 1.

The Gray Reading Inventory-Fifth Edition test (GORT-5; Wiederholt & Bryant, 2012) was created as a screening tool for oral reading fluency. However, within the scope of this study, it was used as a text that the children read aloud to their parents. Here, the first five developmentally sequenced passages were adapted into picture books. The pictures appeared at the top of each page, with the associated text beneath them; pictures were related to, but not predictive of, the text (see Appendix B).

Parents' materials. Parents completed a questionnaire, which included demographic questions and a short RRK questionnaire (adapted from Cunningham et al., 2004; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003; see Appendix C). The phonological awareness portion of the questionnaire involved 25 questions. Nine syllable segmentation questions were taken from Moats and Foorman (2003) and 16 phonemic segmentation questions were taken from

Spear-Swerling and Brucker (2003). Alternate form reliability for the phonemic segmentation task was .78 (as reported in Spear-Swerling & Brucker, 2004); syllabic segmentation was measured using a reliable instrument provided in the T-TESS Texas Teacher Evaluation and Support System: Teacher Handbook (2016). Because the sample was comprised of parents and not teachers, technical questions involving definitions were excluded. Correct responses were given a score of one, and incorrect responses were given a score of zero.

The syllable classification task involved four monosyllabic words. Parents were asked to select which of four written syllable patterns (closed, open, vowel-consonant-e, vowel teams[4]) the words represented, and if unsure, to check an "I don't know" option. Previous syllable classification tasks have either involved multiple choice questions or nonsense words (Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). To appear more authentic to parents, actual words were provided that represented each of the patterns. Correct responses were given a score of one; incorrect and "I don't know" responses were given a score of zero.

The last task involved identification of regular and irregular word spellings (adapted from Cunningham et al., 2004). Parents were presented with 10 irregularly spelled words that were intermixed with 26 phonetically regular words. They were asked to circle those that were irregularly spelled, reflecting non-standard correspondences between letters and letter patterns to sounds (Cunningham & O'Donnell, 2015; Reading Rockets, 2008), and to leave blank regularly spelled words or words of which they were unsure. Correctly identified irregularly spelled words were given a score of one, and those that were not identified were given a score of zero. Cunningham et al. (2004) reported a Cronbach's alpha of .77 with their teacher samples. In a previous study (see Segal & Martin-Chang, in press), we analyzed the reliability of the task with

[4] These written syllable patterns are commonly presented to younger readers.

parents. Strong split-half reliability was found amongst parents' performances in both sections of the split measure (Spearman-Brown Coefficient = .63). A composite RRK score was then calculated out of a total of 39 for each parent participant and used in subsequent analyses.

Procedure

Parents who were interested in participating in the study contacted the primary investigator. They were informed that interactions with their children would be videotaped and were assured that recordings would be stored in locked cabinets in the literacy lab, separate from any of their identifiable data. Parents were given the option of meeting at the university (with paid parking and transit costs) or in their homes. Sessions were scheduled throughout the late summer and early fall. The testing took place in one session at a convenient time for the family.

Before the session started, written consent was obtained from the parent and verbal assent was obtained from the child (Appendices D and E). Next, the parent and child each completed separate tasks. The PPVT-4 and the reading subtest of the WRAT 4 were administered to the child by the primary investigator, while the parent completed the questionnaire in the presence of a research assistant.

During a short break, the investigator calculated the child's WRAT 4 reading score out of the child's view. An adapted text from the GORT-5 was then chosen based on preestablished criteria. Children whose raw scores on the WRAT 4 measure fell at or below 15 were given Book 1; children with scores of 16-20 were assigned Book 2; children with scores of 21-25 were assigned Book 3; children with scores of 26-30 were assigned Book 4; and children with scores greater than or equal to 31 were assigned Book 5. Children were asked to read the books out loud and parents were asked to help as they usually would when their children read to them.

The child-to-parent reading segment was videotaped from two angles. The laptop camera was positioned two to three feet in front of the dyad to record verbal and nonverbal interpersonal exchanges (e.g., looking at one another, smiling). The video camera was placed out of view behind the parent and child, on a raised tripod, to record nonverbal reference to text (e.g., pointing to words or letter combinations). At the end of the session, children were given a book of their choice to take home.

Data coding. Recordings were transferred onto ExpressScribe Transcription software by the first author, Version 5.88. Verbal and nonverbal transcriptions occurred over three passes. First, recordings from the "enface" laptop video camera were uploaded, and verbal exchanges were transcribed verbatim. In cases of inaudible verbal exchanges, audio tracks from the camcorder were examined as well. Second, the laptop recordings were reviewed an additional time to transcribe nonverbal interpersonal exchanges. Third, the over-the-shoulder recordings were uploaded, and nonverbal text-based interactions were added to the transcriptions.

The complete transcriptions, including all verbal and nonverbal interactions, were coded using a predetermined coding scheme adapted from Evans et al. (1998) and Martin-Chang and Gould (2012). The coding scheme was comprised of two feedback subcategories: evaluative feedback (praise and criticism) and miscue feedback (graphophonemic, context cues, try again, terminal feedback, ignoring miscues; see Table 1). Codes were tallied for the presence of all seven types of feedback. A total feedback composite was also calculated.

Interrater reliability. A research assistant who was blind to the parents' performances on the RRK task coded over 25% (n = 18/70) of the reading transcriptions. Percent of agreement for the presence of each coded feedback type (praise, criticism, graphophonemic, context cues, try

again, terminal feedback, ignoring miscues) on the transcribed sessions was 92.2%. Differences in coding were resolved through discussion.

Results

Parent-child Interactions

On average, parents displayed 151.52 counts of feedback per session (SD = 84.90), of which 66.86% comprised evaluative feedback (praise, criticism; M = 96.56, SD = 55.08) and 33.14% comprised miscue feedback (graphophonemic, context cues, try again, terminal, ignoring miscues; M = 53.30, SD = 40.95). A paired-samples t-test was run to determine whether there was a statistically significant difference between mean counts of praise and criticism. Praise occurred significantly more often (91.46 $\pm$ 53.22) than criticism (5.10 $\pm$ 9.58), with a statistically significant mean difference of 86.36 (95% CI, 73.62-99.11), $t(68) = 13.52$, $p < .001$.

Descriptive statistics for miscue feedback subtypes demonstrated that ignoring miscues (M = 1.29, SD = 2.73) and context cues (M = 4.78, SD = 5.68) fell below the preestablished criterion of a ≥ 5 mean raw count to be included in subsequent analyses. Remaining descriptive statistics for evaluative feedback subtypes were as follows: graphophonemic (M = 31.74, SD = 30.78), try again (M = 6.60, SD = 8.71), and terminal feedback (M = 8.48, SD = 8.23).

A 1 x 3 repeated measures ANOVA was conducted to investigate main effects of the remaining miscue feedback subtypes (graphophonemic feedback, try again, terminal feedback). Mauchly's test indicated that the assumption of sphericity had been violated $\chi^2(2) = 59.34$, $p < .001$. Therefore, degrees of freedom were adjusted using the Greenhouse Geisser estimates of sphericity ($\varepsilon = .63$). The results show a significant main effect of miscue subtypes, $F(1.25, 82.57) = 41.44$, $p < .001$. Post hoc pairwise comparisons using the Bonferroni correction found that graphophonemic feedback (M = 31.94, SE = 3.78) was provided significantly more often

than try again (M = 6.70, SE = 1.07) and terminal feedback (M = 8.54, SE = 1.02). However, no statistically significant difference was evident between incidences of try again and terminal feedback, p = 1.00.

Children's Reading Data and Parental Feedback

On average, parents correctly responded to 58.62% (22.86/39) of the RRK tasks (range = 11-35, SD = 28.05). Children's mean raw performances on the WRAT 4 reading measure was at a Grade 1.22 level (range = 0.10-6.90; SD = 1.29). Performance distributions showed that 57.1% performed below the mean and 41.4% performed above[5]; 10.0% scored within 25% below the mean and 17.1% scored within 25% above the mean. Based on children's reading performances, 22 children were assigned Level 1 of the adapted GORT text to read with their parents; 11 were assigned Level 2; 8 were assigned Level 3; 7 were assigned Level 4; and 22 were assigned Level 5.

Bivariate correlations revealed that children's WRAT 4 reading scores were positively associated with parents' RRK, $r(65) = .30$, $p = .016$, and negatively associated with praise, $r(69) = -.28$, $p = .022$, graphophonemic feedback, $r(68) = -.39$, $p = .001$, and terminal feedback, $r(69) = -.37$, $p = .002$. However, the associations between WRAT 4 reading scores and the remaining feedback subtypes (criticism, try again) did not reach statistical significance (ps $\geq .322$). Children's grade level was additionally negatively associated with terminal feedback, $r(69) = -.29$, $p = .015$ and, expectedly, positively associated with children's WRAT reading scores, $r(69) = .55$, $p < .001$.

Given the significant associations between children's reading performances and their grade levels with parental feedback, both children variables were subsequently controlled for in partial correlation analyses (see Table 2). This allowed for an examination of associations

[5] One child did not choose to read, and therefore, was not assessed.

between parental RRK and types of feedback, without the confound of children's reading abilities and grade levels (formal literacy instruction). Partial correlations demonstrated significant weak-moderate associations between parents' RRK and two feedback subtypes: praise and graphophonemic feedback. However, RRK was not significantly associated with the number of critical statements (criticism) parents made, parents prompting children to attempt to reread after making reading miscues (try again), or provision of misread words (terminal feedback; *p*s $\geq$ .192; see Table 2).

Multiple linear regressions were subsequently run with praise as the dependent variable in one model and graphophonemic feedback as the dependent variable in a second model. Consistent with the rationale for controlling children's reading skills, children's WRAT reading scores along with their grade levels were entered in step 1 and parents' RRK scores were entered in step 2 (see Table 3). The first linear regression findings established that RRK was significantly associated with amounts of parental praise $F(3, 61) = 2.842$, $p = .045$. Specifically, RRK accounted for 7.1% of the unique variance in praise above and beyond the 5.1% already accounted for by the children's WRAT reading scores. The addition of RRK in the second linear regression model was also statistically significant $F(3, 60) = 5.290$, $p = .003$, with parental RRK accounting for an additional 12.5% of variance in graphophonemic feedback above and beyond the 8.4% already explained by children's reading scores.

Discussion

The main goal of the current study was to broaden the extant knowledge regarding parental RRK. The data replicated findings from the limited field of parent RRK research involving significant associations between parents' RRK and their children's reading

performances. We also extended the literature by investigating links between RRK, parental practices, and children's reading.

Three hypotheses were made regarding parental RRK and associated practices. We found support for the first two predictions suggesting that parents with better intuitive knowledge about the basic sound structure of the English language (higher RRK) would offer more praise and more graphophonemic-based feedback. Indeed, both linear regressions support the significant contribution of RRK to praise and graphophonemic feedback, beyond the contribution already explained by children's reading abilities. This combination of feedback is quite noteworthy as concerns have been raised that providing graphophonemic teaching can detract from warm parent-child exchanges (e.g., Baker, Mackler, Sonnenschein, & Serpell, 2001). However, in line with Martin-Chang and Gould (2012), graphophonemic feedback was also positively associated with praise, which allows for a positively affective learning atmosphere. Thus, the combination of these feedback types, which is more common in parents with higher RRK, appears to represent potentially more advantageous practices that may in the long term positively impact children's reading development.

In conjunction with our prediction of a significant association between praise and RRK, we additionally predicted that parental RRK would be negatively associated with criticism. However, this prediction was not supported. This finding may be explained by the fact that parents in general were not very critical. Thus, there was no possibility for significant variance to be observed in this measure. Interestingly, our third hypothesis was also not supported. Namely, try again and terminal feedback were not significantly associated with parents' RRK. These variables were, however, significantly associated with parents' use of criticism. While it may seem that critical parents provide more terminal and try again cues, the finding that criticism was

also positively correlated with graphophonemic feedback leads us to reconsider this assumption. Instead, we propose that parents who provide more criticism tend to be more reactive to children's miscues. This in no way suggests that parents should be more critical while their children are practicing reading. In fact, in the present sample, parents proved to be far more encouraging than critical, offering roughly 18 positive comments for each critical one made. Indeed, a general component of effective parenting involves adjusting expectations to optimize positive learning experiences (Cligenpeel & Pianta, 2007), which appears to be especially the case with parents with higher RRK.

Granted our primary focus was on feedback patterns associated with parental RRK, however, noteworthy patterns also emerged irrespective of parents' RRK skills. Interestingly, parents provided more praise, graphophemic feedback, and terminal feedback to lower performing readers. This appears to reflect sensitive attempts on their part involving positive feedback and tailored instruction according to whether teaching (graphophemic feedback) or simply relaying responses (terminal feedback) would be warranted (Evans, Moretti, Shaw, & Fox, 2003). In other words, parents overall appeared to be in tune with their children's reading development, knowing which words to use as scaffolds for learning and which were too far beyond children's zones of proximal development, meriting terminal feedback to move the child forward or when their child did not require assistance (Evans et al., 1998). On the other hand, when with stronger readers, parents provided less graphophonemic feedback. These results make sense from a quantitative standpoint as fewer miscue commissions would allow for fewer opportunities to provide miscue feedback. Indeed, it would be counterproductive to interrupt a child with prompts when not warranted (Henderson & Glynn, 1986; Wood, Wood, & Middleton,

1978). Thus, sensitive practices are also evident by parents limiting their graphophonemic feedback to stronger readers.

Parents also appeared to not be overly critical while their young children attempted to read. However, those who provided more criticism also tended to give more graphophonemic, try again, and terminal feedback. Importantly, all three feedback sources represent engagement on the part of parents, unlike, for example, ignoring miscues. Thus, parents who provided more negative feedback were nonetheless more actively engaged in providing other forms of feedback to their children as well. Although speculative, these parental displays may also be reflective of parents' awareness of their children's levels of reading proficiency. Namely, if a child has ample alphabetic knowledge but appears to be making careless miscues, criticism may be provided in conjunction with a directive to attend to the text (graphophonemic feedback). Likewise, a parent may use a try again response along with criticism when a child does not appear to be displaying an optimal performance and in the case of repeated miscues, terminal feedback and criticism may be provided. It is also important to consider that parents who were less critical, tended to provide less graphophonemic, try again, and terminal feedback. However, when viewing the associations from this perspective, it appears that parents who are less critical take a more "backseat approach" when their children make reading miscues. This appears to not be the case as parents infrequently ignored children's reading miscues. Thus, parents who are less critical may simply be allowing the children more opportunities to self-correct before responding.

To summarize, these findings demonstrate that parents are engaged when responding to their children's reading attempts. Parents also present as solid instructional models for reading. Indeed, Hewison and Tizard (1980) discussed the important contribution of parental coaching to reading development, and the present study supports this position.

Limitations and Future Directions

To our knowledge, this was the first study to investigate the relation among parental RRK and practices in the context of child-to-parent reading. The study provided important insight into this interrelationship and the feedback practices of parents in general. However, various limitations are noted that can be addressed in future research.

First, the evidence regarding parental RRK is correlational; as such, only experimental data can attest to a causal relationship between parental RRK and feedback practices. Thus, a future investigation can involve an intervention study explicitly targeting RRK skills, with pre- and posttest measures assessing parental practices. This is a viable choice to take because from a practical standpoint, RRK is more readily malleable than other parent variables associated with children's development (e.g., SES, IQ). Moreover, the research shows that RRK interventions can improve teaching practices and students' reading outcomes (e.g., McCutchen et al., 2002; Spear-Swerling & Brucker, 2004). Thus, it stands to reason that enhancing parents' RRK could also translate into more constructive home literacy practices and enhanced opportunities for learning.

Second, despite English being one of the primary languages spoken in the home, children also learned French in school. Thus, the home language was different than the language of instruction. In understanding the bilingual education the children were receiving, it is possible that this sample of parents may be somewhat more lenient in their practices compared to those with children receiving unilingual instruction in their mother tongues. However, this possibility seems unlikely as Sénéchal and LeFevre (2002, 2014) found consistent support for the home literacy model irrespective of whether the home language differed from the language of instruction.

Third, the sample was overall quite educated and family SES was above the median provincial value, nevertheless variability in parent and child performances was noted across families in the present sample. Having said this, to establish if patterns of findings vary according to SES, future research should involve a more economically and educationally diverse sample.

It is also important to consider that the one-time snapshot gained from children's reading scores and parent feedback does not allow for a retrospective view into what lead to the children's current reading skills. Indeed, this study showed that children with higher reading scores received less graphophonemic feedback. This practice makes intuitive sense because there would arguably be no need to interrupt a child's reading to provide unwarranted feedback. In fact, to the contrary, it would be quite intrusive (Cligenpeel & Pianta, 2007; Wood et al., 1978); however, this is not to say that in the past, these same parents did not provide increased feedback to their children, which ultimately contributed to developing their current levels of reading proficiencies. Along the same lines, children with lower reading scores were provided with more graphophonemic feedback. Although speculative, we anticipate that this increased feedback would accumulate over time and result in stronger reading performances. However, this question can only be answered by adopting a longitudinal design in future research.

Conclusion

The present findings contribute insight into the relation between parental RRK and reading feedback practices. Foremost, even after accounting for children's reading skills, parents' RRK supports a more positive nature of exchanges (praise) and explicit instruction (graphophonemic feedback) in response to children's reading miscues. Together, these parental responses can allow for positive learning opportunities for emerging readers, that may ultimately

positively impact their reading trajectories. Consistent with the teacher research, there appears to be natural variance among parents' RRK skills and room for knowledge enhancement (e.g., McCutchen et al., 2002; Spear-Swerling & Brucker, 2004). Consequently, the findings bode well as a basis on which RRK skills and associated feedback practices can be targeted. Promising findings have been reported in the teacher literature (e.g., McCutchen et al., 2002; Spear-Swerling & Brucker, 2004) and there is no reason to believe that this would not be any different with parents.

Table 1

Types of Parental Feedback, Definitions, and Examples (adapted from Cunningham et al., 2004; Evans et al., 1998; Martin-Chang & Gould, 2012)

Types	Definitions	Verbal Examples	Nonverbal Examples
Evaluative			
Praise	Providing praise based on performance and positive actions.	*"You're so good!"* *"Really good reading, honey!"*	Gives a thumb's up. Nods.
Criticism	Providing reprimanding comments and actions.	*"Stop it!"* *"It's not 'gone fishing'!"*	Shakes head. Closes eyes.
Miscue			
Graphophonemic	Drawing upon letter and sound combinations in words.	*"When there's two vowels, the first one is the sound that you take."* *"Do you remember what the C,H makes?"*	Points to letters. Covers parts of words.
Context Clue	Drawing on information outside the text as a clue for word recognition.	*"If it's not in, it's [out]..."* *"Remember you read that word before?"*	Points to a picture to help the child read.
Try Again	Prompting the child to try to read a word again without specific guidance or correction.	*"Say this one again?"* *"Mmm, maybe try that word again."*	Taps on a misread word.
Terminal	Providing the word, thereby stopping the opportunity for subsequent attempts at decoding; immediately following miscues or after failure of other strategies.	*"[The word is] 'wide-eyed".* *"It's 'ride'."*	Points to the word that is being relayed.
Ignoring Miscues	Parent does not respond to a reading miscue.	No verbal response to a reading miscue.	No actions to note that a reading miscue took place.

Table 2

Descriptives and Correlation Coefficients

	Composite RRK	Evaluative Praise	Evaluative Criticism	Miscue Grapho.	Miscue Try Again	Miscue Terminal
Composite RRK	_____					
Evaluative Praise	.25*	_____				
Evaluative Criticism	-.16	.05	_____			
Miscue Grapho.	.30*	.46***	.37**	_____		
Miscue Try Again	.04	-.02	.07	.12	_____	
Miscue Terminal	-.02	.03	.29*	.34**	-.06	____
Mean	22.86[a]	91.46	5.10	31.74	6.60	.48
Range	11-35	8-261	0-65	0-158	0-47	-44
SD	5.50	53.22	9.58	30.78	8.71	.23

Note. Effect of child reading performance and grade level was controlled for in the analyses. [a] = composite scores were calculated out of a maximum score of 39. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 3

Summary of Hierarchical Regression Analysis for RRK Predicting Praise and Graphophonemic Feedback

		b	*SE b*	*β*
Praise				
Step 1				
	Constant	73.19	19.28	
	Children's grade	24.29	15.80	.22
	Children's WRAT reading scores	-12.25	7.39	-.24
Step 2	Constant	19.00	30.70	
	Children's grade	22.37	15.35	.21
	Children's WRAT reading scores	-16.01	7.36	-.32*
	Parental RRK scores	2.68	1.21	.28*
Graphophonemic Feedback				
Step 1				
	Constant	40.26	11.10	
	Children's grade	3.02	9.18	.05
	Children's WRAT reading scores	-11.25	4.23	-.38
Step 2	Constant	5.80	17.31	
	Children's grade	1.20	8.82	.02
	Children's WRAT reading scores	-13.56	4.15	-.45**
	Parental RRK scores	1.73	.69	.31*

Note. Praise: for Step 1, $R^2 = .05$, R^2 change for Step 2 = .07; Graphophonemic Feedback: for Step 1 $R^2 = .13$, R^2 change for Step 2 = .08; *$p < .05$, ** $p < .01$

Reading and Writing: Traversing the Different Frontiers

The field of research studying the home literacy environment underscores the important contributions parents can provide their children as their first literacy teachers (Hiebert & Adams, 1987). Indeed, the research of Sénéchal and LeFevre (2002) attests to the role home literacy experiences play on later reading comprehension through both direct and indirect pathways. However, much of the discussion pertaining to parental literacy teaching has focused on reading development and the importance of shared storybook reading (e.g., Evans, Baraball, & Eberle, 1998; Sénéchal, LeFevre, Thomas, & Daley, 1998), leaving the subject of shared writing comparatively understudied (e.g., Aram & Levin, 2001). Consistent with this trend, advice and materials to target reading (e.g., Reading Rockets, 2008) are more readily available and plentiful compared to writing resources.

The parental reading-related knowledge (RRK) literature has similarly adopted a reading concentration (Ladd, Martin-Chang, & Levesque, 2011; Segal & Martin-Chang, in press, 2017a). In fact, as suggested by its name, all the RRK research to date has involved reading contexts. Until recently, the focus of these investigations was limited to parents' RRK and children's reading abilities, leaving unstudied the contribution of parental feedback, the means through which this knowledge is conveyed. Study 1 extended the research to examine the interplay between parental RRK and feedback with children's reading. We found that parental RRK predicted both praise and graphophonemic feedback during child-to-parent reading beyond the contribution of children's reading skills. Thus, parental RRK emerged as a contributor to two sources of constructive feedback directed to young readers.

While Study 1 shed light on the association between knowledge and practice, it remains unknown how the relation among these variables unveils in writing domains. Indeed, both

reading and writing rely on the same knowledge sources and are highly correlated (Ehri, 2000). Thus, on the one hand, it is logical to predict that associations among variables would not differ across reading and writing contexts. However, on the other hand, the two processes are not quite the same; writing draws upon more information from memory and the need to produce text while reading involves recognizing letters already in print and linking them with their associated sounds (Ehri, 2000). In addition, given the more readily available reading resources available to parents, their comfort levels may vary across reading and writing domains. Consequently, the reading and writing feedback they provide may vary as well. Therefore, Study 2 aimed to provide insight into the association between parental RRK and writing feedback. In this study, parents were provided with a child's writing sample on which to comment. This methodology allowed for an investigation of parental knowledge and writing practices while holding constant the effects of children's spelling.

“You are Very Brave to be Spelling Words by Yourself!” Parents’ Reading-related Knowledge and Feedback on a Kindergartner’s Writing Sample

Aviva Segal, Sandra Martin-Chang, and Shaneha Patel

Abstract

This study investigates the relation between parental reading-related knowledge (RRK) and writing feedback. Seventy-five middle-upper class parents of 5- to 7-year-old children completed a RRK questionnaire. Parental RRK was assessed based on phonological awareness (syllable and phoneme segmentation), knowledge of written syllable patterns, and identification of regular and irregular word spellings. Parents were also asked to provide feedback on a vignette that included a message written by a kindergartner. Parental feedback was coded based on evaluative feedback (praise, criticism) and miscue feedback (graphophonemic, modeling). Parental RRK was significantly associated with praise and modeling feedback; associations with graphophonemic feedback did not reach statistical significance. Implications are discussed in terms of future RRK assessments and methodologies of study.

"You are Very Brave to be Spelling Words by Yourself!": Parents' Reading-related Knowledge and Feedback on a Kindergartner's Writing Sample

A considerable body of literature supports the contribution of high quality classroom practices to children's literacy development (e.g., Cunningham & O'Donnell, 2015; Joshi et al., 2009; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). In many ways, this work builds upon investigations of parental literacy practices taking place in the home (e.g., Evans, Baraball, & Eberle, 1998; Sénéchal & LeFevre, 2002, 2014). Indeed, according to sociocultural and ecological theories, parents and their pedagogical practices directly impact children's development (Bronfenbrenner & Morris, 2006; Vygotsky, 1978). While a large portion of this research attests to the benefits of shared storybook reading (e.g., Evans et al., 1998; Martin-Chang & Gould, 2012; Sénéchal, LeFevre, Hudson, & Lawson, 1996), joint writing has also been recognized as an important part of the home literacy environment (DeBaryshe, Buell, & Binder, 1996). In fact, early work by Aram and Levin (2002) supports the contributions of mediated writing to children's spelling being greater than that of storybook reading. Here, we extend this work to elucidate the role parental RRK plays in writing mediation.

According to the "home literacy environment" model (Sénéchal & LeFevre, 2002), when parents engage in literacy activities with their children, it can be quite influential. In addition, consistent with sociocultural (Vygotsky, 1978) and ecological theories (Bronfenbrenner & Morris, 2006), the parent-child interactions differentially impact children's development. Namely, informal exchanges prioritize linguistic engagement, using the text as a starting point for discussions and vocabulary development. In contrast, formal activities focus on the print itself, drawing upon letters, spelling, and explicit teaching of literacy concepts as the focus of discussion. While parents' approaches to language and literacy in the home environment clearly

vary, both are crucial for developing children's reading comprehension. In fact, Gough and Tunmer's (1986) "Simple View of Reading" describes the relation among language and reading as being multiplicative in which text comprehension is a product of language and reading skills (text comprehension = language comprehension x reading); thus, neither factor can independently result in text comprehension.

Recently, the focus of the home literacy literature expanded to investigate parents' intuitive knowledge of language and its relationship with children's reading skills. Findings support the domain-specificity of this knowledge and its relations with praise and graphophonemic feedback (Ladd, Martin-Chang, & Levesque, 2011; Segal & Martin-Chang, in press, 2017a). While various terms have been used to refer to this knowledge base in the teacher literature (e.g., "content knowledge", "knowledge of literacy concepts"), we use the term "reading-related knowledge" (RRK, Cunningham, Perry, Stanovich, & Stanovich, 2004) because of its consistent use across the parent literature (Ladd et al., 2011; Segal & Martin-Chang, in press, 2017a).

Reading-related Knowledge

In the teaching domain, RRK represents the content expertise pertaining to English language structure that helps guide effective and evidence-based literacy practices (e.g., Phelps & Schilling, 2004; Piasta, Connor, Fishman, & Morrison, 2009; Spear-Swerling & Brucker, 2003). RRK is comprised of various interrelated knowledge bases, some of which include: phonological awareness, knowledge of written syllable patterns, and the ability to identify regular and irregular word spellings.

Phonological awareness encompasses an understanding of the ways in which spoken language (sounds) can be segmented and manipulated (Bentin, 1992; Washburn, Binks-Cantrell,

Joshi, Martin-Chang, & Arrow, 2016). The ability to manipulate large (e.g., syllables) and small units of sound (e.g., phonemes) contributes to reading development; possessing syllabic awareness allows for an understanding of how syllable division affects word pronunciation; it also provides effective guidance in word attack as the ability to segment words into syllables makes reading and writing multisyllabic words more manageable and accurate (Cunningham & O'Donnell, 2015; Huemer, Aro, Landerl, & Lyytinen, 2010). In contrast, phonemic awareness involves an ability to segment words into individual speech sounds (phonemes), which underpins an understanding of the alphabetic principle. Specifically, when children develop awareness of individual speech sounds, they become better positioned to learn how these speech sounds link to letters and letter patterns in print (Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012; Sénéchal, LeFevre, Thomas, & Daley, 1998; Tangel & Blachman, 1992).

A second subcomponent of RRK involves an understanding of the six most common types of written syllable patterns encountered in text (closed, open, vowel-consonant-e, vowel teams, r-controlled, and final stable; see Appendix A). Knowledge gained about these written syllable patterns encourages students to attend to predictable spelling patterns within words, which, in turn, allows for more accurate reading (cf. Knight-McKenna, 2008). These conventions also help children select which vowels and vowel combinations to use when spelling (e.g., "mad" versus "made"; Fischer, 1993; Gillingham & Stillman, 1997; Moats, 2000). However, to do so, children need to possess ample phonemic awareness, which allows them to attend to the vowel sounds. They also require syllabic awareness to segment multisyllabic words into individual syllables (e.g., /pro/gram/, /com/pete/). Although some spelling confusion may arise over which written syllable patterns to apply, certain miscues are averted. For example, the second syllable in the word "compete" has a tense vowel sound. Children may erroneously

represent the tense vowel as a vowel team (i.e., “compeat”), which would make phonetic sense. However, their knowledge of closed syllables would predictably avoid the word being written as “compet”, because this spelling presents the letter *E* in a lax form.

A third form of RRK involves the ability to recognize whether words are regularly or irregularly spelled. At the early reading stage, words presented to children generally have predictable associations between individual letters and sounds (e.g., “bed” and “cat”). As children’s skills progress, they encounter more complex words that have letter patterns representing sounds (e.g., “light” and “enough”) and irregular words, which have letters that do not correspond with their most common sounds (e.g., “two” and “eye”). The ability to identify words as being irregular helps teachers avoid giving children the erroneous advice to “sound it out”. Various strategies have been employed to assist children in learning irregular spellings. One method involves drawing attention to letter and letter combinations that are regular in the word (Moats, 2005). For example, the irregular word “put” has two-thirds of its letters (*P* and *T*) that can be sounded out. Another method involves regularizing the word to ease spelling recall (Ocal & Ehri, 2017). Thus, when attempting to spell the irregular word “answer”, the word can be presented orally as /ans/-/wer/ for children to make the letter-sound correspondences.

Parents’ reading-related knowledge. Ladd et al. (2011) were the first to investigate the association between parents’ RRK and children’s reading in Kindergarten and Grade 1. The composite RRK measure comprised phoneme segmentation and identification of irregularly spelled words. Analyses revealed positive correlations between RRK with children's letter-word knowledge (reading) and sound awareness (phonology). In contrast, correlations with children’s mathematical and vocabulary skills were not statistically significant, thereby supporting the domain specificity of parental RRK.

Segal and Martin-Chang (in press) extended the research of Ladd and colleagues (2011) to examine the relation between parental RRK and children's reading over time, when children were in Kindergarten and then again in Grade 1. In Kindergarten, RRK (identification of irregularly spelled words) along with parents' general knowledge and exposure to print, contributed unique variance in children's reading. However, in Grade 1, only the contribution of RRK remained significant. Therefore, at least into early grade school, parents' RRK continued to impact children's reading skills, while the contributions of other parent variables waned over time.

Segal and Martin-Chang (2017a) went on to investigate whether parental RRK would account for unique variance in the types of feedback parents provided their children during child-to-parent reading. Beyond variance already explained by children's reading, RRK predicted the amounts of praise and graphophonemic feedback parents provided their children. These findings were encouraging as praise is associated with sustained child attention and learning over time (e.g., Fullerton, Conroy, & Correa, 2009), and phonics instruction (graphophonemic feedback) facilitates reading development (National Reading Panel, 2000).

In summary, a small but growing body of evidence supports the contribution of parental RRK to children's reading skills, and more recently, to praise and graphophonemic feedback (Ladd et al., 2011; Segal & Martin-Chang, in press, 2017a). Yet, reading comprises only one facet of literacy. This leaves us to question whether similar associations would be found between parental RRK and the writing feedback they provide (e.g., Aram & Levin, 2001; Sénéchal & LeFevre, 2002).

Children's Early Writing and Parents' Writing Practices

Early word production involves multiple steps; young writers need to segment words into abstract sound units (phonemic awareness), then connect each unit to a letter based on its name or sound (phonics), and finally, print the correct letter (Levin & Aram, 2012). In contrast, through exposure to words in print, spelling becomes automatic, which allows fluent writers to bypass these steps when writing. As a result, they experience some difficulties in retracing their steps when guiding novice writers (Cunningham & O'Donnell, 2015; Moats, 1999).

Consistent with the home literacy environment model (Sénéchal & LeFevre, 2002), when home writing mediation occurs, parents employ varying approaches that can be informal (e.g., making cards) or formal (e.g., explicit teaching of spelling; Aram & Levin, 2001; DeBaryshe et al., 1996). It stands to reason that parents who are sensitive to the progression of writing development are better positioned to optimize these literacy experiences (Aram & Besser-Biron, 2017; Chomsky, 1971). For example, parents who understand the contribution of invented spelling to children's developing writing skills are less likely to discourage children's early writing attempts. This becomes especially important as children display developmentally appropriate spellings that would benefit from praise and incremental scaffolding rather than outright correction (Ouellette, Sénéchal, & Haley, 2013). It remains unknown, however, how parental mediation would present in contexts, such as parental feedback on a writing sample, where sustaining feedback and joint writing exchanges are not possible.

The Present Study

The purpose of the present investigation was to extend the parental RRK literature into the writing domain. Considering that children's writing abilities influence parents' feedback (e.g., Aram & Levin, 2001; Evans et al., 1998; Segal & Martin-Chang, 2017a), we controlled for children's writing by providing a standard vignette to all parents, containing a writing sample.

The sample was an invitation to a party written by Maddie[6], a kindergartner, without any assistance. This allowed our participants to comment on a writing sample that was not corrected, which included invented spellings and other types of miscues commonly displayed by emerging writers.

Four predictions were made regarding the association between parental RRK and writing feedback. Basing our first prediction on the commonalities between reading and writing (Ehri, 2000), we predicted that the positive correlation reported between RRK and praise during child-to-parent reading (Segal & Martin-Chang, 2017a) would be replicated in the present writing context. Second, based on an implicit awareness of the complexities involved in spelling (e.g., Ouellette et al., 2013), we predicted that parental RRK would be negatively correlated with criticism. Third, considering that RRK comprises an understanding of invented spellings (e.g., Spear-Swerling & Brucker, 2003), we predicted that parental RRK would be significantly associated with graphophonemic feedback as a method to scaffold grapheme-phoneme connections. Last, bearing in mind that there was no opportunity for active exchanges with Maddie (e.g., using a try again strategy), we predicted that parental RRK would be significantly associated with modeling feedback, which would serve to provide Maddie with proper word spellings.

Method

Participants

Letters of invitation to participate in this study were sent to families of children entering Grades 1 and 2 in five local schools. In addition, parents of children ages 5 through 7 responded to local ads and social media postings; they also spread awareness of the study through word-of-mouth. A total of 75 parents participated in the study.

[6] A pseudonym.

The mean age of the participants was 39 years ($SD \cong 5$ years). Sixty-five of the parents were mothers, and 10 were fathers. The majority of parents were in a committed relationship (93.3%), with the remainder being single (1.3%), separated (1.3%), or divorced (2.7%)[7]. The largest percentage of parents completed undergraduate studies (42.6%); the balance of the sample completed high school or some university (13.3%), master's degrees (36.0%), and doctoral degrees (6.7%). The reported gross family income (M = $90,001-110,000) was above the median provincial income of $75,530 reported by Statistics Canada (2015).

Materials

Parents completed a series of activities. First, they provided their demographic information. They then completed RRK questions (Appendix C) and proceeded to provide feedback on Maddie's writing sample (see Appendix F).

Family demographics. This section comprised personal questions regarding parents' ages, gender, marital status, level of education completed, family income, and languages spoken in the home. Parents were also asked to provide age and gender-related information regarding all their children and to identify the child who was between the ages of 5- and 7-years-old.

Reading-related knowledge. RRK questions assessed parents' knowledge of phonological awareness, written syllable patterns, and irregular word spellings. The phonological component contained 16 words to segment into individual phonemes (taken from Spear-Swerling & Brucker, 2003) and nine words to segment into syllables (taken from Moats & Foorman, 2003). Correct responses were given a score of one, and miscues were given a score of zero.

The syllable pattern portion involved four words to classify into one of four written syllable patterns (open, closed, vowel-consonant-e, vowel team). Each of the four words

[7] One mother did not report her marital status or education level.

represented one of the four syllable types commonly presented to young children[8]. To avoid forced choice responses, an "I don't know" option was provided. Correct responses were assigned a grade of one; "I don't know" and miscues were given a grade of zero.

The identification of irregularly spelled words task comprised a list of 36 words (adapted from Cunningham et al., 2004; Ladd et al., 2011). Ten words were irregularly spelled, and 26 were regularly spelled. Parents were asked to circle the irregularly spelled words that were intermixed in the table with regularly spelled words and to leave blank any regularly spelled words or words of which they were unsure. Correct scores were calculated out of a total of 10, reflecting the amount of properly identified irregularly spelled words.

Given the reported high reliability among phonological awareness, phonemic measures, and alphabetic principle[9] (word spellings; e.g., Washburn, Joshi, Binks-Cantrell, 2011) and previous research using a composite RRK measure (Ladd et al., 2011), RRK scores were summed and analyzed as a composite. The composite score was calculated out of a total score of 39.

Writing feedback. Parents were asked to provide feedback on Maddie's writing sample, which involved an invitation to a party. Past studies, such as that of Aram and Besser-Biron (2017), have also involved mediating writing of an invitation. However, the format of the task differs because here, Maddie's mother was given the content of the invitation to dictate to Maddie (Appendix F); therefore, Maddie and her mother did not jointly work on the content of the note nor did her mother mediate the writing past the dictation stage. Therefore, mediation was limited to participants' feedback to Maddie.

[8] The remaining two written syllable patterns are commonly introduced to children with more advanced literacy skills.

[9] No studies to date have reported reliability measurements including knowledge of written syllable patterns in the instrument.

Maddie correctly spelled four words and misspelled 10 words. Spelling miscues involved invented spellings (e.g., “my” was written as “mi”), syllable omissions (e.g., “invited” was written as “vaitid”), and absence of the final *E* in vowel-consonant-e syllables (e.g., “hope” was written as “hop”).

Procedure

Parents interested in learning about the investigation contacted the primary investigator and were informed of the study protocol. Those who decided to participate were sent a consent form to complete and were given the option between meeting at the university facility (with paid parking and transit costs) or in their homes. One time meetings were scheduled throughout the summer and early fall, at a convenient time for the participants. At the onset of each meeting, a trained research assistant explained the tasks and stayed with the parent throughout the session. Parents first provided their demographic information and completed the RRK questionnaire (Appendix C). They then provided feedback on Maddie’s writing sample (Appendix F).

Data coding. Parents’ performances on reading-related tasks were calculated by the first author. Feedback on the spelling samples was coded by the third author involving four predetermined criteria: praise, criticism, graphophonemic feedback, modeling feedback (Table 1). On average, parents provided 3.23 comments involving praise (*SD* = 2.98), .11 comments involving criticism (*SD* = .34), 2.61 comments involving graphophonemic feedback (*SD* = 2.70), and 1.35 comments involving modeling feedback (*SD* = 2.23).

Interrater reliability. The first author served as the second rater for the identification of feedback displays. Approximately 25% (18/75) of the transcripts were independently coded. Raters agreed on 94.2% of the codes and disagreements were resolved through discussions.

Results

Parents successfully completed approximately 57% of the RRK tasks (M = 22.41[10], SD = 5.89). This mean performance is comparable to that reported in the teacher literature. Specifically, teacher performances on RRK measures have been reported to fall under the two-thirds correct mark (Bos, Mather, Dickson, Podhajski, & Chard, 2001). However, it should be noted that teachers also completed more complex tasks including knowledge of morphology and definitions of terms (e.g., Washburn, Joshi, & Binks-Cantrell, 2011).

On average, parents displayed 7.30 counts of feedback per session (SD = 5.14); 45.75% of the feedback was evaluative (praise, criticism; M = 3.34, SD = 2.92) and 54.25% was miscue-based (graphophonemic, modeling; M = 3.96, SD = 3.69). A paired-samples t-test was run to determine whether there was a statistically significant difference between mean counts of praise and criticism. Praise occurred more often (3.23 $\pm$ 2.94) than criticism (.11 $\pm$ .36)[11] with a mean difference of 3.12 (95% CI, 2.42-3.83), $t(72) = 8.86$, $p < .001$. A second paired-samples t-test was run to determine whether there was a statistically significant difference between mean counts of graphophonemic and modeling feedback. Graphophonemic feedback occurred more often (2.61 $\pm$ 2.70) than modeling feedback (1.35 $\pm$ 2.23) with a mean difference of 1.25 (95% CI, 0.47-2.04), $t(70) = 3.20$, $p = .002$.

Parental Feedback

Bivariate correlations were run. The association between RRK and praise was significant, thereby supporting our first prediction ($r = .27$, $p = .03$). Low frequencies of criticism did not allow for investigation of our second prediction. Our third prediction involving a significant positive relation between RRK and graphophonemic feedback was not supported ($p = .38$).

[10] Out of 39.

[11] Criticism was removed from subsequent analyses because of its low frequency.

However, a positive relationship between RRK and modeling feedback was noted, lending support to our fourth prediction ($r = .25$, $p = .04$; see Table 2).

Discussion

Our goal was to extend the RRK literature to include a focus on writing. Consistent with reports from the joint reading research (Segal & Martin-Chang, 2017a), RRK was positively associated with praise. This finding, which supports our first prediction, is especially gratifying because it presents RRK as a valuable contributor to positive practices in writing contexts as well. Thus, the findings from the two parental RRK studies to date provide converging evidence regarding the affective atmosphere associated with parental RRK across both reading and writing domains. The present study additionally demonstrates that this link holds regardless of the relationship with the child. By no means are we challenging the longstanding contributions of social models such as sociocultural (Vygotsky, 1978), social cognitive (Bandura, 1993), or ecological theories (Bronfenbrenner & Morris, 2006). However, it appears that relays of praise, in this context, are not limited to parent-child relationships.

Considering parental feedback in general, it was reassuring that parents provided more praise than criticism to Maddie. In fact, irrespective of RRK, parents offered over 30 counts of praise for each critical comment made. Parents also provided more graphophonemic feedback compared to modeling feedback. Thus, consistent with the joint reading literature, parents in general appear to adopt a bottom-up approach (Evans et al., 1998), involving an emphasis on making grapheme-phoneme connections over supplying a corrected version of a misspelled word.

Surprisingly, our prediction involving a significant correlation between parental RRK and graphophonemic feedback was not supported. We speculate that this may be explained in part by

parents' appreciation of Maddie's current spelling abilities. In fact, some parents stated that they would not provide any feedback to Maddie because she appeared to be writing quite well for a kindergartener. Thus, parents may logically be taking a contingency approach to feedback wherein, "If the child succeeds ... offer less help. If the child fails ... take over control," (Wood, Wood, Middleton, 1978, p. 133). Indeed, this appears to be the case in reading mediation as a significant negative correlation was reported between children's reading and parents' provisions of graphophonemic feedback (Segal & Martin-Chang, 2017a).

Although our prediction regarding a positive association between parental RRK and modeling feedback was supported, this relation may appear counter to optimal writing mediation. A case in point, the 6-point scale discussed by Aram and Levin (2002) codes parents' writing all the letters of a word for a child (modeling) as reflecting the lowest level of mediation. However, a joint writing activity differs from a response to a writing sample as in the latter case, direct exchanges are not possible. Consequently, a higher level of mediation, such as providing Maddie with a phoneme and asking her to link it to a letter, cannot be given. Thus, given the constraints of responding to an already completed writing sample, modeling may be a constructive form of feedback to provide.

Limitations and Implications for Future Research

This study investigated the relation between parental RRK and writing feedback. Although some notable associations were found between knowledge and practice, certain limitations merit consideration. First, the battery of RRK tasks that parents completed can be extended, including adding more syllable pattern questions to the four already in the measure, to garner a more comprehensive view into this form of RRK. Phoneme matching can also be introduced as floor effects are less probable compared to tasks such as reasoning behind

consonant doubling, that even teachers find challenging to complete (Moats & Foorman, 2003). A more expansive repertoire of tasks can additionally allow for RRK variables to be analyzed separately in relation to parental practices.

A second limitation involves parents commenting on a strong writing sample. As previously mentioned, this may have impacted the amount and type of feedback parents provided in comparison to a weaker sample. Thus, an option for future research can involve presenting parents with writing samples by numerous children with varying spelling skills. Alternatively, Maddie's transcription can be used, but Maddie can be introduced as a Grade 2 student. However, adopting either of these approaches would not speak to any possible apprehensions parents may have to comment on an already completed writing sample from a young child who was not their own. To address this, future investigations can involve parents and their children working together on a mediated writing task. Adopting such a methodology would be consistent with a Vygotskian paradigm (Vygotsky, 1978), as parents would have prior knowledge of their children's skills and would be able to base instruction and feedback in a more informed manner. This possibility may indeed be worth exploring since Aram (2002), among others, noted that different contexts affect the nature of parents' writing mediation styles.

A third limitation involves the correlational nature of the investigation. Indeed, a future study can determine causality through adopting an experimental design. The teacher research has reported RRK being receptive to change and associated practices becoming more evidence-based; these changes, in turn, directly impact children's literacy skills (e.g., Piasta et al., 2009; Spear-Swerling & Brucker, 2004). Following from these studies, we trust that the same skills would be responsive to change in parents with resulting positive effects on children's literacy.

Conclusion

Consistent with the findings of Segal and Martin-Chang (2017a), parental RRK was significantly associated with the amount of praise parents provided Maddie. Thus, across reading and writing skills, regardless of the relation to the child, RRK and praise seem to go hand in hand. However, the graphophonemic feedback parents provided was not significantly correlated with parental RRK. We believe that Maddie's strong spelling skills may have limited the teaching parents provided. Indeed, our previous study indicated that less graphophonemic feedback was given to stronger readers (Segal & Martin-Chang, 2017a) and this also appears to be the case in writing. Finally, parental RRK was also significantly associated with modeling feedback. Thus, parents with higher RRK seem to take on the opportunity to model proper spelling more frequently than those with lower RRK. This practice may be especially beneficial for young writers as correct spellings of words are essential for effective writing.

Table 1

Feedback Types and Examples

Feedback Types	Definitions	Examples
Evaluative		
Praise	Providing praise based on the child's performance and efforts.	*"You wrote such a nice invitation."* *"Very good writing ☺"*
Criticism	Providing reprimanding comments.	*"One word!"* *"There are no spaces."*
Miscue		
Graphophonemic	Drawing upon letter and sound combinations in words in response to spelling miscues.	*"What other word can make an /ee/ sound at the end of a word?"* *"Focus on sounds especially hidden ones."*
Modeling	Providing the conventional spelling of a miscued word spelling.	*"Make sure you spell 'you' correctly because it's a real important word."* *"I will write the words for you so you can see how grownups spell."*

Table 2

Correlation Coefficients

	Composite RRK	Praise	Graphopho.	Modeling
Composite RRK	_____			
Praise	.24*	_____		
Graphopho.	-.12	.12	_____	
Modeling	.25*	.10	.11	_____

* $p < .05$

The Contributions of Face-to-face Interactions in a Joint Writing Context

Study 1 investigated the associations between parents' RRK, feedback (praise, criticism, graphophonemic, context cues, try again, terminal feedback, ignore miscues) and children's reading performances. Study 2 examined the links between parents' RRK and the written feedback (praise, criticism, graphophonemic, modeling) they provided an unknown kindergartner, named "Maddie".

Importantly, a common pattern emerged across both studies; parents with higher RRK provided more praise to their own children (Study 1) as well as to Maddie (Study 2). Thus, across reading and writing contexts, parents with higher RRK appear to understand the importance of creating a positive atmosphere for engaging in literacy activities with children (Fullerton, Conroy, & Correa, 2009; Martin-Chang & Gould, 2012). However, I must highlight the correlational nature of my design, as such, it is also possible that parents who provide more praise may be doing so stemming from a greater appreciation of language in general. That being said, a third order variable, such as attitudes towards literacy, could be dually affecting parental praise and RRK. Additionally, the performance of the child may have been driving the amount of praise they received in Study 1. It was for this reason that in Study 2, I held the child's performance constant by giving them all the same sample of child writing. Parents with higher RRK gave more praise to Maddie, which increases my confidence that the correlation is being driven by the knowledge of the parents and not the performance of the child.

Interesting differences arose across the studies as well. In Study 1, parents with higher RRK offered more graphophonemic feedback after their children made reading miscues. In contrast, in Study 2, parents with higher RRK provided more modeling of the correct spelling of words. A possible explanation for these differences lies in the fact that graphophonemic feedback

relies on linking speech sounds to letters and letter patterns. The written nature of Study 2 may have dissuaded participants from thinking and/or communicating these oral components within their written feedback. Alternatively, it is also feasible that the way parents' RRK affects feedback fundamentally differs during reading tasks and writing tasks. Indeed, Ehri (2000) discussed how similar reading and writing are while emphasizing that they nevertheless represent separate constructs. Along the same lines, parents would be expected to provide some feedback that is similar across reading and writing tasks and also provide effective guidance that is construct-dependent (i.e., different across reading and writing contexts). This formed the premise of Study 3, which involved the same dyads from Study 1 and 70 of the 75 parents from Study 2. Here, parents worked with their own children (as in Study 1) during a writing task (as in Study 2).

“You Wrote the Right Letter for the Right Sound!” Parents’ Reading-Related Knowledge and the Feedback They Provide in a Joint Writing Activity

Aviva Segal and Sandra Martin-Chang

Abstract

Parents play an important role in children's reading and writing development. However, little attention has been devoted to investigating the underlying knowledge base guiding these exchanges. Here, seventy parents and their children entering Grades 1 and 2 participated in a joint writing activity. Parent-child exchanges were videotaped, transcribed, and coded based on four pre-established feedback criteria (praise, criticism, graphophonemic, dictation). Parents also completed a RRK questionnaire and their children were administered the WRAT 4 spelling measure. The data showed that parents' RRK was positively correlated with their children's spelling scores and parental praise. Parental RRK was also negatively correlated with dictation. Hierarchical linear regressions demonstrated that RRK accounted for unique variance in the amount of praise parents provided in the first model and dictation in the second model, beyond variance explained by children's spelling. Findings highlight the contribution of RRK to developmentally appropriate practices during joint parent-child writing. Implications are discussed in terms of enhancing parental RRK and informing evidence-based writing practices.

"You Wrote the Right Letter for the Right Sound!" Parents' Reading-Related Knowledge and the Feedback They Provide in a Joint Writing Activity

It is widely accepted that parents influence their children's development during the early years (e.g., Sénéchal & LeFevre, 2002; Sonnenschein & Sun, 2016). Indeed, various social theories support the developmental contributions of parents and their ongoing interactions with their children (Bronfenbrenner & Morris, 2006; Vygotsky, 1978). While literacy-based interactions between parents and children tend to naturally occur quite frequently in the home (e.g., Sénéchal & LeFevre, 2002), very little attention has been dedicated to understanding how parents' reading-related knowledge (RRK) guides literacy instruction (e.g., Ladd, Martin-Chang, & Levesque, 2001; Segal & Martin-Chang, in press, 2017a, b). Furthermore, of the four studies that have been conducted, three investigated parents' impact on their children's reading skills (Ladd et al., 2011; Segal & Martin-Chang in press, 2017a). In contrast, only one studied how parents' knowledge was linked to the feedback they provided on a writing sample (Segal & Martin-Chang, 2017b). The present investigation observed parental verbal and nonverbal feedback provided during a joint writing activity. This allowed for a view into the relations between parental RRK, provisions of writing feedback, and children's general spelling abilities.

Theoretical Support

Parents' potential contribution to their children's writing development is supported by a Vygotskian paradigm of child development (1978). Specifically, a child is introduced to a written system in the sociocultural setting of the home, often at a level within the child's zone of proximal development (Aram, Abiri, & Elad, 2014; Evans, Baraball, & Eberle, 1998). Guided learning occurs through the transmission of literacy knowledge from the more knowledgeable parent to the less knowledgeable child; a key component of these exchanges involves the active

engagement of the child and the ultimate goal of incorporating what is taught when independently reading and writing (Aram et al., 2014; Rogoff, 1998).

Bronfenbrenner and Morris' research (2006) also lends support to the important involvement of parents in children's development. According to this theory, child development is influenced by the interaction between various nested contexts; the closer the level of the context, the more direct the influence. The microsystem, which directly impacts the child, includes the home in which practices such as writing mediation occur among parents and their children (Aram & Levin, 2001; Sénéchal & LeFevre, 2002).

Thus, various sources of research and theory support the role that parents can play in their children's development (Aram et al., 2013; Martin-Chang & Gould, 2012; Sénéchal & LeFevre, 2002). However, several important related variables have, until recently, remained understudied. A case in point, parental RRK represents one topic that has garnered some recent research attention (Ladd et al., 2011; Segal & Martin-Chang, in press, a, b). However, it pales in comparison to the volume of investigations dedicated to teachers' RRK (e.g., Joshi et al., 2009; McCutchen et al., 2002; Washburn, Joshi, & Binks-Cantrell, 2011). This is surprising as parents often are their children's first literacy teachers (Hiebert & Adams, 1987) and the literacy coaching they provide can be impactful (Hewison & Tizard, 1980; Puglisi, Hulme, Hamilton, & Snowling, 2017). Yet, considering the small bank of extant parent RRK research, examining the larger corpus of teacher literature lends more elucidation to the topic of RRK, its relationship with educational practices, and the potential contributions it provides to children's literacy development.

Reading-related Knowledge

RRK[12] represents an awareness of English language structure, which guides pedagogical practices (Cunningham & O'Donnell, 2015). Importantly, despite being related to teaching literacy skills, this knowledge base does not reflect adults' own literacy abilities. In fact, the fluency and automaticity with which adults read and write tend to impede their capacity to break words up into their most basic components (Moats, 1999). Indeed, the ability for young children to process language is critical as they need to develop skills translating print into speech (reading) and producing simple written words using grapheme (print) to phoneme (sound) mapping. It is perhaps no surprise then that three language-based (RRK) skills that have been linked with children's literacy outcomes involve phonological awareness, knowledge of written syllable patterns, and the ability to identify regular and irregular word spellings. Importantly, teachers who score higher on these skills often provide more evidence-based approaches to teaching these same language concepts and, consequently, have students with stronger literacy skills (e.g., Cunningham & O'Donnell, 2015; McCutchen et al., 2002).

Phonological awareness represents an ability to manipulate spoken language (Washburn, Binks-Cantrell, Joshi, Martin-Chang, & Arrow, 2016). Phonological skills are first acquired using larger units of sounds, such as syllables, and only later become more refined, allowing for smaller units, such as phonemes, to be manipulated (e.g., phoneme segmentation; Bentin, 1992; Liberman, Shankweiler, Fischer, & Carter, 1974; Washburn et al., 2016).

Part of early literacy skill acquisition involves learning to match phonemes to letters and letter combinations in order to make predictable letter-sound correspondences (Hulme et al., 2012; Hulme, Nash, Gooch, Lervåg, & Snowling, 2015). In the case of reading, children learn to decode and blend the sounds attributed to individual graphemes, and in the case of spelling, they

[12] The term reading-related knowledge has been used in parent studies and refers to the same construct that goes under many names in the teacher literature (e.g., "content knowledge", "knowledge of English language structure").

learn to break up words into individual sounds ("sound out") and associate them with the correct graphemes. However, early on, children often spell words the way they hear them (Chomsky, 1971). Therefore, words, words such as "mix" and "pour" are often spelled as MIKS and POR respectively (Phelps & Schilling, 2004). To make sense of these phonetic attempts (invented spellings), teachers must abandon their established schemes of conventional spelling, which can be quite difficult for them (Cunningham & O'Donnell, 2015; Ouellette & Sénéchal, 2017). Thus, somewhat counterintuitively, being highly literate can interfere, in part, with teachers' awareness of developmentally appropriate writing practices.

A second form of RRK involves recognition of commonly encountered written syllable patterns in English (closed, open, vowel-consonant-e, vowel teams, r-controlled, and final stable; see Appendix A). This knowledge base contributes to children's reading accuracy because familiarity with the terms and accompanying patterns allows for predictability of vowel sounds (Fischer, 1993; Knight-McKenna, 2008; Moats, 2000, 2005). In addition, the predictability in spelling patterns also assists in accurate spelling. For example, knowledge of the vowel-consonant-e pattern, and the "magic e" mnemonic specifically, allows children to recall that the letter *E* at the end of a single syllable word often "magically" makes the preceding vowel tense. Thus, adding a letter E at the end of the closed syllable "hop", changes the word into the vowel-consonant-e syllable pattern "hope." Similarly, the inverse transformation occurs to the vowel sound when the consonants in a closed syllable (e.g, "hill", "bed") are dropped and the lax vowel sound becomes tense in an open syllable (e.g., "hi", "be"). Emerging readers and writers also tend to be introduced to a fourth syllable pattern called vowel teams. The simplest words falling under this category have two letters that represent one vowel sound (e.g., "boat", "clean",

"b<u>ow</u>")[13]. While knowledge of these four written syllable patterns[14] can assist in accurate reading and writing, the terms are neither commonly used nor generally known by teachers (e.g., Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003). Again, this limitation appears to stem from teachers' own levels of literacy competence as fluent readers and writers bypass the need to decode combinations of letters to accurately read and write words; nonetheless, from a practical standpoint, this impedes their ability to provide important aids to children with emerging literacy skills (Moats, 1999).

A third commonly investigated subcomponent of RRK involves teachers' abilities to recognize regular and irregular word spellings. When children begin to read and write, they are often presented with regularly spelled words. These words represent predictable patterns between letters or letter combinations and sounds (e.g., "rat", "chip"), for which "sounding out" knowledge can apply. However, they also encounter words that are not spelled as they sound (i.e., irregularly spelled words). For example, a commonly encountered irregularly spelled word, "said", rhymes with "bed" and "red" but is spelled with a vowel team rather than the typical single 'e' grapheme.

Words that are irregularly spelled cannot be "sounded out" in their entirety; thus, directing children to do so can result in systematic miscues and frustration on behalf of both child and teacher. As a case in point, children would have no success at conjuring up the spelling of the word "one" by identifying its constituent sounds (Moats, 2005; Reading Rockets, 2008).

As with the other forms of RRK, some challenges are also encountered with regard to teacher practices involving irregular word spellings. In particular, with advanced language

[13] More complex vowel teams can be up to four letters long, e.g., "thr<u>ough</u>".

[14] Two remaining syllable types commonly encountered in English (r-controlled and final stable) are often later introduced. Considering the ages of the children in the present sample, they were not discussed in text.

fluency, all words, whether regular or irregular, are read and spelled with comparable fluency and accuracy. This form of indiscriminate proficiency leads to difficulty identifying regular and irregular word spellings (e.g., Cunningham, Perry, Stanovich, & Stanovich, 2004), which in turn, can lead teachers to give children incorrect "sounding out" advice. They may also penalize children's spelling attempts (e.g., spelling the word "one" as WAN or WUN; Cunningham & O'Donnell, 2015; McCutchen et al., 2002; Moats, 1994) when in fact, such spellings make phonetic sense. Indeed, optimal responses to such invented spellings would involve scaffolded graphophonemic responses, and not overstepping the child's spelling attempt by providing the complete correct word (Ouellette, Sénéchal, & Haley, 2013).

Parents' Reading-related Knowledge. The smaller corpus of research investigating parents' RRK has until recently been limited in scope. Namely, both Ladd et al. (2011) and Segal and Martin-Chang (in press) uniquely examined associations between parental RRK subtypes and children's reading skills. Although these studies provided preliminary support for the contribution of parental RRK to children's reading, parental practices, which reflect how the knowledge is conveyed, were not investigated.

Segal and Martin-Chang (2017a) contributed novel insight into the association between parental RRK and feedback during child-to-parent reading. Consistent with previous research (Ladd et al., 2011; Segal & Martin-Chang, in press), parents' RRK was significantly associated with children's reading scores. In addition, after controlling for children's reading abilities, parental RRK accounted for unique variance in the praise and graphophonemic feedback provided to children.

Segal and Martin-Chang (2017b) subsequently studied parental feedback on a child's writing sample. The authors noted that parental RRK was significantly associated with praise in

this context as well. Parental RRK was additionally significantly associated with modeling. These findings are noteworthy as increased praise tends to foster child engagement (e.g., Bergin, 2001; Fullerton, Conroy, & Correa, 2009) while modeling allows for children to be exposed to conventional spellings that are needed for recognizing print (reading) and producing properly spelled words (writing). Thus, this combination of feedback, that was significantly associated with parental RRK, represents a balanced approach to writing mediation, which may ultimately positively impact children's literacy development.

Taken together, both feedback studies (Segal & Martin-Chang, 2017a, b) support RRK being associated with an encouraging atmosphere for literacy exchanges, specifically involving praise on children's attempts at reading and writing. Yet, while the first study involved parents working with their children on a joint reading activity (Segal & Martin-Chang, 2017a) and the second study examined parental feedback on a writing sample (Segal & Martin-Chang, 2017b), the association between parental RRK and feedback in the context of a joint writing activity remains unstudied. However, the topic of writing mediation has garnered some research attention and this corpus of research provides some insight into writing supports provided to children.

Parents' and Teachers' Writing Practices

A small yet growing body of literature has investigated parental writing practices (e.g., Aram, 2002; Aram & Levin, 2004; DeBaryshe, Buell, & Binder, 1996). Findings support the notion that quality of parents' writing mediation impacts children's literacy skills (Aram & Levin, 2001), even more so than parents' mediation when they are helping their children read (Aram & Levin, 2002). In addition, these gains tend to be maintained longitudinally (Aram & Levin, 2004).

The Present Study

This study represents an investigation into the association between parental RRK and children's spelling. It also examined the link between parents' RRK and the feedback they provide their children in the context of a semi-structured joint writing activity. Situated within findings from the corpus of parental RRK studies (Ladd et al., 2011; Segal & Martin-Chang, in press, 2017a) and investigations pertaining to teachers' writing supports/feedback (Aram & Levin, 2001; Bingham et al., 2017), three predictions were made. First, given the links between reading and writing (Ehri, 2000) and reported correlations among parental RRK and children's reading (Ladd et al., 2011; Segal & Martin-Chang, in press, 2017a), we expected significant associations to also be found between parents' RRK and children's spelling. Second, given that RRK comprises an awareness of English language and its complex spelling (Cunningham & O'Donnell, 2015; McCutchen et al., 2002), we predicted that RRK would be positively associated with praise and negatively associated with criticism in response to children's spelling attempts. Third, given the awareness of the phonetic-based spelling of young writers, we predicted that parental RRK would be positively associated with graphophonemic feedback to scaffold grapheme-phoneme mapping. Consistent with this line of reasoning, we also predicted that parental RRK would be negatively correlated with dictation, allowing for more teaching opportunities to occur.

Method

Participants

The same parent-child dyads from our joint reading study (Segal & Martin-Chang, 2017a) participated in the present investigation. The parents also comprised the majority of a second study involving a response to a child's writing sample (Segal & Martin-Chang, 2017b). Families of children entering Grades 1 and 2 were recruited near the end of the academic year

from five local schools. Parents were additionally recruited through word of mouth, responses to locally posted ads, and postings on social media. Data were collected during the summer and early fall. The sample was comprised of 70 middle-upper class[15] families ($M_{\text{income range}}$ = $90,001-$110,000 Canadian). The education level completed by parents was overall quite high: 12.9% had completed high school or some university, 41.4% had completed an undergraduate degree, 38.6% had completed a master's degree, and 7.2% had completed a doctoral degree. The mean age of the parents was 39 years (*SD* = 57 months), the majority of which were mothers (*N* = 61/70). Most of the parents (92.9%) were married or living common law; the remainder were single (1.4%), separated (1.4%), or divorced (2.9%)[16]. At the time of testing, the mean age of the children was 6 years and 8 months old (*SD* = 7.7 months). The sample consisted of 41 boys and 29 girls, of which 46 had completed Kindergarten and 24 had completed Grade 1.

Materials

Recording devices. Two recording devices captured verbal and nonverbal dyadic exchanges during the joint writing activity. The first device used Photobooth recordings from a 13-inch MacBook Air computer and the second device was a Sony HDR-XR350 Handycam.

Children's materials. The Wide Range Achievement Test-Fourth Edition (WRAT 4) is a norm-referenced test measuring basic academic skills (Wilkinson & Robertson, 2006). The word spelling task starts with children writing 13 dictated letters and proceeds to writing up to 42 increasingly complex words. Instead of using a binary coding system, performances were coded using Tangel and Blachman's (1992) scoring method. This approach assigns scores based on varying levels of correct phonemic and conventional spellings, and as such, presents actual

[15] A category assigned in comparison to the median provincial family income reported by Statistics Canada (2015) of $75,530.

[16] One parent did not provide her relationship status.

variance in spelling productions among children. For example, a score of 0 is given for a random string of letters; a score of 3 for a word spelling having more than one phoneme, but not all phonemes, with phonetically related or conventional letters; and a score of 6 for a correct word spelling. Administration is discontinued after commission of six miscues (cf. Tangel & Blachman, 1992).

Parents' materials. Parents were given a questionnaire to complete. They provided demographic information in the first portion and proceeded to answer questions assessing their RRK in the section (Appendix C). RRK tasks involved (a) 16 phoneme segmentation questions (taken from Spear-Swerling & Brucker, 2003), (b) nine syllable segmentation questions (taken from Moats & Foorman, 2003), and (c) four questions involving identifying written syllable patterns.

Correct responses on segmentation tasks were given a score of 1 and incorrect responses were given a score of 0. In the case of syllable pattern identification, questions were limited to open, closed, consonant-vowel-e, and vowel team patterns because these syllable types are commonly introduced to children who are the age of the current sample. To avoid forced choice responses, parents were asked to check an "I don't know" option if they were unsure of which syllable types words represented. Correct responses were given a score of 1; "I don't know" and incorrect responses were given a score of 0.

The final component of the questionnaire involved identification of irregularly spelled words (adapted from Cunningham et al., 2004). In this task, parents were presented with 36 words. Ten words that were irregularly spelled were intermixed among 26 words with regular spellings. Parents were instructed to only identify the words that were irregularly spelled; they were asked to leave blank regularly spelled words and words they were unsure of. Correctly

identified irregular words were summed, and a score was assigned out of 10. A composite score of overall RRK performance was then calculated out of a total summed possible score of 39.

Procedure

Parents and children were recruited upon receiving ethical approval from the ethics board of the university. Recruitment occurred from five local schools, local advertisements, word-of-mouth, social media, and snowballing. Parents interested in participating in the study directed inquiries to the first author. Parents were advised during the initial contact that interactions with their children would be videotaped and were assured that recordings would be stored in locked cabinets in the literacy lab, separate from any of their identifiable data. Those who decided to participate completed consent forms for themselves and their children. Per the families' preferences, meetings were either scheduled at the university facility (with paid transit and parking costs) or in the family homes, at a convenient time for them.

Dyads were asked to sit at a table. They were first reminded that the time spent together during the session would be videotaped. Upon receiving acknowledgement, the two recording devices were set up. The writing activity was then presented. Children were asked to choose someone who was very kind to them and to write that person a thank you note. Parents were asked to help the children the way they usually would. Dyads were advised that they would have 10 minutes to complete the inside of the note and, if they wished, five additional minutes to decorate the outside of the note. The child was asked to call the examiner once the note was completed. The recording devices were then turned on and when the child summoned the examiner back into the room, the video cameras were turned off.

Parents were then asked to complete the questionnaire (Appendix C) with a trained research assistant in another room while the primary investigator completed an assent procedure

with the children (Appendix E). Children's assent involved their agreement/disagreement to work with the investigator through circling a happy or sad face. All children agreed to participate and were reminded that they could withdraw, without consequence, at any point. The examiner then administered the WRAT 4 spelling measure to the children.

Data coding. Videotapes of parents mediating the writing of thank you notes served as the basis for measuring the quantity of parental writing mediation. Recordings were transferred onto ExpressScribe software version 5.88 for transcription. Three separate videotape reviews then occurred. First, verbatim transcriptions were made from the laptop recordings. In cases of inaudible comments, audio tracks from the camcorder were also reviewed. Second, laptop recordings were reviewed again to document the nonverbal dyadic exchanges (e.g., smiling, giving high fives). Finally, camcorder recordings were transcribed for nonverbal text-related exchanges (e.g., tapping on a word, pointing to letter combinations). All verbal and nonverbal transcriptions were later coded using a pre-established coding scheme involving general evaluative feedback (praise, criticism; adapted from Martin-Chang & Gould, 2012) and writing feedback specific to graphophonemic feedback and dictation (adapted from Bingham et al., 2017; see Table 1). Commands were added that were consistent with the Codes for the Human Analysis of Transcripts (CHAT; MacWhinney, 2000) format, a system that is used for transcribing child language. The files were then analyzed using the Computerized Language Analysis program (CLAN; MacWhinney, 2000), which is a software used for studying language samples.

Interrater reliability. A research assistant trained by the primary investigator independently coded 18 out of 70 transcripts (approximately 25%). The second rater was not informed of the study's guiding hypotheses and was asked to code for the presence of the four

feedback subtypes in the transcriptions (praise, criticism, graphophophemic, dictation). Percent coding agreement was 86.4%; in the rare instances of discrepancy in scoring, each item was discussed until a consensus was reached.

Results

When examining the parent-child interactions during the joint writing task, on average, parents displayed 183.00 counts of feedback per session (*SD* = 104.93), of which 78.28% were evaluative (praise or criticism; *M* = 165.00*, SD* = 134.05) and 21.72% were miscue-based (handwriting, composing, graphophonemic, or dictation); *M* = 36.71, *SD* = 24.43. A paired-samples *t*-test was run to determine whether there was a statistically significant difference between mean counts of praise and criticism. Praise occurred significantly more often (163.46 ± 16.49) than criticism (1.54 ± .33), with a statistically significant mean difference of 161.92 (95% CI, 129.25-194.60), $t(64) = 9.90$, $p < .001$. A second paired-samples *t*-test was run to determine whether there was a statistically significant difference between mean counts of graphophonemic feedback and dictation. Graphophonemic occurred significantly more often (15.02 ± 1.98) than dictation (1.10 ± .22), with a statistically significant mean difference of 13.92 (95% CI, 9.91-17.93), $t(50) = 6.98$, $p < .001$.

Turning to the scores of the parents on the RRK questionnaire, on average, parents correctly responded to 58.62% (22.86/39) of the RRK tasks (range = 11-35, *SD* = 28.05). Children's mean raw performances on the WRAT 4 spelling measure was 39.83 calculated based on Tangel and Blachman's (1992) coding criteria (range = 1-157; *SD* = 28.05). Performance distributions showed that 59.4% performed below the mean and 40.6% performed above; 25.4% scored within 25% below the mean and 23.3% scored within 25% above the mean.

Bivariate correlations were subsequently run, yielding insight into relationships among parental RRK with their children's spelling skills and their own writing mediational practices (see Table 2). Consistent with the parent RRK research (e.g., Ladd et al., 2011; Segal & Martin-Chang, in press; Segal & Martin-Chang, 2017a), results supported our first hypothesis involving a small, yet significant, association between parental RRK and children's WRAT 4 spelling performances. Our second hypothesis was likewise supported as a moderate correlation was found between parental RRK and praise.

Upon finding this significant correlation, we conducted a hierarchical multiple regression analysis to investigate whether RRK accounted for unique variance in the frequency of parental praise. Considering the potential contribution of children's spelling to parents' praise, children's spelling scores and their grade levels were entered in step 1. Parents' RRK scores were entered in step 2 of the model and praise was input as the dependent variable (Table 3). Parental RRK was significantly associated with amounts of praise, $F(3, 55) = 4.105$, $p = .011$. Specifically, RRK accounted for 14.9% of the unique variance in praise, above and beyond the contribution of children's WRAT spelling scores and their grade levels (3.4%).

Our third hypothesis was supported in part. Specifically, parental RRK was not significantly associated with graphophonemic feedback ($p = .431$). However, RRK was significantly negatively correlated with dictation. This lead us to conduct a second hierarchical linear regression to investigate whether RRK was significantly associated with dictation above and beyond variance explained by children's spelling and grade levels. Considering the potential contribution of children's spelling to the provision of misspelled words (dictation), children's spelling scores and grade levels were entered in step 1. Parents' RRK scores were entered in step 2 of the model and dictation was input as the dependent variable (Table 3). Parental RRK

significantly predicted amounts of dictation, $F(3, 57) = 2.681$, $p = .050$. Specifically, RRK accounted for 7.3% of the unique variance in dictation, above and beyond the contribution of children's WRAT spelling scores (5.1%). A further analysis of parents' general practices demonstrated that graphophonemic feedback was positively associated with praise and negatively associated with spelling.

Discussion

The overarching goal of this research was to further elucidate the associations between parental RRK, writing feedback, and children's writing skills. Considering the consistent and significant associations between parental RRK and children's reading scores (Ladd et al., 2011; Segal & Martin-Chang, in press), we expected parental RRK to be significantly associated with children's spelling performances, and this prediction was supported. Nonetheless, this finding is notable because reading and writing are associated, yet distinct, literacy skills (Ehri, 2000). Thus, our findings support a wider reaching contribution of parental RRK across two critical areas of literacy development.

It is noteworthy that the variance explained by children's spelling scores was not significantly associated with parental praise. This finding is consistent with results from our reading mediation study, which reported the association between parental praise and children's reading not reaching statistical significance (Segal & Martin-Chang, 2017a). Therefore, it appears that over reading and writing contexts, levels of children's literacy skills are not significantly associated with the praise that they receive. These findings are somewhat surprising as it is logical to assume that praise and skill would be correlated. On the one hand, it can be argued that poorer spellers would benefit from more praise for attempting a challenging task. On the other hand, stronger spellers might merit more praise for executing a task well. Given that

praise positively impacts children's literacy perspectives on both short and long-term bases (e.g., Bergin, 2001), apparently, regardless of spelling proficiency, poor and strong readers are equally as likely to receive praise from their parents.

Results pertaining to the third prediction were somewhat unexpected because RRK was not significantly associated with graphophonemic feedback. This finding contrasts with the significant association that was noted in our previous joint reading study (Segal & Martin-Chang, 2017a). It is possible that these null findings may be explained by the somewhat complicated task demands in the present study; specifically, the semi-structured writing activity involved dually planning content (composition) and writing a thank you note (handwriting and spelling). Thus, considering the amount of "work" that needed to be done within the allocated 10-minute time frame, parents with higher RRK may not have viewed the context as being conducive to teaching. It is also plausible that parents with higher RRK were less responsive than they usually would be as they may have perceived writing a thank you note as being more of a socially based task and less of a source for spelling instruction (Aram, 2002). In either case, this would explain less graphophonemic feedback provided by parents with higher RRK specific to this context. However, this finding may alternatively represent a difference between reading and writing feedback as related to RRK. Indeed, our previous study involving parents responding to a writing sample also reported null findings in this respect (Segal & Martin-Chang, 2017b). Therefore, it is possible that the relation between RRK and graphophonemic feedback is specific to teaching reading and does not carry over into writing tasks.

We did, however, find a significant negative association between parents' RRK and dictation. Thus, it appears that parents with higher RRK less often provide conventional spellings after children's miscues compared to those with lower RRK. While there are clear benefits of

learning conventional spellings, dictating correct spellings in essence takes away from the validity of the phonetically sensical spelling young children produce. It follows, then that parental RRK allows for a greater appreciation of children's invented spelling and the sensitivity to limit their corrections. The directionality of this relationship was further supported by the significant variance RRK explained in the frequency of dictation (beyond children's spelling skills).

Although a primary goal of the present study was to examine the relation between parental RRK and writing feedback practices, general patterns also emerged that merit discussion. First, graphophonemic feedback was negatively associated with children's spelling. This finding makes intuitive sense as correct spelling would logically not elicit corrections on the parts of parents. Importantly, however, more instruction is provided to weaker spellers involving grapheme-phoneme mapping, which can assist them in writing regularly spelled words.

Interestingly, parental praise was positively associated with graphophonemic feedback; yet, it was not, significantly correlated with dictation. In other words, parents who provided sustaining forms of feedback also provided praise. Such a blend of practices may be complimentary and quite productive (cf. Martin-Chang & Gould, 2012). Namely, sustaining feedback places a demand on the child's continued engagement in the task while praise can provide the incentive to maintain interest in the feedback given.

Limitations and Future Directions

This study expands the scope of what is known about parental RRK and children's literacy skills beyond the context of shared reading (Ladd et al., 2011; Segal & Martin-Chang, in press; Segal & Martin-Chang, 2017a). It also contributes findings regarding the association

between parental RRK and children's spelling skills and the important link between RRK and praise in the context of joint writing. However, certain limitations merit consideration.

First, the sample was comprised of middle-upper class families and parents with relatively high levels of education. Considering this, generalizability of findings is to some degree limited to this socioeconomic class. Thus, replicating this study with a more economically diverse sample would be a logical route to explore in future research.

Second, it is possible that the methodology adopted in the present investigation impacted parents' perceptions of the task and the ensuing amount of feedback they provided. Specifically, the nature of the writing task, involving writing a thank you note, may have been perceived as being more interactive and less of a formal literacy activity. Considering this potential social underpinning, parents with higher RRK may have adjusted the amount of feedback they would have otherwise provided in more formal literacy instruction contexts. Thus, a future study can also include a writing task that would likely be perceived as being more formal in nature (e.g., helping children practice for a spelling test) to see if the patterns of feedback would differ in relation to RRK levels. In addition, the 10-minute time constraint may have impacted parents' guidance practices as within that time frame, dyads had to pick the recipient of the note, choose the content, and compose the message. Considering this, future research should also consider providing this task without a time limit.

Finally, this was a correlational study, which precludes the discussion of directionality. Based on the teacher literature supporting the success of interventions targeting teachers' RRK and practices, on students' literacy outcomes (e.g., McCutchen et al., 2002; Spear-Swerling & Brucker, 2004), we are inclined to think that improving parents RRK would also improve the amount and quality of the writing feedback they provide to their children. Therefore, the next

logical step would be to pursue experimental interventions aimed at enhancing parents' RRK to see if it changes the nature of the interactions they have with their children.

Conclusion

This study represented a preliminary investigation into the associations between parental RRK, feedback, and children's spelling skills in the context of mediated writing. The findings provide support for the significant relation between parental RRK and children's spelling skills. In addition, upon accounting for variance explained by children's spelling, RRK significantly predicted the amount of praise and dictation parents provided while working on a joint writing activity with their children.

The contribution of parental RRK to praise is particularly noteworthy because providing positive feedback represents a form of support that is not only encouraging to children but also sustains their engagement in what can be a trying task (Bergin, 2001). In addition, the negative association between RRK and dictation feedback suggests that parents with higher RRK are less inclined to simply spell the words on their children's behalf and future research may point to parents with higher RRK possessing a deeper appreciation of children's invented spellings.

In sum, the links we found between parental RRK and practice are quite reassuring as parent-child writing exchanges occur quite often in the home (e.g., Aram, 2002; Aram et al., 2014; Sénéchal & LeFevre, 2002) and tapping into this domain-specific knowledge tends to allow for a more positive and sensitive home literacy environment. Parents in general displayed some productive writing practices, including adjusting the frequency and content of phonics instruction according to children's spelling skills (Bos, Mather, Dickson, Podhajski, & Chard, 2001; Foorman et al., 2016). Thus, taken together, parents present with a solid base for literacy

coaching (Hewison & Tizard, 1980) and RRK appears to improve the coaching experiences even more.

Table 1

Description and Examples of Parental Feedback (adapted from Bingham et al., 2017; Martin-Chang & Gould, 2012)

Parental Feedback	Descriptions	Examples
Evaluative		
Praise	Offering praise on performance	Verbal: *"I don't even know if you need mommy's help anymore!"* *"There you go!"* Nonverbal: Grins, claps
Criticism	Providing criticism regarding performance	Verbal: *"You're going to take an hour!"* *"She what?"* Nonverbal: Frowns, nods no.
Miscue		
Graphophonemic	Encouraging sounding out, pointing out analogous spellings or sounds, providing a sound clue	Verbal: *"You can't really hear this next letter."* *"What letter's missing before the K, than-k."* Nonverbal: Points to letters or letter combinations, underlines letters in words
Dictation	Providing the spellings through dictation or writing the word.	Verbal: *"It's D, E, A, R."* *"Write P, L, A, Y."* Nonverbal: Writes the word in full.

Table 2

Correlation Coefficients

	RRK	WRAT Spelling	Praise	Criticism	Graphopho.	Dictation
RRK	____					
WRAT Spelling	.25*	____				
Praise	.34**	-.19	____			
Criticism	.01	-.06	.41**	____		
Graphopho.	-.12	-.28*	.65***	.24	____	
Dictation	-.31*	-.24*	.01	.00	-.03	____

Note. [a] = a composite score out of a maximum of 39. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 3

Summary of Hierarchical Regression Analysis for RRK Predicting Praise and Dictation

		b	*SE b*	*β*
Praise				
Step 1				
	Constant	231.90	53.34	
	Children's grade	-52.00	40.18	-.19
	Children's WRAT spelling scores	.02	.87	.00
Step 2	Constant	42.76	77.61	
	Children's grade	-61.19	37.40	-.22
	Children's WRAT spelling scores	-.50	.82	-.08
	Parental RRK scores	9.69	3.06	.40**
Dictation				
Step 1				
	Constant	1.50	.57	
	Children's grade	.08	.42	.03
	Children's WRAT spelling scores	-.02	.01	-.24
Step 2	Constant	2.96	.87	
	Children's grade	.14	.41	.05
	Children's WRAT spelling scores	-.01	.01	-.18
	Parental RRK scores	-.08	.04	-.28*

Note. Praise: for Step 1, R^2 = .03, R^2 change for Step 2 = .15; Dictation: for Step 1 R^2 = .05, R^2 change for Step 2 = .07; *p < .05, ** p < .01

General Discussion

The three studies presented here, alone and combined, add to the literature by elucidating some of the ways that parental RRK might impact the home literacy environment. Until recently, the two studies conducted with parents examined the association between RRK and children's reading skills (Ladd, Martin-Chang, & Levesque, 2011; Segal & Martin-Chang, in press). Although the findings broadened the field of RRK to include parents, neither was able to comment on whether parents with higher RRK behaved differently when working with their children compared to those with lower RRK. In addition, the research focus of the abovementioned studies was limited to reading. Yet, to be literate children must both be able to read and write. Therefore, to provide a comprehensive view of the contribution of parental RRK to children's literacy, writing needs to also be considered.

The studies in this dissertation were designed to address these specific gaps and empirically extend the parental RRK literature. All studies contributed to extending the focus of the home literacy model (Sénéchal & LeFevre, 2002) to include investigations into the interplay among RRK and formal parental practices within the home. Study 1 provided an examination of the links among parental RRK, practices, and children's reading performances. The methodology involved parents and their children participating in a joint reading activity. Study 2 continued the focus on parental feedback and RRK but extended the focus from reading to writing. In order to control for varying children's performances, which could impact the feedback they are provided, children's writing skills were held constant by providing parents with a kindergartner's writing sample. Study 3 went on to examine parental RRK during a joint writing activity.

Results from the studies that involved parent-child exchanges (Studies 1 and 3) revealed significant associations between parental RRK with children's reading and writing performances.

Although the contribution of genetics to these associations goes unchallenged (Olson, Keenan, Byrne, & Samuelsson, 2014), the patterns reported across both studies replicate the longstanding teacher literature (e.g., McCutchen et al., 2002; Piasta, Connor, Fishman, & Morrison, 2009), where clearly, genetics do not come into play. Thus, the findings support the association between parents' RRK and their children's literacy skill not being predicted by genetics alone.

It is especially noteworthy that the relation between RRK and praise was consistent across all three studies and, on the whole, parents were not overly critical. This finding is encouraging because a more positive interactive climate optimizes the quality of exchanges (Cligenpeel & Pianta, 2007). Moreover, praise has been shown to positively affect motivation, interest, and achievement (Peer & McClendon, 2002).

Interestingly, the significant association between RRK and praise held in Study 2 where dyadic exchanges did not occur and parental practices were directed to an unknown child. In other words, even when all parents were given the same opportunities to be positive, those with higher RRK found more aspects of the child's writing to praise. Considering the significant contribution parental RRK provides to praise, it is logical to assume that enhancing parental RRK would further increase the positive feedback children provide in literacy contexts. In considering this, subsequent studies can adopt an intervention protocol to examine whether affective literacy atmospheres can be improved upon through targeting parental RRK.

Notwithstanding the desirable contributions of praise to children's development, certain displays are reported to be more constructive than others (Fullerton, Conroy, & Correa, 2009); for example, task-based performance feedback (e.g., "I like the way you sounded out the word,") has been found to be more effective than general feedback (e.g., "Good job.") due to the explicit connection made to the desired behaviour (Jenkins, Floress, & Reinke, 2015). Similarly, types of

negative feedback tend to qualitatively differ as well; for example, constructive feedback (e.g., "Look at the letters!") has been associated with greater student gains compared to general critical statements (e.g., "Stop!") due to the focused directives for improvement (Fong et al., 2016; L'Allier, Elish-Piper, & Bean, 2010). Moving forward, future research can investigate the specific types of positive and negative feedback parents provide during joint reading and writing and their associations with parental RRK. Additionally, investigations can explore the contingencies between children's reading and spelling attempts with the positive and negative feedback parents provide. Indeed, children's literacy skills may elicit positive and negative feedback, which would point to the interactions being child-driven; conversely, parent knowledge may be guiding their positive and negative feedback, which would support the interactions being parent-driven. Such investigations can include examining differential contributions of parents' tone in constructive feedback.

It is also important to consider that the methodology employed in Study 1 involved tailoring the joint reading activity to children's skills based on their WRAT reading performances. Although the intention was to limit children's frustrations associated with reading potentially difficult texts, this scaffolded approach may have influenced patterns of parent-child interactions and parental feedback that otherwise occur naturalistically. More specifically, the manner in which parents and their children interact when jointly reading texts that are too easy or too challenging, may, in fact, reflect different interactional styles. For example, consistent with Evans, Baraball, & Eberle (1998), when a text is too challenging, parents may employ more terminal feedback. In contrast, when children are under challenged, parents may allow their children to read uninterrupted. Future studies may present parent-child dyads with texts of varying difficulty to test this hypothesis.

In the case of Study 1, children's WRAT reading skills were negatively associated with graphophonemic feedback. These findings may reflect parents' developmentally appropriate practices. In particular, when parents see their children struggling, they may be more inclined in helping children make connections between graphemes and phonemes. In contrast, miscues made by more advanced readers may elicit less scaffolding by the parents, in the form of more try again responses.

A finding from Study 2, which merits discussion involves the positive association between parental RRK and modelling conventional word spellings. This form of feedback should not be confused with terminal feedback (Study 1); in the case of a writing sample, concurrent feedback and opportunities for the child to "try again" are not possible. Therefore, in order to provide conventional spelling support, parents with higher RRK may have opted to provide more models to Maddie compared to those with lower RRK. The same reasoning may apply to the negative association between RRK and dictation in Study 3. At first, it may seem counterintuitive that higher RRK is associated with more modeling in Study 2 and less dictation in Study 3. However, the methodologies vary across the two studies, with face-to-face contact occurring in Study 3. Therefore, it is logical to assume that parents with higher RRK would less often dictate correct spellings when their children have the opportunity to practice spelling under their guidance.

Discrepant findings regarding parental teaching additionally point to a more global discrepancy between the amount of explicit teaching occurring between reading (Study 1) and writing (Studies 2 and 3) contexts. In particular, significant findings among parental RRK and graphophonemic feedback was limited to reading. Although a conclusion can be made that parents with higher RRK simply teach reading and not writing concepts, this supposition appears

to be premature. Namely, the confines of a response to a writing sample (Study 2) may, at least in part, be explaining a potential decrease in the amount of teaching made by parents with higher RRK. In addition, a timed writing task (Study 3) may have limited the extent to which parents with higher RRK may otherwise respond to their children's writing miscues. Another viable explanation may be that parents have lower expectations for writing compared to reading. If so, this would reflect parents' understanding that writing draws upon more complex cognitive skills (e.g., working memory, planning, spelling; Berninger, 2009) compared to reading. Additionally, the extant literature focus and government initiatives emphasize the importance of reading (e.g., Bus & van IJzendoorn, 1988) with less emphasis on writing (Aram & Levin, 2001, 2002), which can translate into parental ease in tacking reading over writing. This approach is somewhat perplexing as children display invented spellings and attempts at writing even before they are ready to read (Chomsky, 1971). Moreover, to be literate, both reading and writing need to reach proficient levels. In considering this, children's writing skills merit further research attention and initiatives for enhancement.

Importantly, in addition to shedding light on parental RRK practices, results also demonstrate general parental approaches to working with young children on literacy tasks. Considering that parents naturally engage in literacy activities with their children within the home literacy environment (Sénéchal & LeFevre, 2002), apparently, they also tend to display constructive and developmentally appropriate literacy approaches, which are further scaffolded by their underlying RRK. Therefore, it appears that parents present as good candidates for literacy teaching and their RRK further enhances their practices. Moreover, even after formal school literacy instruction has begun, children can still profit from working along side their parents, especially those with higher RRK. In acknowledging this, the findings from this corpus

of investigations set parental RRK on the research map for future investigations and intervention studies that can ultimately positively impact children's literacy development.

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Appendix A

Types of Syllable Classifications, Definitions, and Examples (adapted from Knight-McKenna, 2008)

Name of Syllable Classification	Definitions	Examples
Closed	A syllable with a single vowel followed by one or more consonants. (The vowel is *closed* in by the consonant.) The vowel sound is generally short.	c**a**b l**e**tter **i**n d**o**g beg**u**n
Open	A syllable that ends with a single vowel. (The vowel is not closed in by a consonant; it is left *open.)* The vowel is usually long.	b**a**by m**e** h**i** g**o** **u**nicorn
Vowel-consonant-e ("magic e" rule)	A syllable with a single vowel followed by a consonant then the vowel E. The first vowel is usually long and the final E in the syllable is silent.	sk**ate** **e**ve b**i**ke n**ote** m**u**le
Vowel teams ('When two vowels go walking, the first one does the talking' rule)	A syllable with vowel sounds that are formed by two or more letters (often two consecutive vowels). The first vowel is usually long while the second is silent. Sounds are different in cases involving the letter Y (e.g., buy) and diphthongs (e.g., loud).	m**ai**n b**ea**t p**ie** r**oa**d gl**ue**

R-controlled	A syllable with a vowel followed by the letter R. The vowel is neither long nor short; the R influences or *controls* the vowel sound.	doll**ar** butt**er** f**ir** f**or** f**ur**
Final stable (Consonant-le,-al, -el)	A syllable that has a consonant followed by the letters le, al, or el. Often this syllable is the final one of the word and involves a schwa sound. This is the only syllable pattern without a vowel sound.	litt**le** unc**le** med**al** loc**al** chap**el** barr**el**

Appendix B

Adapted GORT Book (First Level)

PLAY BALL WITH ME

Look, Father.

See the ball.

I want you to play.

We can play ball here.

Come, Father. Play ball with me.

A NEW BIKE

The girl likes to ride her new bike.

It is yellow with white stars.

She can ride very fast.

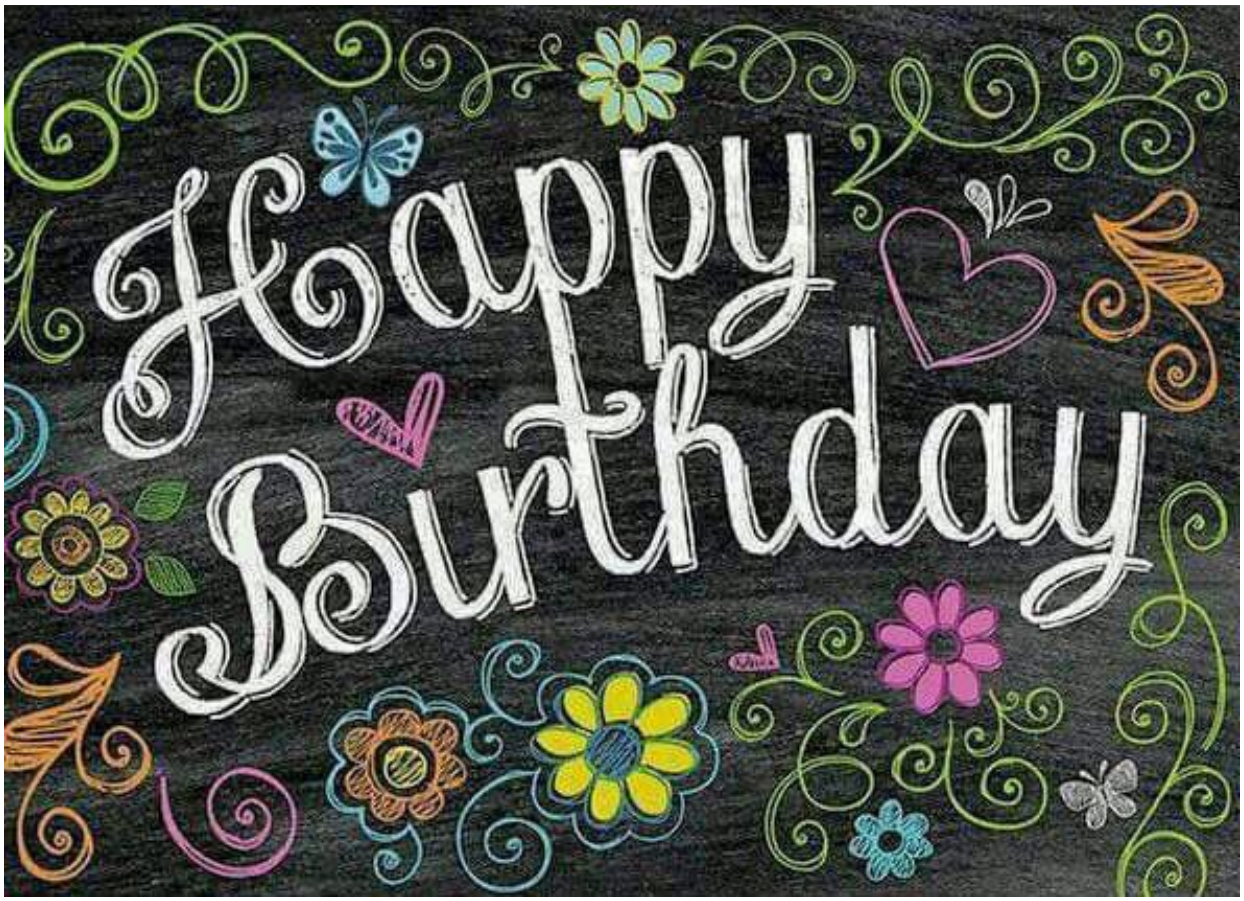
But she goes slowly when she sees a car.

She stops at the red light.

She goes when it turns green.

BIRTHDAY CELEBRATIONS

The boy was baking a white cake for his mother.



It was going to be a good birthday.

Father went out to buy some pretty flowers.

The cake cooked a little too long, so it was brown.

All the pans were dirty.

But Mother said, “This cake is the best present of all.”

GETTING READY IN THE MORNING

It was time to get up and go to school.

The children made their beds and dressed.

One child said, “I can’t find my red shoes.”

Mother said, “Then you’ll have to wear the brown ones instead.”

The other child said, “I’ve lost my blue book.”

Father said, “I saw it on the floor last night.”

When the children were ready at last, they helped Father look for the car keys.

Mother kissed them all good-bye and said, “Have a nice day.”

GOING FISHING

One bright summer day, a young boy and his grandmother walked to a nearby pond to fish.

The boy's grandmother showed him how to put worms on the hook so they would not come off.

For a long while, they sat quietly waiting for the fish to bite.

Suddenly the boy got a bite.

As he tried to land the fish, he became so excited that he dropped his pole into the water.

The fish quickly swam away with it, and soon the pole had disappeared.

The boy looked wide-eyed at his grandmother.

Then they both had a good laugh.

Appendix C

Demographic Information and Reading-related Knowledge Questionnaire (adapted from Cunningham et al., 2004; Moats & Foorman, 2003; Spear-Swerling & Brucker, 2003)

How old are you? _____
Please indicate if you are a man _____ or woman _____.
Please indicate your current marital status:

Married
Single
Committed relationship
Common-law
Separated
Divorced
Widowed
Other (please specify):

Because the school system differs in various parts of Canada, we ask that you list your total years of education in each of the following (e.g., 7 years in elementary, 4 years in high school etc.):

Elementary School _____
High School _____
CEGEP _____
College _____
University _____
Other (please specify): _____
HIGHEST DEGREE OF EDUCATION ATTAINED: _____

Please check off your family's annual income:

Less than $10,000.00	____
Between $10,000.01 and $30,000.00	____
Between $30,000.01 and $50,000.00	____
Between $50,000.01 and $70,000.00	____
Between $70,000.01 and $90,000.00	____
Between $90,000.01 and $110,000.00	____
Between $110,000.01 and $130,000.00	____
Between $130,000.01 and $150,000.00	____
Greater than $150,000.01	____

What languages does your child speak at home?

English: _____
French: _____
Other (please specify): _____

Please list the birthdates and gender of your child/ren (dd/mm/year), starting with your oldest. Please indicate the child we will be working with in Kindergarten or Grade 1 with a star.

e.g., 1) 06/06/01, boy 2) 18/07/04, girl *3) 01/08/07, boy

1) _____ 2) _____ 3) _____

4) _____ 5) _____ 6) _____

7) _____ 8) _____ 9) _____

---

1. Please say the following words to yourself while looking at the letters. Determine which letter or letters correspond to the sounds in the words, and underline each of them. Then record the number of speech sounds that you detect. For some items, more than one answer may be correct. Here are some examples:

m a n 3	sh i p 3	s k a t e 4

Please segment the following words in the table and record the amount of sounds you hear:

fold	hay	lamb	blocks
sweat	thigh	eight	write
mix	cheese	straw	sword
listen	design	balloon	pistol

2. Most English words can be classified into six written syllable patterns. The focus today is on four of them. Please place an X under the correct column corresponding to the syllable pattern present in each word. If you do not know, please check off 'I don't know'. Here are some examples:

	Closed	**Open**	**Magic E**	**Vowel Team**	**I don't know**
bag					
bite					
me					
bleat					

3. Please count the number of syllables that you hear in each of the following words. For example, the word 'threat' has one, 'cowboy' has two, and 'physician' has three. Record the number of syllables to the right of the words.

lightening	____	capital	____	shirt	____
spoil	____	decidedly	____	banana	____
walked	____	recreational	____	lawyer	____

4. All of the following words are common words that children usually learn to read in the elementary grades. Some of these words conform to typical spelling patterns in English, whereas others do not. For example, the word 'cat' is regular and the word 'island' is irregular.
Please circle the words below that contain **irregular spelling patterns** (the word 'island' has already been circled and identified as an irregular word).

Ant	Dog	Jump	Sheep	Turn
Bed	Done	Make	Son	Was
Book	Flower	One	Sugar	Watch
But	Girl	Pal	Swim	Want
Chunk	Give	Pint	Teacher	What
Cake	Hare	Rebate	Ten	
Cup	Have	Run	The	
Does	Island	Said	Tree	

Appendix D

Parental Consent Form

INFORMATION AND CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Study Title: 'Aw-struc': The Relation Between Parents' Awareness of English Language Structure and Their Interactions with Young Children
Researcher: Aviva Segal
Researcher's Contact Information: aa_segal@education.concordia.ca
Faculty Supervisor: Sandra Martin-Chang
Faculty Supervisor's Contact Information: (514) 848-2424 x8932, or email at mailto:smartinc@education.concordia.ca
Source of funding for the study:

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to investigate parents' awareness of English language structure and its enhancement on home reading and writing practices with young children in Kindergarten and Grade 1.

B. PROCEDURES

If you participate, you will be asked to:

1) Provide consent for your child to participate in this research project.
2) Complete a short demographic questionnaire at home and return it with the consent form.
3) Participate the following week along with your child in the pre-webinar sessions, which will take approximately 45 minutes in total to complete (including a snack break). Based on your preference, both the pre- and post-webinar sessions can be conducted in either your home or at the university.

4) Each week, over a two-week period, you will watch two short literacy-based webinars (4-6 minutes each). Therefore, over a two-week period, you are expected to watch four webinars, totalling between 16 and 24 minutes in duration.
5) Be available for one weekly follow up telephone call during each of the two weeks of webinar viewing.
6) Participate along with your child, within one week of completing the webinars, in a post-intervention webinar session.

Participants will be assigned to one of the following groups: a) reading related knowledge; or b) storybook reading. The assignment will be random, like the flip of a coin. Your chance of being assigned to each group is 50-50.

As a research participant, your responsibilities would be:
1) To participate in pre- and post-webinar sessions with your child.
2) To listen to the four webinars over a two-week period.
3) To be available for weekly telephone calls upon watching the webinars.

C. RISKS AND BENEFITS

There are no risks to your child with regard to his/her involvement in this study.

You might or might not personally benefit from participating in this research. Potential benefits include: learning information and strategies that can contribute to your child's literacy skill development.

This research is not intended to benefit you personally.

D. CONFIDENTIALITY

By participating, you agree to let the researchers have access to information compiled during pre- and post-webinar sessions with you and your child. In addition, the researchers will have access to information accrued during the webinars and telephone calls. Thus, information will be obtained from both your and your child's responses to tasks.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

We will protect the information by keeping data in a locked room at all times. We will also destroy the information five years after the end of the study. Only group data from this project will be published. In addition, videotapes made of you engaging with your child during pre- and post-webinar sessions, will only be used for the sake of interpreting the impact of the webinars/calls on parental interactions and teaching of literacy.

In certain situations, we might be legally required to disclose the information that you provide. This includes situations where at-risk situations present. If this kind of situation arises, we will disclose the information as required by law, despite what is written in this form.

E. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher before Wednesday June 1, 2016.

As a compensatory indemnity for participating in this research, your child will be able to choose a book of his/her choice from an array of presented choices. If you withdraw before the end of the research, the gift will not be offered. We will also reimburse you for the following expenses: mileage and parking costs to come to and from the university. To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

We will tell you if we learn of anything that could affect your decision to stay in the research.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

We will not be able to offer you compensation if you are injured in this research. However, you are not waiving any legal right to compensation by signing this form.

F. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print)

_____

SIGNATURE

_____

DATE

_____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

Appendix E

Child Assent Form: Script

Hello. My name is Aviva. I'm a student just like you. Normally, I work in schools with teachers. But today is a topsy-turvy day – I am going to learn from YOU instead. I would like to do some activities with you. Some of them will seem like things you do in school but some are like matching games. You can ask for a break any time you want one. You can also ask to stop at any time.

Do you understand this? Circle the smiley face if you do and the sad face if you don't.

Do you want to talk work with me today? Circle the smiley face if you do and the sad face if you don't.

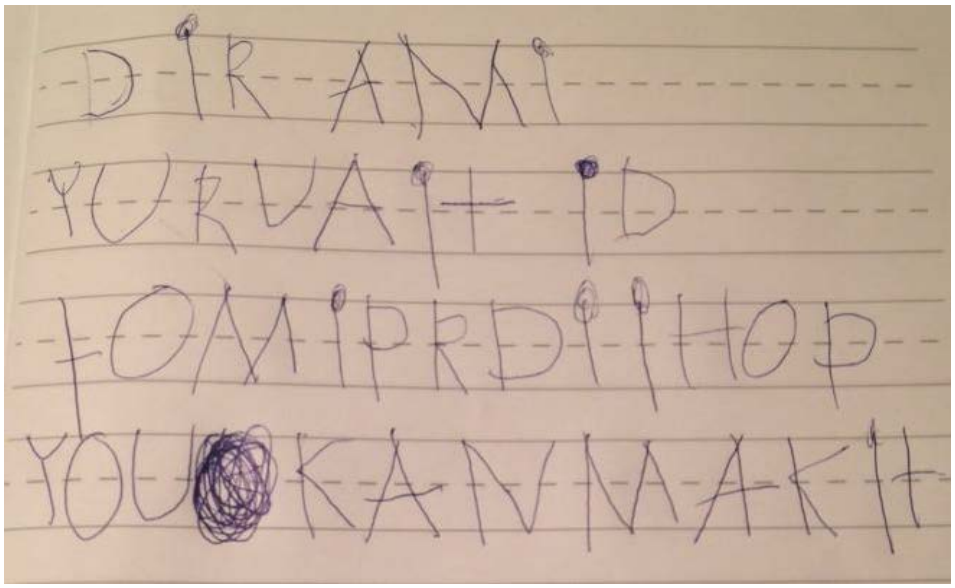
Appendix F

Writing Sample

This writing sample was written by a kindergartner named 'Maddie'. She wrote (without any help): "Dear Amy, You are invited to my party. I hope you can make it."

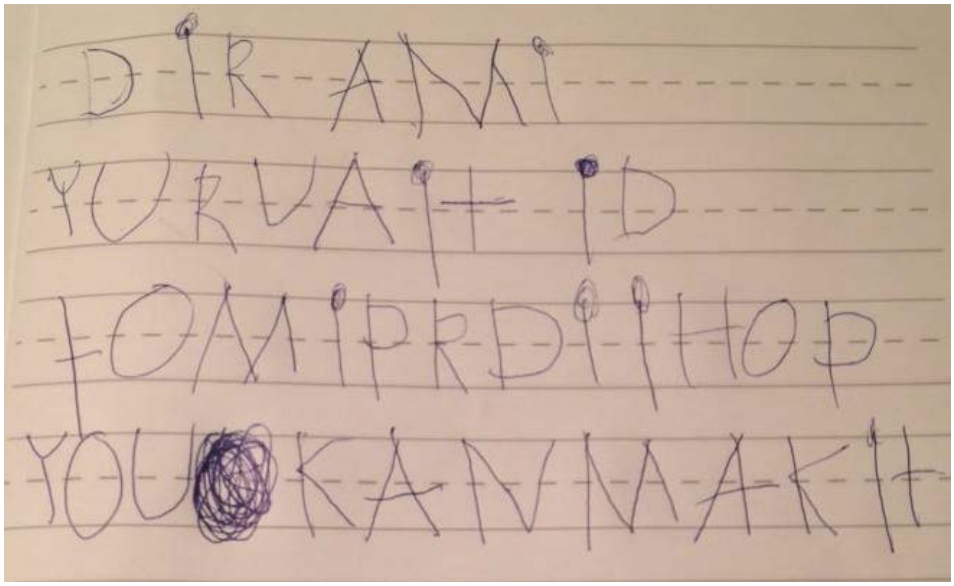
Please use the copy below to make notes to yourself.

Rough Draft:



Please provide the feedback that you would give directly to ‘Maddie’ on the copy below.

Feedback for ‘Maddie’:



Appendix G

University Ethics Approval

CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant: Aviva Segal

Department: Faculty of Arts and Science\ Education

Agency: Natural Sciences & Engineering Research Council

Title of Project: Reading and Writing Together

Certification Number: 30006146

Valid From: May 10, 2016 to: May 09, 2017

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Dr. James Pfaus, Chair, University Human Research Ethics Committee