

■ **Prevention of Reading and Writing Difficulties :  
A Preliminary Study of the Practices of Canadian  
Speech-Language Pathologists**

■ **La prévention des difficultés de lecture et d'écriture :  
une étude préliminaire des pratiques des orthophonistes  
au Canada**

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**Abstract**

This preliminary study surveyed the practices of 151 Canadian speech-language pathologists (S-LPs) regarding the prevention of reading and writing difficulties. Using a questionnaire, the survey addressed the scope of their preventive practice, the nature of the activities they use in prevention, and their perception of their training in this domain. Most of the participants engaged in prevention of reading and writing difficulties in children, but they devoted little of their time to it. They reported that they provided both direct and indirect services. They worked in collaboration with other early childhood practitioners to provide activities targeting a variety of emergent literacy components in children from diverse subgroups of the population. The evaluation of their training was divided, and they actively sought out additional sources of training. The value of addressing emergent literacy components that are less traditional to speech-language pathology and of providing services for at-risk populations is discussed. Specific recommendations for further studies are provided.

**Abrégé**

La présente étude préliminaire a sondé l'opinion de 151 orthophonistes au Canada sur les pratiques de prévention des difficultés de lecture et d'écriture chez les enfants d'âge scolaire. Par le biais d'un questionnaire, cette enquête a porté sur l'étendue de leur pratique en matière de prévention, la nature de leurs activités de prévention, et leur perception de leur formation dans ce domaine. La plupart des participants faisaient de la prévention des difficultés de lecture et d'écriture auprès des enfants, mais ils y consacraient très peu de temps. Ils ont indiqué qu'ils donnaient des services directs et indirects. Ils travaillaient en collaboration avec d'autres intervenants auprès de la petite enfance afin d'offrir des activités ciblant divers aspects de l'éveil à l'écrit chez des enfants de différents sous-groupes de la population. Ils étaient partagés quant à l'évaluation de leur formation et ils cherchaient activement d'autres sources de formation. Cette étude traite de l'intérêt d'aborder les aspects de l'éveil à l'écrit qui sont moins conventionnels en orthophonie et d'offrir des services aux populations à risque. Elle formule des recommandations pour poursuivre la recherche dans ce domaine.

**Key words:** professional practices, survey, prevention, reading and writing, emergent literacy

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In North America, speech-language pathologists (S-LPs) working with children have been aware of the relationship between oral language abilities and reading and writing, but it was only in the early 90s that many of them started to introduce literacy into their clinical practice (Butler, 1999). In Canada, no national guidelines exist about the role of S-LPs in reading and writing for children, even though knowledge and competencies in literacy are now mandatory for certification of clinical competency (CASLPA, 2004). No specific guiding principles are provided with respect to prevention of reading and writing difficulties (R&WD). Because of initial training and clinical expertise in linguistic components that underlie reading and writing, S-LPs have been called upon to play a role in improving prevention efforts in reading and writing, especially in children with oral language impairments (Fey, 1999; Snow, Scarborough, & Burns, 1999). Justice (2006) argues that S-LPs can become more powerful catalysts for prevention of R&WD if they go beyond providing services for children already identified with language impairments. Given the paucity of information about the practices related to prevention of R&WD in Canada, the purpose of this article is to provide a first glimpse of these practices in Canadian speech-language pathologists in order to lay the foundations for a more detailed study.

Several ways of conceptualizing prevention exist in health and education fields. The classic terminology proposed by the Commission of Chronic Illness (1957), includes three levels of prevention: 1) primary, to reduce the number of new cases with problems; 2) secondary, to reduce the number of existing cases with problems; and 3) tertiary, to reduce the impact of an identified problem. More recently, Weisz, Sandler, Durlak, and Anton (2005) make a clearer distinction between prevention and intervention: secondary and tertiary prevention activities should be classified as intervention rather than prevention because they target children with diagnosable problems. The term primary prevention is reserved for efforts that can reduce the incidence of problems before they appear. Weisz et al. also use the same terminology as Gordon (1987) and the Committee on Prevention of Mental Disorders of the Institute of Medicine (Mrazek & Haggerty, 1994), distinguishing between three types of primary preventive strategies: (a) universal prevention to address risk factors in the population at large, (b) selective prevention for subgroups of the population who share a significant risk of developing a problem, and (c) indicated prevention aimed at children who have significant symptoms of a problem, but do not currently meet diagnostic criteria. In addition, Weisz et al.'s framework focuses on health promotion, the goal of which is to strengthen positive behaviours that prevent problems in all populations. These authors also propose that the level of prevention should be proportionate to the level of risk, that is, universal and selective prevention should require less direct and intensive service delivery than indicated prevention or intervention.

The Weisz et al. (2005) framework is highly relevant to R&WD because its conceptualization of prevention

is in line with the report of the U.S. National Research Council's Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998). Recognizing that the process of becoming literate begins before formal instruction in school, this committee recommends universal prevention through promotion of oral language and emergent literacy skills in all early childhood environments. Its report also focuses on groups of children from lower income families, from linguistic minorities, or with a familial history of reading and writing problems, who are more likely to develop reading and writing difficulties (Duncan & Brooks-Gunn, 1997). Selective prevention activities would be appropriate for these children, and would include professional, family or preschool-focused programs to improve emergent literacy skills known to be predictors of reading success, such as letter knowledge, phonological awareness, print awareness, and oral language skills (Hammill, 2004). Snow et al. also encourage indicated measures through a more direct and intensive approach targeting children whose symptoms appear prior to the diagnosis of R&WD, for example, children with cognitive, hearing or early language impairments (Catts, Fey, Zhang, & Tomblin, 2001).

Although Canadian S-LPs do not have national guidelines in regard to prevention of R&WD, they may be influenced by the guidelines provided in the United States. In its position statement and guidelines on services in reading and writing for children and adolescents, the American Speech-Language Hearing Association (ASHA) clearly states that S-LPs have a major role to play in the prevention of reading and writing difficulties (ASHA, 2001a, 2001b). According to these guidelines, prevention of R&WD should be accomplished through stimulation of oral language and emergent literacy skills. Adequate skills in vocabulary, syntax, morphology and pragmatics, and development of emergent literacy skills are good predictors of reading and writing development (Hammill, 2004, National Early Literacy Panel, 2004).

ASHA highlights eight components of emergent literacy to be addressed in order to prevent reading and writing problems: (a) joint-book reading: strategies to make reading interactive and pleasurable for children, providing access to books; (b) environmental print awareness: recognition of logos, symbols, or signs; (c) conventions of print: direction of reading, orientation of books, space in between words, and punctuation; (d) phonological awareness and sensitivity: rhymes, alliterations, phoneme and syllable games; (e) alphabetic/letter knowledge: letters, numbers, frequent words, sorting words by letters; (f) sense of story (narrative structure): logical and temporal sequence of events in narratives; (g) adult modeling of literacy activities: examples of real actions related to literacy and the daily use of writing; and (h) experience with writing materials: access to paper and pencils to scribble, copy, and pretend to write.

ASHA supports both direct and indirect service delivery. Along a continuum from indirect to direct service, types of service delivery include: (a) information

for the public, parents, professionals, or preschool practitioners about the development and the stimulation of oral language and emergent literacy skills; (b) coaching of parents or caregivers to provide stimulation of oral language and emergent literacy skills; (c) early stimulation of oral language and emergent literacy skills directly with children. Roth and Baden (2001) proposed direct service delivery for children with known language disorders and indirect service delivery for all children through collaborative consultation and education of professional staff, parents, the community, and policy makers.

ASHA encourages S-LPs to collaborate with other early childhood practitioners in their prevention efforts. In fact, everyone involved in the education of the children, regardless of their area of expertise, must collaborate in order to ensure future reading and writing achievement for as many children as possible (Silliman & Wilkinson, 2004). That way, young children can have many opportunities to develop their oral language and emergent literacy skills in multiple environments.

However, in order for S-LPs to take a role in literacy-related prevention, ASHA (2001a) recommends that university programs should provide students in speech-language pathology with coursework and clinical placements in reading and writing. Snow et al. (1999) highlighted the importance of continuing education programs for S-LPs already working in the field to help them to introduce prevention of R&WD into their current practices. Therefore, university training and continuing education opportunities may influence the extent and the nature of their activities in prevention of R&WD.

Thus, although it is clear that S-LPs have a role to play in prevention of R&WD, little information is available on their current preventive practice with preschoolers and their families. A few studies have examined S-LPs' practices regarding assessment and intervention in reading and writing with school-aged children. In the United States, Staskowski and Zagaïski (2003) report that the integration of reading and writing in speech-language pathology practice is variable. For a number of years, some have incorporated literacy into their practice, while others are just starting to introduce it. Coe Hammond, Prelock, Roberts, and Lipson (2005) found that S-LPs in Vermont schools felt fairly knowledgeable about literacy and rated their competency as adequate, even though they felt more confident working in more traditional areas of speech-language pathology like phonological awareness and vocabulary. Those working in collaboration with other school staff members and those with more years of experience tended to rate their knowledge and competency in reading and writing higher. In a preliminary study surveying 12 school-based S-LPs from the Midwest and Mid-Atlantic regions of the United States, Katz, Fallon, DiDonato, and Van Der Linden (2006) found that 70% of the participants believed that reading and writing were within their scope of practice. Slightly more than half of the participants worked in collaboration with teachers and used mixed groups (some children receiving speech-language

pathology services and some not) in the classroom. S-LPs reported using a wide range of specific literacy practices for both assessment and intervention. The majority of them targeted phonological awareness, vocabulary, and reading comprehension.

The literature to date concerns the practices of S-LPs in schools for whom intervention with children already showing R&WD represents a main aspect of their mandate, but prevention of these difficulties has not been directly examined. Further, practices in Canada specifically have not been studied. In order to provide an initial portrait of how clinical practices in Canada are consistent with recommendations and guidelines of regulatory agencies in the United States, and to lay the foundations for a more detailed study, a preliminary study on Canadian S-LPs' practices regarding prevention of R&WD was conducted. More precisely, the study pursued four goals: (a) to obtain a first measure of the extent of practices in prevention of literacy difficulties among some Canadian S-LPs, (b) to describe the nature of the preventive activities these S-LPs use according to the type of service delivery they offer, the emergent literacy components and the clientele they target, and the collaborations they establish, (c) to explore the perception of these S-LPs regarding their training in prevention of R&WD, and (d) to identify modifications needed to guide further more detailed studies.

## Method

### Study Design

To address the four goals of the current study, a survey approach was used. Surveys can effectively provide a quick description of the characteristics of a population and examine the distribution of specific attributes within this population (Babbies, 1990).

### Participants

Advertisements inviting S-LPs to participate in the survey were sent by mail or e-mail via provincial and national professional associations and regulatory colleges of Canada.<sup>1</sup> S-LPs working in Canada with preschoolers (0-6 year-olds), including children in kindergarten, were eligible to participate. Participants downloaded the questionnaire and a consent form in either English or French from a website. They filled out both documents and faxed or mailed them back to the first author. This somewhat cumbersome procedure was needed in order to have their signature on the consent form, a condition required to obtain approval from the local ethics board. A total of 154 participants responded to the survey. Three completed surveys were eliminated, because they were unreadable ( $n = 2$ ) or the consent form was not filled out ( $n = 1$ ).

The data from 151 S-LPs were analysed. More than half of the respondents (56.6%) worked in the province of Quebec and most of these participants used only French in their practice. The other respondents (43.4%) came from the other provinces and territories of Canada



and, in most cases, used only English in their practice (10.7% from Ontario, 10.7% from Alberta, 6.0% from New Brunswick, 6.7% from British-Columbia, 4.7% from Newfoundland and Labrador, 1.3% from Nova Scotia, 1.3% from Saskatchewan, 1.3% from Manitoba, and 0.7% from Northwest Territories). This distribution differs from the national distribution of the S-LPs across Canada according to the Canadian Institute for Health Information (CIHI) (2007) (37% from Ontario, 22% from Quebec, 14% from Alberta, 11% from British-Columbia, 4% from Saskatchewan, 4% from Manitoba, 3% from New Brunswick, 3% from Nova Scotia, 1% from Newfoundland and Labrador, and 1% from Prince-Edward Island). In the survey, similar proportions of participants worked in preventive healthcare facilities (36.7%: 33.3% in community health centers and 3.3% in home health care service programs or community organisations) and in curative healthcare facilities whose main mandate is not traditionally oriented towards prevention (36.7%: 15.3% in rehabilitation centers, 14.0% in hospitals, and 7.3% in private practice). Roughly a quarter (26.7%) worked primarily in education facilities. Two-thirds (66.6%) of the participants had graduated before 200 when the ASHA guidelines on the “Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents” (ASHA, 2001a) were published (6.7% in the 1970s, 16.7% in the 1980s, 42.7% in the 1990s, and 34.4% in the 2000s). Participants’ work status information (i.e. full-time or part-time) was not collected.

### Instrument

Given that questionnaires are recommended for data collection about professional practices (Schiavetti & Metz, 2002), the survey was conducted through an electronic questionnaire (Appendix A) developed by the researchers, and modified following preliminary testing. Multiple choice questions were used to facilitate responding and the subsequent analyses as prescribed by Silverman (1998) and Chadwick, Bahr, and Albrecht (1984). The questionnaire included three parts: (a) Demographic Information, (b) Speech-Language Pathology Practice, and (c) Training.

The first part contained questions about the participant’s province and language used in practice. This section also surveyed the participant’s work setting and decade of graduation. This information was collected in order to provide the characteristics of the sample.

The second part contained questions about the amount of time dedicated to prevention and, more specifically, to prevention of R&WD. This information addressed the first goal of the study. Participants who devoted part of their time to the prevention of R&WD then described the preventive activities that they provide. This section included aspects of the activities that were highlighted by ASHA guidelines (2001b) and the U.S. National Research Council’s Committee on the Prevention of Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998). Preventive activities were classified as one of three types of service

delivery: (a) information for parents and early childhood workers; (b) coaching of parents or caregivers to provide stimulation; and (c) early stimulation directly with children. For each type of service delivery used, participants were asked to identify the components of emergent literacy they targeted. These components were taken from ASHA (2001a), and a “language” component was added in order to take into account the importance of oral language skills in prevention of R&WD in addition to stimulation of emergent literacy skills (ASHA, 2001a). Participants were also asked to indicate the age group of the clientele they served: (a) preschoolers and (b) kindergarteners, and the types of prevention they offered: (a) universal for children from the general population; (b) selective for children from at-risk groups; and (c) indicated for children showing symptoms of future literacy problems (Weisz et al., 2005). Participants also described in this section the type of practitioners with whom they collaborate during their preventive activities. The information related to the types of service delivery, the targeted emergent literacy components, the targeted clientele, and collaboration addressed the second goal of the study.

The last section contained questions concerning the sources of training in the prevention of R&WD, as well as the respondents’ rating of this training from poor to excellent. The training information was gathered to address the third goal of the study.

A glossary (Appendix B) including definitions largely inspired from ASHA (2001b) and Weisz et al. (2005) was available at the end of the questionnaire to ensure that the questions were clear. Both English and French versions of this glossary were field tested by two S-LPs. Following their questions and comments, clarifications were made to the original definitions.

### Procedures

Responses from each survey were entered in a Microsoft Excel table by the first author. Responses to multiple choice questions were given numerical categorical values except for percentage of work time, which was entered as a continuous value. Reliability was established by having a research assistant familiar with the project verify all entered data. This verification showed that the data entry was 100% correct.

### Analyses

Descriptive statistics including proportions for categorical variables and means and standard deviations for continuous variables were used to present the results in each section about S-LPs’ practices in prevention of R&WD. To verify if the difference between proportions of work time dedicated to prevention of R&WD and of oral language difficulties was significant, a paired t test was used because both variables came from the same sample. Each analysis was based on the number of participants responding to the question; if a participant skipped one question, he or she was not included in the analysis for that question only. All statistical analyses were performed using SPSS version 14.0 for Windows (SPSS, 2005).

## Results

Preliminary comparisons of the scope of practice, the nature of the activities, and the training between participants from the province of Quebec and those from the other provinces and territories of Canada were made because almost the half of the participants were from Quebec. There were no statistically significant differences between the two groups for scope of practice and training. The few differences that were identified were related to more detailed aspects of the nature of the activities they provided, but the overall direction of these results remained the same between the two groups. For example, fewer participants from Quebec (70%) than from the other provinces and territories of Canada (94%) targeted joint-book reading, but in both groups, joint-book reading was still one of the emergent literacy components targeted by at least 50% of the participants. Given the preliminary nature of the study and that the differences observed were relatively minor, the analyses presented here included all participants in a single sample.

### Scope of Practice

Prevention is defined in the questionnaire as the set of activities which prevent the emergence of difficulties. It includes activities prior to any evaluation or intervention plan and aims at establishing favourable conditions to support the maximal development in children. The scope of practice in the prevention of R&WD was measured in two ways: percentage of participants engaged in the prevention of R&WD, and percentage of their work time dedicated to it. The participants were asked to provide also the percentage of their work time dedicated to the prevention of oral language difficulties in order to compare these results with those related to the prevention of R&WD. Roughly the same percentage of participants engaged in the prevention of R&WD (81.8%) as in the prevention of oral language difficulties (80.1%). Those who did engage in prevention of R&WD ( $n = 121$ ) spent only a mean of 12.3% ( $SD = 10.5$ ) of their time on it, half the time on average spent on prevention of oral language difficulties ( $M = 23.3\%$ ,  $SD = 24.3$ ). This difference was significant, paired  $t(110) = 4.78$ ,  $p < .01$ .

### Nature of the Activities

The following analyses examined different facets of the activities by the 121 participants engaged in prevention of R&WD.

**Types of service delivery.** The first analysis examined the types of service delivery provided. Participants provided all three types of service delivery, although slightly more offered information (86.0%) and direct stimulation (83.5%) than coaching (71.9%).

**Targeted emergent literacy components.** The second set of analyses examined the emergent literacy components targeted by the activities. At least 50% of the S-LPs engaged in prevention of R&WD engaged in joint-book reading (80.2%), phonological awareness (81.8%), and sense of story (56.2%). The other components were all addressed by less than 30% of the participants: oral language (28.9%), environmental print awareness (27.3%), conventions of print (26.4%), experience with writing material (27.3%), adult modeling of literacy activities (20.7%), and alphabet knowledge (19.0%).

Inspection of Table 1 shows that joint book reading, phonological awareness, and sense of story were still the three top emergent literacy components addressed by the participants across all three types of service delivery. Joint-book reading tended to be addressed indirectly through provision of information, while phonological awareness tended to be addressed directly through stimulation. Sense of story tended to be addressed through stimulation and coaching.

**Table 1**

*Percentage of Participants Using Each Type of Service Delivery to Target Emergent Literacy Components*

Emergent literacy components	Type of service delivery		
	Information ( $n = 105$ )	Coaching ( $n = 87$ )	Stimulation ( $n = 101$ )
Joint-book reading	78.1	65.5	62.4
Phonological awareness	63.8	64.4	75.2
Sense of story	28.6	47.1	46.5
Oral language	23.8	20.7	20.8
Environmental print awareness	23.8	18.4	12.9
Conventions of print	16.2	10.3	20.8
Experience with writing material	10.5	14.9	18.8
Adult modeling of literacy activities	17.1	17.2	5.9
Alphabet knowledge	5.7	11.5	13.9

**Targeted clientele.** The third set of analyses examined the clientele for whom the activities were intended under two different perspectives: their age group and their population subgroup categories. More participants

performed activities targeting preschoolers (81.0%) than kindergarteners (57.0%) independently of their population subgroup category. Inspection of Table 2 shows that more participants targeted preschoolers than kindergarteners regardless of the types of service delivery they provided. Results also showed that more S-LPs targeted children showing symptoms of future written language difficulties (82.6%) than those from the general population (69.4%) or at-risk environments (55.4%) independently of their age group. Inspection of Table 2 also reveals a different distribution across the three types of service delivery. More participants using provision of information targeted children from the general population, compared to those targeting children with symptoms or children from at-risk environments. More participants performing coaching or direct stimulation targeted children with symptoms than those from at-risk environments, or from the general population.

it as fair and 22.1% as insufficient. Roughly a quarter of the participants obtained their training in prevention of R&WD in their initial training as S-LPs (76.8% from initial university training, other university training and clinical training), but a majority of participants obtained supplementary training from continuing education (90.7% from workshops and conferences, personal reading and peer discussions).

## Discussion

There are more than 6,600 S-LPs in Canada (CIHI, 2007) and approximately 65% of them work with young children (CASLPA, 2003). Thus, there are currently approximately 4,290 Canadian S-LPs working with young children. Given that only 151 S-LPs participated to the study (3.5% of all Canadian S-LPs working with young children) and that the S-LPs from Quebec were overrepresented compared to the actual distribution across Canada (CIHI, 2007), results of the current study are not fully representative of the practices of all Canadian S-LPs. However, the results provided initial information concerning the scope of practice and the nature of the activities in prevention of R&WD among the Canadian S-LPs who participated in the survey.

**Scope of Practice in the Prevention of Reading and Writing Difficulties.** A discrepancy was identified between the number of S-LPs engaged in prevention of R&WD and the time they devoted to it. These findings are consistent with those reported by Katz et al. (2006). In their preliminary survey, the participants who believed that literacy was within their scope of practice identified time as a barrier to provision of service.

In the current study, too, time could be a factor limiting prevention of R&WD efforts. The heavy work load that S-LPs experience in Canada (Kaegi, Svitich, Chambers, Bakker, & Schneider, 2002; Lagace & Potter, 1995) may provide an explanation to the small amount of time dedicated to prevention of R&WD in the current study. A survey conducted by CASLPA (2003) revealed that many S-LPs feel they are unable to provide an adequate level of service to clients due to excessive workload. However, given that it is easier to prevent than to treat written language problems (Snow et al., 1998), prevention should nonetheless remain a priority for all early childhood practitioners, including S-LPs. Efficient ways exist to identify at-risk children early on (Justice, Invernizzi, & Meier, 2002) and to offer efficient preventive services to them (Justice & Pullen, 2003).

**Table 2**

*Percentage of Participants Using Each Type of Service Delivery to Target Clientele Groups*

Clientele	Type of service delivery		
	Information (n = 105)	Coaching (n = 87)	Stimulation (n = 101)
Preschoolers	81.9	79.3	81.2
Kindergarteners	48.6	54.0	54.5
Children with symptoms	63.8	79.3	82.2
Children from the general population	74.3	45.3	46.5
Children from at-risk environments	55.2	47.1	45.5

**Collaboration.** The last set of analyses examined the collaborative aspect of S-LPs' work in prevention of R&WD. Three quarters of the participants (74.4%) worked in collaboration. More participants worked with collaborators from the education system (44.6%) than with professionals from the health care system (34.7%) and with collaborators from outside the healthcare or educational systems (community organisations, day cares, preschools, and volunteers, 33.9%).

## Training

Training in prevention of R&WD was examined through participants' rating of their training and the sources of training they used. Half were satisfied with their training: 7.4% rated it as excellent and 38.9% as good. But half were not completely satisfied: 31.5% rated



One may argue that S-LPs who decided to participate might already have had an interest in the prevention of R&WD and may therefore have been more motivated to complete and return the forms. Thus, the results of the current study may have drawn a more positive picture of what is going on in the field than would be obtained with a larger sample. If so, however, recommendations about the increase of work time and training devoted to prevention of literacy difficulties would not only still be appropriate, they would be even more essential.

***Nature of Activities in the Prevention of Reading and Writing Difficulties.*** Many S-LPs generally treat most of the components recommended in the guidelines published by ASHA (2001a), but tend to focus on emergent literacy components that are traditionally part of their field of expertise. This is consistent with the results of Coe Hammond et al. (2005) and Katz et al. (2006) who found that S-LPs were more comfortable integrating the more traditional targets of speech-language pathology like phonological awareness and vocabulary into their practices in reading and writing. It is important to highlight that alphabet knowledge and print conventions are two of the best predictors of reading and writing success (Hammill, 2004; National Early Literacy Panel, 2004), along with phonological awareness and oral language abilities.

The focus on specific emergent literacy components may also reflect an efficient division of labour: the S-LPs may prefer to target components like phonological awareness that are usually less targeted by other early childhood practitioners while these practitioners target components like alphabet knowledge. However, phonological awareness training is known to be effective if it is associated with letter-sound correspondence teaching (Gillon, 2004). Thus, alphabet knowledge and print conventions, although not identified as priorities in the current study, may nonetheless be important to include when phonological awareness training is undertaken by S-LPs.

Another unexpected finding was that the oral language component was not among those targeted most frequently by the S-LPs, although this is their main domain of expertise. Oral language components such as elaborated vocabulary, complex grammar, decontextualized discourse and inferential language are associated with reading and writing success (Dickinson & Snow, 1987; Hammill, 2004; van Kleeck, 2006) and thus also need to be emphasized. However, the definition of the oral language component in the glossary excluded oral language as treated within the context of speech-language therapy sessions with children showing oral language problems. The S-LPs may focus on components they already treat in therapy with children showing oral language difficulties, and may choose not to overload their therapy by adding preventive goals in reading and writing to their curative goals in oral language. They may also be treating relevant language goals directly, which, based on the definition of prevention offered, would preclude them reporting such efforts as prevention of R&WD.

The nature of each emergent literacy component suggests a possible explanation concerning the types of service delivery provided for prevention of R&WD. S-LPs may play a more indirect role for emergent literacy components that lend themselves to implicit teaching, such as joint-book reading. They play a more direct role for more complex components that need explicit teaching, such as phonological awareness and sense of story.

The results suggest that some S-LPs are concerned about early preventive activities, especially for children most likely to develop reading and writing difficulties, as prescribed in the scientific publications and policies in the prevention of R&WD (ASHA, 2001a; Snow et al., 1998). Nevertheless, the children from more vulnerable environments such as linguistic minorities or lower income families still represent a population at risk for later reading and writing underachievement (Snow et al., 1998; Willms, 1999). Given that a majority of these children tend to show problems in reading and writing development that are explainable by environmental factors (access to print material, limited language interaction, lack of adult models involving literacy), prevention could be very effective among this population (Torgesen, 2002) and reduce future reading and writing problems in school.

The high collaboration rate of the participants suggests that the practices of the Canadian S-LPs are consistent with ASHA recommendations (2001a). Canadian S-LPs may consider collaboration an important element in shared responsibilities and roles regarding prevention of R&WD.

***Training in the Prevention of Reading and Writing Difficulties.*** The overall evaluation of training was divided and the S-LPs actively sought out additional sources of information to improve on their initial training. This evaluation is not as positive as the one in Coe Hammond et al.'s study (2005) in which S-LPs felt fairly knowledgeable about literacy. The mitigated opinion about the training in the current study suggests that the participating S-LPs felt that there is room for improvement in this regard. It may also provide additional explanation for the reduced work time dedicated to prevention of R&WD and the low priority given to important emergent literacy components such as alphabet knowledge and print conventions.

***Recommendations for Further Studies.*** In order to provide a wider perspective with regard to prevention of R&WD, the use of an online survey generator may help reach more S-LPs by making the questionnaire faster to complete, without needing to print and fax forms as in the current study. Also, even if the questionnaire used in the current study yielded relevant information about S-LPs' practices in prevention of R&WD, improvements are suggested in order to capture important features more adequately.

The categories used to describe types of service delivery, targeted emergent literacy components and clientele, and collaboration were not optimal. It would be more informative to use fewer but wider categories (e.g. types of service delivery into only two categories: direct

and indirect services). It would also be easier to use the population subgroup categories directly (i.e., children from the general population, children from at-risk environments, and children with symptoms) instead of using the type of preventive measure (universal, selective, and indicated) to identify the targeted clientele. In addition, families as possible collaborators should be included, which was not the case in the current study. Regarding training, more information about the actual training received would be useful, not only about the perception of it. Future studies should also address another important issue often associated with prevention: early identification of children at risk for developing R&WD. The results of the current study may underestimate some of the work done by S-LPs in prevention of literacy difficulties because early identification was not included.

Given that the goal of the current study was not to provide a detailed and extended description, but rather an initial picture of the prevention of R&WD among Canadian S-LPs, systematic validity or reliability analyses of the questionnaire were not performed, although pre-testing was carried out to ensure clarity of the questions and definitions and user-friendliness of the questionnaire. To ensure the soundness of the results of a more detailed inquiry, validity and reliability measures of the questionnaire would be mandatory.

Finally, factors such as the facilities in which S-LPs work, the graduation time, and the work status (i.e. full-time or part-time) may have had an influence on both the scope of the preventive practice and the nature of the activities in prevention of R&WD. These variables may need to be taken in account in future studies to provide a clearer portrait of preventive practices.

## Conclusions

Overall, the results suggest that S-LPs in Canada play a role in prevention of R&WD, but they dedicate a limited amount of time to it. Their activities in prevention of R&WD are generally consistent with the recommendations of ASHA (2001a) and the Committee on the Prevention of Reading Difficulties in Young Children (Snow et al., 1998). However, additional measures may be needed to encourage those S-LPs to address some specific emergent literacy components such as alphabet knowledge and print conventions, and some at-risk sub groups of children. One promising solution may be to better prepare future S-LPs through initial university S-LP training and to provide continuing education to those already working with children. The development of recommendations for practice in the area of prevention of R&WD in Canada may also guide Canadian S-LPs in their endeavor.

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### Footnote

- <sup>1</sup> See author note for a complete list.

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## Appendix A

### Transcript of the Online Survey on Canadian Speech-Language Pathology Practices Regarding Prevention of Reading and Writing Difficulties

If you work with 0-6 year-old preschool children including those in kindergarten, you may participate in this study. Even if you don't work precisely in emergent literacy or in prevention of reading and writing difficulties, you may participate. We need answers from as many speech-language pathologists working with preschoolers as possible to capture a real picture of the situation. Even if you work only part time with preschoolers, you may participate. If you only work with children in 1st grade or higher, adolescents, adults, or the elderly, you cannot participate. This survey takes only 10 minutes to fill out on your computer.

#### Part 1: Demographic Information

1. In which year did you finish your university training in speech-language pathology?

< 1960,  1960–1969,  1970–1979,  1980–1989,  1990–1999,  2000–2005

2. In which language do you practice speech-language pathology? (can check more than one)

English,  French,  other(s): \_\_\_\_\_

3. In which type of establishment do you practice speech-language pathology? (most relevant)

community health center,  hospital,  private practice,  rehabilitation center,  schools including kindergarten,  other(s): \_\_\_\_\_

4. In which province or area do you practice speech-language pathology?

Alberta,  British Columbia,  Manitoba,  New Brunswick,  Newfoundland and Labrador,  Northwest Territories,  Nova Scotia,  Nunavut,  Ontario,  Prince Edward Island,  Quebec,  Saskatchewan,  Yukon

#### Part 2: Speech-Language Pathology Practice

5. What proportion of your work is dedicated to prevention? (see definition in glossary)

a) Oral communication difficulties

0%,  5%,  10%,  15%,  20%,  25%,  30%,  35%,  40%,  45%,  55%,  60%,  65%,  70%,  75%,  80%,  85%,  90%,  95%,  100%

b) Written communication difficulties (If 0%, go to Part 3, question 8)

0%,  5%,  10%,  15%,  20%,  25%,  30%,  35%,  40%,  45%,  55%,  60%,  65%,  70%,  75%,  80%,  85%,  90%,  95%,  100%

6. Check the activity you use to prevent reading and writing difficulties (can check more than one). For each activity, select the letter corresponding to targeted emergent literacy component (see glossary). Select the targeted age group for each activity (see glossary). Specify the type of preventive measure of each activity according to the targeted clientele group (see glossary).

##### Activities

Information for caregivers

Emergent literacy components:  a,  b  c,  d,  e,  f,  g,  h,  i

Age groups:  preschool,  kindergarten,  both

Types of measure:  U,  S,  I,  U/S,  U/I,  S/I,  U/S/I

Coaching of caregivers

Emergent literacy components:  a,  b  c,  d,  e,  f,  g,  h,  i

Age groups:  preschool,  kindergarten,  both

Types of measure:  U,  S,  I,  U/S,  U/I,  S/I,  U/S/I

Early stimulation with children

Emergent literacy components:  a,  b  c,  d,  e,  f,  g,  h,  i

Age groups:  preschool,  kindergarten,  both

Types of measure:  U,  S,  I,  U/S,  U/I,  S/I,  U/S/I

7. In general, do you work in collaboration with other preschool workers for prevention of written language difficulties? If yes, specify with whom (you can check more than one box).

no,  yes.

volunteers,  community organisations,  school staff,  health care staff,  other(s): \_\_\_\_\_

#### Part 3: Training

8. How would you qualify your training in prevention of reading and writing learning difficulties?

excellent,  good,  fair,  insufficient

9. What are your sources of training on this subject? (leave blank if you have none)

university training in speech-language pathology,  workshops and conferences,  clinical training,  personal readings,

other university training,  other(s): \_\_\_\_\_

## Appendix B

### Glossary for the Survey on Canadian Speech-Language Pathology Practices Regarding Prevention of Reading and Writing Difficulties

Prevention in speech-language pathology can be described as: “The set of activities which prevent the emergence of oral and/or written language difficulties.” It includes activities, prior to any evaluation or intervention plan, which aim to establish favourable conditions to support the maximal development of oral and/or written communication of children. In preventive practice, activities include: (a) information for the public, parents, professional or preschool workers about the development and the stimulation of oral and/or written communication; (b) online coaching of parents or caregivers for the stimulation of oral and/or written communication; (c) early stimulation of oral and/or written communication directly with children.

Emergent literacy components: (a) Joint-book reading: strategies to make reading interactive and rewarding for children, access to books if needed, motivation and pleasure of reading; (b) Environmental print awareness: recognition of logos, symbols, or signs; (c) Conventions of print: direction of reading, orientation of books, space in between words, punctuation; (d) Phonological awareness and sensitivity: rhymes, alliterations, phoneme and syllable games; (e) Alphabetic/letter knowledge: letters, numbers, frequent words, sorting words by letters; (f) Sense of story (narrative structure): logical and temporal sequence of events in narratives; (g) Adult modeling of literacy activities: examples of real actions related to literacy and the daily use of writing; (h) Experience with writing materials: access to paper and pencils to scribble, copy and pretend to write; (i) Oral language: components linked with reading and writing which are not within the context of oral speech-language therapy sessions.

Age groups: (a) Preschool: includes children from 0 to 5 year old who are not yet attending kindergarten; (b) Kindergarten: includes 5 or 6 year-old children attending kindergarten, but not 1st grade; (c) Both: includes both groups.

Types of preventive measures: (a) U for universal: activities accessible to the population at large; (b) S for selective: activities adapted for populations who may be vulnerable to written language development problems (e.g.: low socio-economical status families, multi-ethnic groups); (c) I for indicated: activities accessible to children with symptoms indicating predisposition to develop written language problems (e.g. : children with language delays); (d) U/S, U/I, S/I, and U/S/I combinations for parallel activities in more than one type of preventive measures.