



Assessment, Diagnosis, and Recovery from Language Disorder at Kindergarten Age: A Survey of Clinicians



Évaluation, diagnostic et récupération du trouble du langage chez les enfants en âge de commencer la maternelle : un sondage auprès de cliniciens

KEYWORDS

- LANGUAGE DEVELOPMENT
- LANGUAGE ASSESSMENT
- DIAGNOSIS
- LANGUAGE DELAY
- LANGUAGE IMPAIRMENT
- LANGUAGE DISORDER
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- ILLUSORY RECOVERY
- DEVELOPMENTAL LANGUAGE DISORDER
- SPECIFIC LANGUAGE IMPAIRMENT

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Abstract

There are unanswered questions in the research literature about the long-term trajectories of language disorders that are diagnosed in the preschool years but seem to resolve around kindergarten age. There is some evidence that children tend to maintain their gains in language abilities. On the other hand, there is also some evidence that language difficulties may resurface, suggesting that the initial recovery was *illusory* (Scarborough & Dobrich, 1990). In order to provide clinical context for future research on this topic, we conducted a survey of clinicians in Alberta about their practices and perspectives with regard to diagnosis of language disorders and predictions of future needs. The results revealed perspectives and experiences in line with and inconsistent with concerns about illusory recovery and highlighted challenges with diagnosis and prediction of outcomes within current service delivery contexts. Finally, the results highlighted differences between clinical diagnostic practices and the approach typically taken in research studies. Implications of these differences for interpretation of the research literature and research planning are discussed.

Abrégé

Plusieurs questions concernant la trajectoire à long-terme des enfants diagnostiqués avec un trouble du langage pendant la période préscolaire mais dont le trouble semble se résorber lorsqu'ils sont en âge d'entrer à la maternelle demeurent sans réponse dans la littérature. Certaines données suggèrent que ces enfants auraient tendance à maintenir leurs acquis au plan langagier. D'autres données indiquent quant à elles que les difficultés langagières pourraient réapparaître, suggérant ainsi que leur récupération initiale ne pourrait qu'être illusoire (Scarborough et Dobrich, 1990). Afin de fournir un contexte clinique pour les futures recherches sur le sujet, nous avons effectué un sondage auprès de cliniciens travaillant en Alberta à propos de leurs pratiques cliniques et de leurs perspectives quant au diagnostic de trouble du langage et quant à l'identification des besoins futurs des enfants. Les résultats montrent que certaines perspectives et expériences des cliniciens supportent le phénomène de récupération illusoire, alors que d'autres le réfutent. Cela met en lumière les défis liés au diagnostic du trouble de langage et à l'identification de leurs besoins futurs dans le contexte actuel de prestation de services. Enfin, les résultats mettent en lumière les différences entre ce qui est généralement effectué en clinique et en recherche pour diagnostiquer le trouble de langage. Les implications découlant de ces différences, tant pour l'interprétation de la littérature que pour la planification de futures recherches, sont discutées.

Several decades ago, Scarborough and Dobrich (1990) introduced the concept of *illusory recovery* to account for a puzzling inconsistency in the research literature. Existing studies of children with early-identified developmental language delays/disorders (hereafter referred to as developmental language disorders, or DLD) reported relatively high rates of recovery or normalization in language scores around kindergarten age, whereas other studies, examining outcomes in the school years and beyond, reported longer lasting difficulties. Scarborough and Dobrich suggested that some of the recovery measured around kindergarten age may have reflected the *illusion* of recovery only or a temporary normalization of language scores without resolution of the underlying learning difficulty. They noted that this illusion could result from periods of plateau in typical language growth that allow children on a slower trajectory of learning to temporarily catch up, only to be left behind as language demands and typical development once again accelerate. They also noted that such an illusion could be more or less likely to occur as a function of the developmental sensitivity of the measures used around kindergarten age (see also Bishop & Edmundson, 1987, and Scarborough, 2009). Importantly, the expectation derived from this hypothesis is that given the continued underlying learning difficulties, significant language and/or literacy challenges are likely to re-emerge during the school years (Scarborough & Dobrich, 1990), thus explaining the greater apparent persistence of DLD when measured in the school years.

The issues raised by a possible illusory recovery phenomenon have both theoretical and clinical implications. They are relevant to our understanding of the nature of language growth and language disorders, and the nature of the changes that occur as a function of intervention. From a clinical perspective, the idea of illusory recovery presents a potential interpretive dilemma for clinicians, namely how to proceed given re-assessment results indicating that a child with a previously identified language disorder has achieved typical-range language abilities. On the one hand, the child's achievements should rightly be celebrated. On the other hand, given the assessment results, a clinician may wonder whether it is appropriate to close down a file or pursue some other course of action, such as further review and monitoring. Are the gains in language development likely to be maintained, even as the child is faced with the growing language and literacy demands of the academic environment?

Charest et al. (2019) recently conducted a review of the literature regarding kindergarten-age resolution of DLD (around age 5), with a focus on evidence either indicating

that such recovery (if it occurs) tends to be maintained or that language and/or literacy difficulties do in fact tend to resurface. The review pointed to a somewhat limited and equivocal evidence base. Two longitudinal British studies offered particularly relevant findings, as they followed clinically identified children who were assessed as preschoolers, and then again at kindergarten age and school age. In one study, 4-year-old children were selected for inclusion because a speech-language pathologist (S-LP) or pediatrician had identified them as having DLD (Bishop & Edmundson, 1987). They were then seen again at ages 5.5, 8 (Bishop & Adams, 1990), and 15 (Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). In another study, 3.5-year-old children were selected because their parents had concerns about their language development or they were deemed at risk for literacy difficulties due to a family history of dyslexia (Snowling, Duff, Nash, & Hulme, 2016). These children were seen again at ages 5.5 and 8.5. Each study adopted its own criteria for a diagnosis of language disorder, and they differed regarding whether or not they additionally classified participants according to non-verbal cognitive scores.

In the cohort of children studied by Bishop and colleagues (Bishop & Adams, 1990; Bishop & Edmundson, 1987; Stothard et al., 1998), kindergarten-age outcomes were relatively good for those children with non-verbal cognition scores in the average range: 44% were classified as having resolved their language disorder at age 5.5. Outcomes at age 8, reported at the group level only, showed that by and large the means of the "resolved" group for language and literacy measures were in the average range, with exceptions for a few measures (Bishop & Adams, 1990). The overall performance of the age 5 resolved group was strong enough at age 8 for the authors to conclude that the age 5 gains had been maintained. At the age 15 assessment, the researchers once again undertook a process of classification at the individual level and concluded that there was evidence for re-emergence of DLD in roughly one third of children classified as recovered at kindergarten age. Thus, there was some evidence for illusory recovery, albeit across a potentially longer time frame than anticipated.

In the cohort described by Snowling et al. (2016), 22% of children identified as having a language disorder at age 3.5 were classified as resolved at age 8. At age 5.5, group means on the language measures revealed a trend toward the eventual age 8 outcomes: On the whole, the group eventually classified as resolved at age 8.5 obtained mean age 5.5 language scores below those of the typically developing group but above those of the group whose DLD persisted at age 8.5. However, the age 5.5 data were

reported at the group level only. Thus, it is not possible to know what proportion of individual children in the age 8.5 recovered and persisting groups would also have been classified as recovered or persisting at kindergarten age.

On the encouraging side, the results from both cohorts (Bishop & Adams, 1990; Bishop & Edmundson, 1987; Snowling et al., 2016) pointed to consistency in language gains from ages 5 to 8 in children with previous diagnoses of DLD. Moreover, Snowling et al. (2016) reported that having language skills in the average range at the kindergarten-age assessment was a positive indicator for developing reading skills commensurate with age expectations in Grade 2. Both studies, however, also reported sub-clinical language and literacy weaknesses at Grade 2 in the recovered group, meaning that group means on some measures were within the typical range, but nonetheless still below the mean scores of typically developing control groups. And, while Stothard et al. (1998) reported evidence for re-emergence of DLD at age 15, Snowling et al. noted that renewed challenges may be yet to be seen in their participants.

The Current Study

There are a number of clinically-relevant questions that merit further research. These include further investigation of outcomes of DLD around kindergarten age and identification of measures that might be most sensitive to ongoing language difficulties. They also include investigation of the potential time course over which language and literacy difficulties may re-emerge over the school years—if at all—as well as further consideration of the potential impacts of sub-clinical weaknesses on academic and social functioning. Much, but not all, of the literature addressing the idea of illusory recovery is several decades old (see Charest et al., 2019, for further discussion). The purpose of the current study was to provide context for future research on these topics and initiate a clinical discussion regarding assessment practices and intervention recommendations at kindergarten age. We sought to obtain a snapshot of current clinical practices and perspectives with respect to assessment around kindergarten age and issues relevant to the illusory recovery hypothesis. The goal was to identify points of alignment and difference between the approaches and evidence that are reported in the research literature and the approaches and perspectives emerging from clinical practice. In particular, we sought information about assessment practices and how decisions regarding diagnosis and recovery are made, as well as whether or not clinicians report experiences or concerns that are relevant to the illusory recovery question.

Method

Participants

Eligible participants were S-LP registrants with the Alberta College of Speech-Language Pathologists and Audiologists who self-identified as working with children. There were 46 respondents. Further information about the respondents is reported under the *Information on Work Context* heading in the Results section.

Materials

The materials consisted of a 13-question online survey. Survey questions included Likert scales, open-ended and limited-choice questions, and combinations of these. The complete survey is presented in the Appendix. Questions 2–4 collected broad information about the respondents' work contexts. Questions 5–9 collected information about practices and opinions with respect to assessment, diagnosis, and service delivery: the types of information that are prioritized when making a diagnosis (Question 5); the score cutoffs that are considered and the tests most commonly used, if tests are used (Questions 6 and 7); confidence in tools to diagnose language delays/disorders and predict future language/literacy needs at 4–6 years (Questions 8a and 8d); the course of action when information sources provide conflicting information (Question 8b); how recovery is identified (Question 8c); and what, if any, age ranges pose a greater challenge for determining whether or not recovery has occurred (Question 9). Questions 10a and 10b asked about clinicians' perceptions of the re-emergence of language and literacy challenges at school age. Finally, questions 11–13 invited clinicians to share any further observations and questions related to assessment, diagnosis, and prediction of risk when considering language ability in the 4- to 6-year-old age range.

Procedures

The research methods were approved and conducted in accordance with the requirements of the Research Ethics Board at the University of Alberta (project approval #Pro00045665). An invitation to participate was published in the April, May, and October 2014 issues of the *Communication Matters* newsletter, distributed via email to all registrants of Alberta College of Speech-Language Pathologists and Audiologists. In 2014, there were 894 registrants who reported working with pediatric populations (0–16 years; Alberta College of Speech-Language Pathologists and Audiologists, n.d.). Participation was entirely voluntary. No identifying information was collected. The informed consent process included the following description:

The research literature reveals two seemingly contradictory findings about the trajectory of children with developmental language impairments. Some studies suggest that many children achieve normal language by about the age of kindergarten entry. Other studies, however, indicate that most language impairments persist over a much longer time frame. We would like to learn more about the trajectory of developmental language impairments and how we can best predict children's risk of long-term difficulties. As a first step, we would like to learn more about your experiences with diagnosis and prediction of language difficulties.

Results

For a number of questions, respondents could select more than one response option, leading to results that sum to greater than 100%. In addition, respondents could choose to not respond to individual questions as appropriate, which led to some variation in the number of responses to different questions. The number of unique respondents for each question as well as results that sum to more than 100% are indicated in the tables, figures, or text as appropriate.

Information on Work Context

There was broad representation from early childhood through adolescence, with the majority ($n = 44, 96\%$) of respondents reporting working with more than one age category (see **Table 1**). Of the 38 respondents who reported working with kindergarten-age children, 13 (34%) worked with clients from preschool through school age (sometimes up to and beyond junior high). Fifteen (39%) worked with preschool and kindergarten-age children (sometimes including toddlers), but not school age. Six (16%) worked with kindergarten and school-age children (sometimes up to and beyond junior high), but not preschool. Finally, four (11%) respondents reported working with preschool through early elementary ages. Of the eight respondents who did not report working with kindergarten-age children, four reported working with toddlers/preschoolers, three with school-age children, and one with toddlers, preschoolers, and school-age children, but not kindergarten age.

Table 1

Question 2: Age of Children on Respondents' Caseloads

Category	Respondents <i>n</i> (%)
Toddler (1–2 years old)	18 (39)
Preschool age (3–4 years old)	37 (80)
Kindergarten age (5–6 years old)	38 (83)
Early elementary (7–9 years old)	27 (59)
Late elementary (9–12 years old)	22 (48)
Junior high school and beyond (12 years +)	17 (37)
<i>N</i> unique respondents	46

Note. Respondents could select more than one response category. Responses sum to more than 100%.

Respondents revealed a broad range of work settings. Question 3 was presented as an open response, and we were able to capture the variety of responses with 26 (57%) working in schools (including community health contracts within schools), 13 (28%) in preschools and Early Learning Centres, 13 (28%) in private practice and contract, 11 (24%) in community health (not in schools), and 5 (11%) in hospitals. The results sum to more than 100% as many respondents reported several work settings. The majority of respondents ($n = 39, 85\%$) reported working with children across the range of severity.

Directed Questions

What kinds of information do you consider when making a decision about a child's diagnosis and need for intervention? In Question 5, respondents ranked the seven options, with 1 indicating the most heavily considered piece of information. Categories that were left blank were given a rank of 8. Respondents were able to assign the same ranking to more than one category. **Table 2** presents the average rankings for each of the response options; rankings closer to 1 indicate relatively greater priority. As can be seen, clinicians reported relying most heavily on their clinical observations, followed by standardized tests and parent concerns.

Table 2

Question 5: Prioritization of Information Considered when Making Diagnostic Decisions and Recommendations for Intervention

Information Source	Mean Rank (SD)	% Ranked as Most Important
Clinical observations in context	2.1 (1.5)	52
Standardized tests	2.9 (1.7)	24
Parent concerns	3.1 (1.9)	26
Teacher concerns	4.0 (2.1)	9
Language sample analysis	4.9 (2.0)	7
Concerns from other team members	5.2 (2.1)	4
Criterion referenced tests	5.4 (2.2)	4
Other	7.7 (1.1)	0
<i>N</i> unique respondents	46	

Note. Information sources were ranked from 1–8, with 1 indicating the information source that is most heavily considered. Mean ranks closer to 1 indicate relatively greater importance. Respondents could indicate tied rankings if desired. Several respondents ranked more than one option as 'top' priority, and therefore the % responses sum to more than 100%.

If you use standardized tests, what cut-off criteria do you use (in standard deviation and/or percentile rank) for the diagnosis of a language delay/disorder? Responses to Question 6 revealed substantial consistency among respondents, with 33 (72%) indicating the 16th percentile or one standard deviation below the mean. An additional six (13%) reported following the guidelines set in the test manual, and six reported other cutoff scores. Thirteen of the respondents also indicated that their interpretation of test scores will depend on the integration of test results with other information, such as clinical observations and parent report.

If you use standardized or criterion-referenced tests, please list the tests that you rely on most frequently.

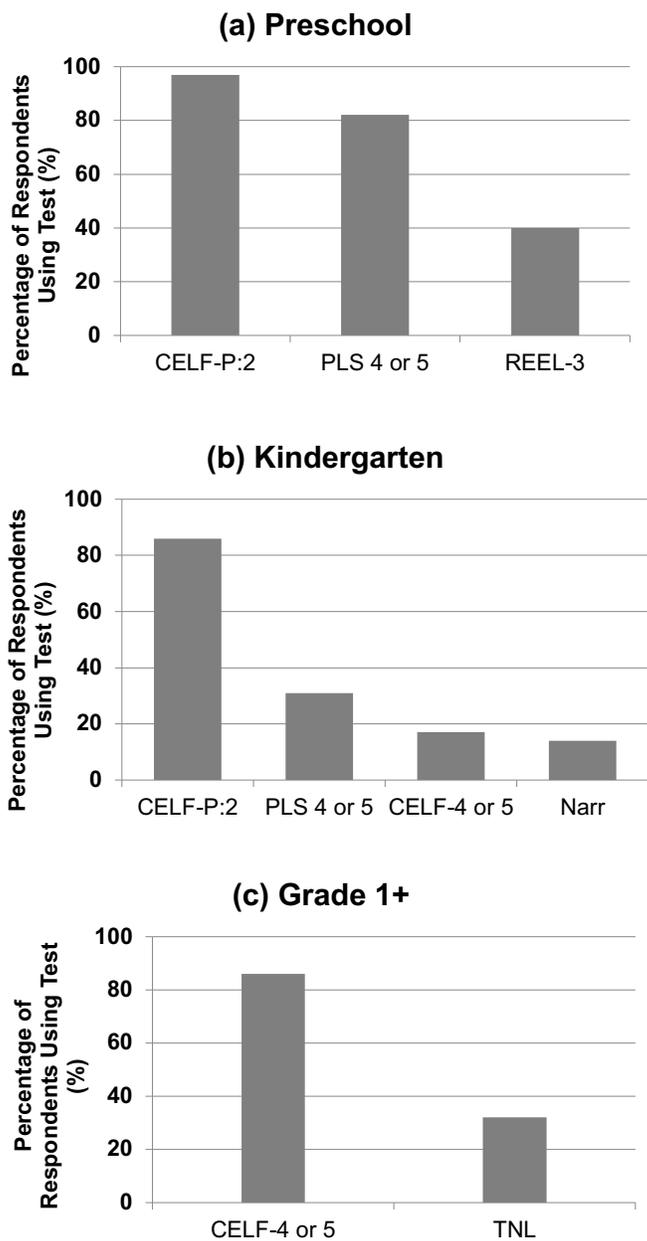
In Question 7, respondents listed up to five tests, in decreasing order of frequency of use, for each of three age groups. Although more than 25 different tools were listed across the three age ranges (including some that were not tests), the responses also indicated a consistent core group of tests used at each age. There were five tools that were listed by 30% or more of respondents for at least one age range: the Receptive-Expressive Emergent Language Test–3 (REEL-3; Bzoch, League, & Brown, 2003); the Clinical Evaluation of Language Fundamentals–Preschool:2 (CELF-P:2; Semel, Wiig, & Secord, 2004), The Clinical Evaluation of Language Fundamentals–4 or 5 (CELF-4/5; Semel, Wiig, & Secord, 2003; Wiig, Semel, & Secord, 2013), the Preschool Language Scale–4 or 5 (PLS-4/5; Zimmerman, Steiner, & Pond, 2002, 2011), and the Test of Narrative Language (TNL; Gillam & Pearson, 2004).

Figure 1 presents the distribution of responses for preschool, kindergarten, and Grade 1 and older, respectively, for these five tools. As can be seen, the CELF-P:2 and CELF-4/5 are the most heavily used tests, and many clinicians use the PLS-4/5 in the preschool years. Beyond that, the responses suggest greater similarity in the tools selected for preschool and kindergarten than kindergarten and Grade 1. The CELF-P:2 is selected more often than the CELF-4/5 at kindergarten age, even though both are appropriate to the age range. Narrative tests and the CELF-4/5 begin to receive mention at kindergarten age, although all mentions of narrative, including the TNL, the Edmonton Narrative Norms Instrument (Schneider, Dubé, & Hayward, 2005), and The Renfrew Bus Story (Cowley & Glasgow, 1994), combined together, summed to only approximately 13% of respondents. The shift to greater use of these measures occurs at school age.

Questions 8a, 8b, 8c, and 8d asked specifically about practices when working with children in the 4- to 6-year-old age range.

How confident are you in the tools that you have at your disposal to accurately identify whether or not a child has a language delay/disorder? **Figure 2** presents the distribution of responses to Question 8a, ranging from 1 (*not at all confident*) to 5 (*very confident*). The majority of respondents expressed confidence in their ability to identify language disorders, with a modal rank of 4 (19 of 43 respondents, 44%). Additionally, 13 respondents (30%) selected the highest rating of 5.

Figure 1



Question 7: Tests most frequently used to assess language in (a) preschool-, (b) kindergarten-, and (c) school-age children. Each respondent could list up to five tests per age group. If the edition of a test was not specified, the most recent version was assumed. CELF-P:2 = Clinical Evaluation of Language Fundamentals Preschool – Second Edition (Semel, Wiig, & Secord, 2004), PLS-4 = Preschool Language Scale – Fourth Edition (Zimmerman, Steiner, & Pond, 2002), PLS-5 = Preschool Language Scale – Fifth Edition (Zimmerman, Steiner, & Pond, 2011), REEL-3 = Receptive-Expressive Emergent Language Test – Third Edition (Bzoch, League, & Brown, 2003), CELF-4 = Clinical Evaluation of Language Fundamentals – Fourth Edition (Semel, Wiig, & Secord, 2003), CELF-5 = Clinical Evaluation of Language Fundamentals – Fifth Edition (Wiig, Semel, & Secord, 2013), TNL = Test of Narrative Language (Gillam & Pearson, 2004). “Narr” (Narrative) = TNL, Edmonton Narrative Norms Instrument (Schneider et al., 2005), or The Renfrew Bus Story (Cowley & Glasgow, 1994).

How do you proceed if there is a discrepancy between the information provided by formal tools (standardized and/or criterion referenced tests) and your clinical judgment about diagnosis and need for intervention?

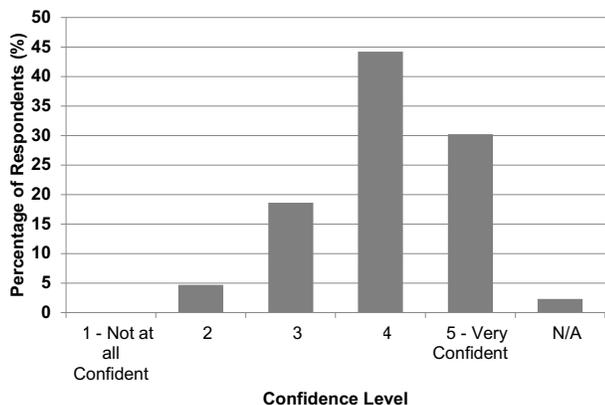
Table 3 presents the distribution of responses to Question 8b. The modal response (25 of 42 responses, 60%) indicates that clinicians would recommend

intervention if either test scores or their observations suggested the need. An additional 13 respondents (31%) indicated that they would only recommend intervention if warranted by clinical observations. None of the respondents indicated that they would only recommend intervention if test scores warranted.

How do you decide whether a child has recovered from an earlier diagnosis of language delay/disorder?

Potential responses to Question 8c were not pre-determined, and so predictably, there was considerable variety in the responses. Most responses mentioned more than one information source. However, most of the responses could be categorized according to the relative emphasis: Emphasis on requiring or integrating positive evidence from formal and informal information sources (16 of 42 responses, 38%), emphasis on parent and/or teacher report of concerns (7 responses, 17%), emphasis on observations of functioning (5 responses, 12%), emphasis on results of re-testing (4 responses, 10%), emphasis on treatment progress (3 responses, 7%), and other (7 responses, 17%). For several of the responses coded within the category of *other*, respondents noted that they either rarely see children who have recovered or are reluctant to assign such a label. One respondent noted, for example, "I wouldn't consider them 'recovered,' just improved...."

Figure 2



Question 8a: Confidence in tools to identify language delay/disorder, 4–6 year-olds. n = 43 respondents.

Table 3

Question 8b: Course of Action when Test Scores and Clinical Judgment Provide Discrepant Information About Diagnosis and Need for Intervention

	Respondents n (%)
Recommend (or continue) intervention if either information source warrants	25 (60)
Recommend (or continue) intervention if test results warrant	0 (0)
Recommend (or continue) intervention if clinical observations warrant	13 (31)
Conduct further assessment	1 (2)
Discharge client/do not recommend intervention, but share concerns with parent	0 (0)
Discharge client/do not recommend intervention, no further action	0 (0)
Other	3 (7)
N/A – I do not work with children in this age range	1
<i>N</i> unique respondents	43

How confident are you in the tools that you have at your disposal to predict a child's risk for future communication difficulties (i.e., during the school-age years)? **Figure 3** presents the distribution of responses to Question 8d, again from 1 (*not at all confident*) to 5 (*very confident*). The modal rank was 3 (16 of 44 responses, 36%), suggesting a generally neutral assessment of confidence. Twelve respondents (27%) selected a rank of 4, indicating confidence. In contrast to Question 8a, only 4 respondents (9%) chose the highest rating of 5, whereas 11 (25%) chose a confidence ranking of 2 or lower.

Are there any age ranges that you find more difficult than others to evaluate when determining whether recovery from a language delay/disorder has been achieved? If so, which ones? **Table 4** presents the responses to Question 9, both as the raw number of respondents who selected each option, and also expressed as a percentage of individuals who reported working with children in each age range in Question 2. The modal response was N/A. Almost all ($n = 14$) of the 15 respondents who selected N/A reported working with more than one age group. This suggests that many S-LPs work with multiple age groups, but do not perceive any particular age as being more difficult than others with respect to the determination of recovery. When taken as a percentage of respondents working with different age groups, the age group that appears to pose the greatest difficulty is toddlers. Questions 10a and 10b asked specifically about practices when working with children in the school age range.

If you work with school-age children, how often do you receive referrals for children who had previously been discharged from S-LP services? **Table 5** presents the distribution of responses to Question 10a. The majority of respondents chose *sometimes* (modal response, 17 of 31 responses; 55%) or *often* (10 responses; 32%).

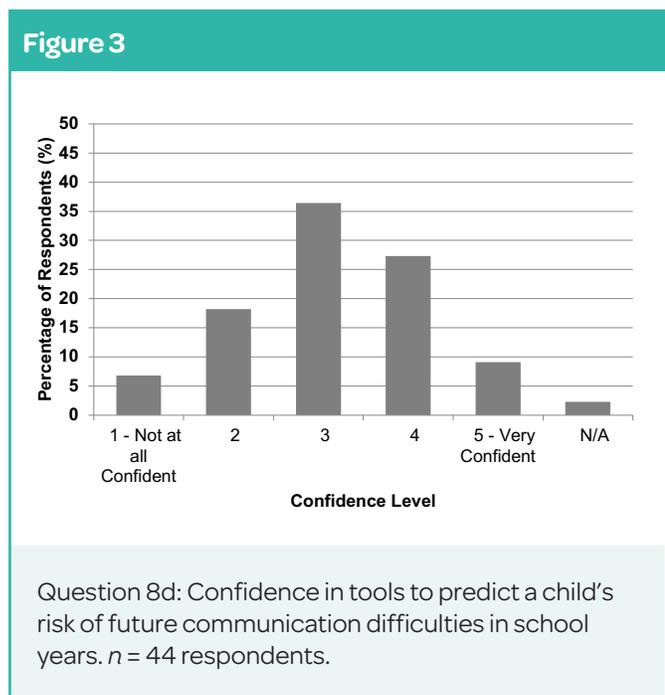


Table 4

Question 9: Age Ranges Posing Greatest Challenge to Determination of Recovery

	Respondents n	As % who Work within Age Range
Toddler (1–2 years old)	10	56
Preschool age (3–4 years old)	6	16
Kindergarten age (5–6 years old)	11	29
Early elementary (7–9 years old)	8	30
Late elementary (9–12 years old)	7	32
Junior high school and beyond (12 years +)	6	35
N/A	15	
N unique respondents	46	

Table 5

Question 10a: Perceived Frequency of Re-Referral at School Age

	Respondents n (%)
Never	1 (3)
Rarely	1 (3)
Sometimes	17 (55)
Often	10 (32)
Very often	0 (0)
I don't know/am unsure	2 (6)
N/A – I do not work with this age range	12
<i>N</i> unique respondents	43 ^a

Note. ^aThere were 3 respondents who did not respond to this question because none of them worked with school-age children.

What do you feel are the principal concern(s) that prompt referrals to S-LP services for school-age children who had previously been discharged from S-LP services? For Question 10b, S-LPs ranked their top three perceived concerns, with 1 indicating the concern that they consider to be most frequent. For each respondent, categories that were not selected were given a rank of 6. A small number of respondents ranked all of the response options (from 1–6); these rankings were included in the calculations of means. **Table 6** presents the mean rank assigned to each response category. When we consider the mean rank given to the different response options as well as the number of respondents who selected a given option as the concern of greatest frequency, concerns with literacy are prominent, followed by receptive language and speech intelligibility.

Thematic Analyses

Questions 11–13 were designed as open-ended questions to further probe clinicians’ perceptions and practices surrounding the preschool to school-age transition. Responses to these questions were analyzed for thematic content (Braun & Clarke, 2006). Four of the authors read through and familiarized themselves with the responses, developed initial codes to flag pertinent or prevalent ideas, grouped these initial codes into themes, and then revisited the raw data to map how well the themes captured the data, revising themes accordingly. The resulting thematic map reveals three interrelated themes: Knowledge-Support, Challenges, and Concerns, each of which has several sub-themes.

In the first theme, Knowledge-Support, clinicians identified needs for research-based information that would support greater diagnostic and predictive confidence. Although Question 11 asked directly about knowledge needs, many of the comments grouped under this theme were not simply direct replies to this question, but were offered in response to the more open-ended questions 12 and 13. The second theme, Challenges, captures comments regarding system-based factors that impede diagnostic and predictive confidence. Finally, the third theme, Concerns, captures concerns raised about the assessment and identification process, particularly in relation to school-age children. Each of these themes and their sub-themes are described in turn.

Knowledge-support. Clinicians’ comments on informational knowledge needs fell into two sub-themes: (a) better understanding of the trajectory of language disorders and the oral language skills or measures that can best predict outcomes and (b) better understanding of how oral language skills affect, and are affected by, children’s development across domains such as academics, literacy, and cognitive and social development. The following comments are reflective of this theme¹:

[1] (Regarding resource/knowledge needs) “Better indicators of risk factors for future difficulties with higher level language and literacy difficulties when assessing toddlers and preschool children.”

[2] “Perhaps we need better benchmarks to identify what characteristics are more likely to show a persistent problem with communication versus recovery. I am not sure how you could do this but perhaps there was something like Red Flags for consistent language delays?”

Table 6

Question 10b: Perceived Reasons for Re-Referral at School Age

	Mean Rank (SD)	n Ranked as Most Frequent ^a
Reading and written language	2.8 (1.9)	10
Listening/comprehension	3.1 (1.9)	7
Speech intelligibility	3.5 (2.2)	8
Academic achievement	4.1 (1.8)	3
Peer interactions	4.4 (1.7)	2
Other	5.6 (1.4)	2
N unique respondents	30	

Note. Respondents were asked to select up to three concerns, with 1 indicating the perceived most frequent concern. A small number of respondents ranked all response options. Unranked options were given a rank of 6. Mean ranks closer to 1 indicate relatively greater importance.

^aOne respondent indicated a 3-way tie for most frequent area of concern. The values in this column therefore sum to 32 rather than 30.

[3] "The knowledge about children with phonological disorders later having difficulty in reading/phonological awareness skills is available. I think that the development of social language of kids who have been diagnosed with language delays/disorders in preschool is an area we lack information on - and how social language/pragmatics may impact."

Challenges. Comments on challenges to diagnostic and predictive confidence highlighted system constraints and comprised two sub-themes: (a) time and (b) discontinuities in service. In particular, respondents noted that time constraints place limits on the scope and depth of information they can collect, limiting their ability to fully assess all the areas that they view as important, or their understanding of important aspects of the child's unique experience and environment. Respondents also noted that discontinuity in service provision is an impediment to predicting future outcomes. This theme is reflected in the following comments:

[4] "Would be beneficial to have more studies looking at outcomes and our abilities to predict. We see children at preschool age and then don't have long term info to know how they have done, no way to improve on predictions if we don't have long term effect info."

[5] "We often lack the specific information from the parents and teacher about the whole picture of the child because we only have time to really deal with the immediate matters at hand. Sometimes we do not have all the important information from a parent about the child's history, medical, or even developmental milestones."

[6] "I think that this can be quite a tricky thing to do. While I make predictions, I don't get to follow my clients through elementary school, so I don't often find out whether my predictions are accurate...."

[7] "It is difficult to predict the future risk of children with a history of language delays/disorders when the typical level or type of service delivery to the child changes so dramatically when they enter Grade 1."

Concerns. The final theme that emerged in the respondents' comments can best be characterized as concerns related to the process of assessment and identification, and contains sub-themes related to test concerns and child concerns. With regard to test concerns, respondents expressed mixed feelings about tests. A strong theme was worry that tests do not always reflect or align with children's functional communication challenges and concern that tests may underestimate some children's communication difficulties. At the same time, some respondents emphasized that tests can provide an important source of information to complement observations. Also captured within this

¹ We have corrected typos in the responses.

sub-theme was the view that the profession would benefit from better tools overall. The following quotes are illustrative of this sub-theme:

[8] "Time is limited, and it is easy to fall to the easy way out by using standardized testing to say a child has recovered from and/or has language within average ability at the 16th percentile, even when our observations tell us that a child is not communicating effectively...."

[9] "I feel experience plays a very big role. But...I feel [standardized testing] is a critical piece of the puzzle. I can't walk into a classroom and determine a child's language impairment solely from observation and teacher or parent report."

With regard to child concerns, respondents expressed concerns about children with language needs "falling through the cracks" in the school years. There were specific concerns about children with less severe language disorders having unidentified present or future difficulties, as well as concern that language difficulties may not be as visible as other concerns. These concerns relate to the risk that needs are going unidentified. A complementary point that emerged within this sub-theme is the concern that identified needs are going unmet. The following quotes are illustrative of this sub-theme:

[10] "Mild/moderate kids are falling through the cracks as they often present as average but as the academic work gets more difficult, they fall further and further behind."

[11] "I think teachers and parents are keen to have their children/students read so they are very aware of phonological awareness difficulties. However the language processing difficulties are not always evident and they may think language concerns have resolved and not refer. I think parents and teachers could be better informed about language processing difficulties that may be evident as kids transition, and social language difficulties."

[12] "I suspect that some of the children who appear to have resolved their language issues within the preschool period are not necessarily identified as having the potential to have language issues that become evident once school aged. It is important that children with a history of language delay are monitored as many go on to have persistent language issues that are more subtle."

[13] "One of my colleagues mentioned recently that she feels that many of our preschool/kindergarten kiddos don't receive further SLP support, but then flag as kids with learning disabilities/reading difficulties, etc. Having

spent a bit of time in Grade 1 classrooms, I would tend to believe that this is likely the case. As S-LPs typically aren't in those classrooms, the referrals are based on teacher knowledge of speech/language concerns. In my experience, the kids with articulation concerns were brought up immediately, whereas if I brought up a child who I knew had significant language needs in kindergarten/pre-school, teachers often seemed surprised ('He's okay, he's just disorganized')."

[14] "There are many children getting missed still and being released from group intervention even when they still need intervention because you cannot meet all the children's specific speech or language needs without individualized intervention."

Discussion

The illusory recovery hypothesis raises the possibility that children with DLD may test within normal limits around kindergarten age but then have significant needs re-emerge at a later date because the language learning difficulty had not in fact resolved. The risk for these children is that they will potentially miss out on crucial years of support and that their academic, social, or other challenges will be misunderstood. Although clinical practices and assessment tools may have changed in the decades since this hypothesis was first put forward (Scarborough & Dobrich, 1990), several aspects of the survey data suggest that these concerns remain clinically relevant.

One aspect of the data that aligns with a potential illusory recovery phenomenon is the concern that emerged in the thematic data about children with language needs falling through the cracks in the early school years. While there are a number of system-based reasons why children may fall through the cracks, clinicians also highlighted the fact that language-based challenges may simply be missed or misinterpreted, even for children with histories of DLD, particularly those children who do not present at the severe end of the language continuum or have more visible challenges (e.g., speech production, behaviour). This concern is echoed by researchers who have argued that DLD often risks being *invisible* (Bishop, Snowling, Thompson, Greenhalgh, & CATALISE consortium, 2016), particularly when children are able to provide brief, but socially and pragmatically appropriate responses to questions, and converse simply but grammatically about everyday topics of their choosing or contextualized topics rooted in the here and now (Im-Bolter & Cohen, 2007). And, the majority of respondents who work with school age children reported sometimes or often receiving referrals for children who had previously been discharged from S-LP services.

Although descriptors such as *sometimes* and *often* cannot indicate precisely how often this occurs or why—or indeed if it even occurs to an extent that clinicians would deem unacceptable—the response pattern invites further documentation of how often re-referrals occur, when and why they occur, and whether re-emerging or ongoing needs can be identified from the start of formal schooling.

At least one finding, on the other hand, indicates that clinicians do not perceive concerns that align with the illusory recovery hypothesis. Although we have emphasized the late preschool/kindergarten age as a potential time of illusory recovery risk, the survey responses did not reveal particular concern with this age range. Indeed, in response to the question asking if any age range poses a particular challenge to the determination of recovery, the modal response indicated no single age group, and the next most frequent response (when calculated relative to the number of respondents who work within a given age range) identified challenges identifying recovery in toddlers. For a recent review of outcomes for children with language delays identified at age 2, readers are directed to Paul and Roth (2011). Interestingly, although kindergarten age did not stand out as a uniquely challenging age with respect to identifying recovery, several respondents' spontaneous comments offered insight into the nature of difficulty when it occurs. These comments emphasized the challenge that arises when children can be speaking in full sentences yet still have a language disorder and the interpretive challenge that can arise when a child has yet to be faced with the level of academic and literacy demands that emerge in the later years.

Ultimately, questions of whether or not illusory recovery occurs, how often, and why, will need to be answered by future research. Other information obtained in the survey is relevant to such research. In particular, a message that came through consistently in the survey data is the fact that clinicians do not base diagnostic decisions on test scores alone. Indeed, although clinicians reported using standardized tests, slightly more than half of the respondents indicated that they weigh their contextual observations most heavily in their diagnostic decisions and intervention recommendations. Moreover, when asked about the standard score or percentile cutoffs they use when making diagnostic decisions, approximately one third of respondents provided the requested information but also commented that they consider the test score within the context of other observational and reported information. Respondents also indicated a practice of integrating formal and informal information sources to guide decisions regarding recovery, and the majority of respondents indicated that recommendations for intervention could follow from either test scores or clinical observations.

The emphasis on both formal and informal results has implications for how clinicians interpret the research literature on outcomes, as well as implications for research going forward. In contrast to the reported clinical practice, the research base on recovery has relied heavily on test scores or other objective criteria (e.g., mean length of utterance) as the basis for determining outcome (e.g., Bishop & Adams, 1990; Bishop & Edmundson, 1987; LaParo, Justice, Skibbe, & Pianta, 2004; Scarborough & Dobrich, 1990; Snowling et al., 2016; Stark et al., 1984; Stothard et al., 1998). This approach has a number of advantages within a research study, such as feasibility, reliability, and objectivity, but it means that the decisions reached within these studies could differ in important or systematic ways from the decisions that are typically reached by clinicians. For example, a number of the respondents' comments highlighted a concern that test scores may not always align with functional communication challenges. If the obtained test scores do not reflect functional concerns that are evident within contextual observations, studies may overestimate the likelihood that children will appear to have recovered. Conversely, if a research study employs a formal measure that is sensitive to challenges that are real but may not show up in some contexts (e.g., play or everyday conversation), such a study may be less likely to find evidence of recovery. The mismatch in how diagnostic categorizations are made does not mean the research findings are not clinically informative, but they do need to be interpreted within the context of what they tell us. They can help to guide the interpretation of test scores, and the relative weighting of test scores and other observations, by providing indices of how likely gains in test scores are to be maintained. Future longitudinal research on outcomes would benefit from further consideration of how clinical or functional observations and test scores relate or complement each other.

Clinical Considerations

Several other findings from the survey warrant mention. The first is the observation that the majority of clinicians adopt the 16th percentile or one standard deviation below the mean as a diagnostic cutoff. This cutoff, although arbitrary, is commonly used. In the research reported by Snowling et al. (2016), for example, this cutoff was adopted for the primary outcomes in order to align with clinical practices. Not surprisingly, the authors reported that the apparent frequency of recovery varied considerably when other thresholds were adopted. Although one standard deviation below the mean is commonly used, this threshold may not be the most appropriate for all measures.

Empirically-derived cutoffs that provide the best balance of sensitivity and specificity are available, either in test manuals or research reports, for some tests (see Spaulding, Plante, & Farinella, 2006), including some of those that were reported in this survey as being frequently used. For example, the CELF-P:2 (Semel et al., 2004) reports acceptable sensitivity (.85) and specificity (.82) based on a standard score cutoff of 85 or $-1 SD$. The manual for the CELF-5 (Wiig et al., 2013) also reports strong sensitivity (1.00) and specificity (.91) for a $-1 SD$ cutoff. However, the manual additionally reports sensitivity and specificity values for different thresholds, and the authors report that the optimal diagnostic threshold is $-1.3 SD$ (standard score 80) as this provides the best balance of sensitivity (.97) and specificity (.97). The manual for the TNL (Gillam & Pearson, 2004) indicates acceptable sensitivity (.92) and specificity (.87) at $-1 SD$. The manual for the recently published Test of Narrative Language-2 (TNL-2; Gillam & Pearson, 2017) reports sensitivity and specificity for different thresholds. The reported diagnostic accuracy for $-1 SD$ is not acceptable at .55 for sensitivity (specificity is excellent at .98). The authors report that the optimal threshold for identifying language disorder using the TNL-2 is a standard score of 92 or $-0.5 SD$, associated with sensitivity and specificity of .92. Before adopting $-1 SD$ as a diagnostic cutoff, clinicians are encouraged to confirm that this cutoff is appropriate for the test in question.

Although we did not ask about clinicians' use of confidence intervals in the interpretation of test scores, we also note here that confidence intervals (provided in the test manual) offer a crucial piece of interpretative information, acknowledging the error inherent in scores and indicating the range within which the child's "true score" may lie. Clinicians are encouraged to incorporate this information into their reporting and use of test scores, if they are not already doing so.

A second issue warranting mention is the uncomfortable intersection of questions about recovery, referral, and prediction of long-term needs with the frequent reality of service at school age. Two relevant issues emerged from the thematic analysis. First, a number of clinicians reported that time limitations—and the limits to information-gathering that follow—negatively affect their confidence in diagnosis and, to a greater extent, prediction of long-term outcomes. On this point, the test-focused approach taken in research studies may be particularly relevant if it can serve to provide evidence-based guidance to clinicians regarding how to focus their limited time when testing is to be part of the assessment process.

Further, several respondents noted the challenge that comes from the relative lack of service availability once children enter the school years. On the one hand, identifying who is likely to need ongoing support may be less difficult than finding the resources to provide that support. On the other hand, respondents expressed discomfort with making predictions about outcomes when children who have been receiving services suddenly receive far less service in the school years. This concern aligns well with the issues that emerge from the illusory recovery hypothesis: If language learning has been accelerated via supports, but the fundamental learning challenges have not been resolved, it is reasonable to fear that gains will not be maintained once supports have been withdrawn. The overall theme that students may be falling through the cracks in the school years due to limitations in service provision is consistent with the message conveyed in Speech-Language and Audiology Canada's national campaign regarding the pressing need for school-age speech and language services, presented during Canada's most recent federal election ("Vote Communication Health Campaign;" Speech-Language & Audiology Canada, n.d.). Clinicians, researchers, and clinical associations all have a critical role to play in helping to build awareness of this need and understanding of the potential costs of these needs going unmet. Careful attention to ensuring that we are adequately identifying those children who present with lingering but potentially hidden challenges is an important piece of building that awareness.

Limitations

One goal of this paper was to stimulate reflection and discussion regarding the most appropriate course of action for children who appear to have outgrown a language disorder. While we hope that this goal was achieved, a number of limitations to the current work are important to note. With 46 respondents, the sample represents approximately 5% of those Alberta-registered S-LPs who report working primarily with children. Given this response rate, we cannot assume that the responses are broadly representative of the views and experiences of S-LPs in Alberta. We cannot confidently state why the response rate was not higher, but one contributing factor may have been the recruitment method (publishing an invitation to participate in the monthly newsletter of the provincial college). It is reasonable to think that the response rate may have been higher had invitations to participate been sent to clinicians directly. On the positive side, the respondents worked in a broad range of settings, many worked with several pediatric age groups, and the majority worked with children across the spectrum of

severity. These observations allow greater confidence in the extent to which the survey results may represent the views of S-LPs in Alberta broadly.

At the same time, for many of the questions, fewer than 46 responses were received, because not all of the questions were relevant to all of the respondents' work situations. Moreover, although we collected broad information on work context, we did not collect detailed background information such as the respondents' years of clinical experience, geographical setting (e.g., urban/rural), the proportion of children on their caseload that are multilingual, or the proportion that have additional diagnoses beyond speech and language. This information, had it been collected, would provide a better indication of the broader representativeness of the survey data.

Finally, as this survey was disseminated only within Alberta, the results reflect the views within one particular region of Canada. We suspect that the picture would not differ greatly had we surveyed within a different region of the country; however, further work is needed to confirm this view.

Conclusion

Further research on trajectories and outcomes of language disorder is important if we are to adequately advocate for and meet the needs of school-age children with DLD. Potential immediate priorities for research include documenting rates of apparent kindergarten-age resolution of DLD as well as school-age maintenance of resolved status or re-emergence of clinically significant difficulties when children are assessed using current tools and methods. A key focus of such a line of research should be to document the features of early language disorder that may predict whether normalization of language abilities and maintenance of recovered status are likely, and in particular the tools, methods or aspects of language that are likely to be sensitive to language status at kindergarten age. As Charest et al. (2019) noted, some candidate measures at kindergarten age include grammatical morphology production, sentence repetition, phonological awareness, rapid naming, narrative production/comprehension abilities, and complex syntax. Critically, such research should also begin to identify how information that goes beyond discrete test score cutoffs, such as parent and clinician perceptions, can influence our understanding of trajectories and outcomes, and how the different sources of information complement each other. Research of this scope will be best achieved through the combined, collaborative efforts of researchers and clinicians.

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Appendix

Survey Questions

1) Do you work with children?

Yes

No

Survey ends if respondent replies no

2) What age ranges do you work with? (check all that apply):

- A. Toddler (1–2 years old)
- B. Preschool age (3–4 years old)
- C. Kindergarten age (5–6 years old)
- D. Early elementary age (7–9 years old)
- E. Late elementary age (9–12 years old)
- F. Junior high school age and beyond (12 years+)

3) What type of setting(s) do you work in? (e.g., Community Health, Elementary School, Private Practice) (box for open-ended question)

4) What populations do you work with? (check all that apply):

- A. Children with mild-moderate language delays/disorders
- B. Children with severe language delays/disorders
- C. Children across the spectrum of severity

5) What kinds of information do you consider when making a decision about a child's diagnosis and need for intervention? (Please rank according to how heavily you typically rely on each source of information, with 1 indicating the information source that you rely on most heavily). (box next to each item for ranking)

- A. Standardized tests
- B. Criterion referenced tests
- C. Language sample analysis
- D. Parent concerns
- E. Teacher concerns
- F. Concerns from other team members (e.g., physical or occupational therapists, nurses, physicians)
- G. Clinical observations in context
- H. Other (please specify)

When making observations in context, what kinds of information (such as the type of behaviours or contexts) do you find most useful? (*Open-ended question that will appear if the respondent checks off "G"*).

6) If you use standardized tests, what cut-off criteria do you use (in standard deviations and/or percentile rank) for diagnosis of a language delay/disorder?

7) If you use standardized or criterion-referenced tests, please list the tests you rely on most frequently. Please list up to five in order of decreasing importance for the following age groups:

- A. Preschool-aged children, up to and including pre-kindergarten (if applicable)
- B. Children in kindergarten (if applicable)
- C. Children in Grade 1 and beyond (if applicable)

Question 8 (a-d) asks more specifically about your experiences with children in the preschool- to school-age transition years (approximately 4–6 years of age).

8) When working with children in the 4–6 year-old age range:

8a) How confident are you in the tools that you have at your disposal to accurately identify whether or not a child has a language delay/disorder?

N/A. I do not work with children in this age range.

1 - not at all confident

2

3

4

5 - very confident

Please elaborate if desired (*space for longer answer provided*):

8b) How do you proceed if there is a discrepancy between the information provided by formal tools (standardized and/or criterion referenced tests) and your clinical judgment about diagnosis and need for intervention?

- A. N/A. I do not work with children in this age range.
- B. Recommend (or continue) intervention if either source of information warrants.
- C. Recommend (or continue) intervention if test results warrant.
- D. Recommend (or continue) intervention if clinical observations warrant.
- E. Conduct further assessment.
- F. Discharge client/do not recommend intervention at this time, but share any concerns with parent.
- G. Discharge client/do not recommend intervention at this time, no further action.
- H. Other (please specify):
Please elaborate if desired:

8c) How do you decide whether a child has recovered from an earlier diagnosis of language delay/disorder? *(box for open-ended response)*

8d) How confident are you in the tools that you have at your disposal to predict a child's risk for future communication difficulties (i.e., during the school-age years)?

N/A

1 - not at all confident

2

3

4

5 - very confident

Please elaborate if desired *(space for longer answer provided)*:

9) Are there any age ranges that you find more difficult than others to evaluate when determining whether recovery from a language delay/disorder has been achieved? If so, which ones? *(Select all that apply.)*

- A. Toddler (1–2 years old)
- B. Preschool age (3–4 years old)
- C. Kindergarten age (5–6 years old)
- D. Early elementary age (7–9 years old)
- E. Late elementary age (9–12 years)
- F. Junior high school age and beyond
- G. N/A

Please elaborate if desired *(space for longer answer provided)*:

Question 10 (a, b) asks more specifically about your experience with school-age children (early elementary years and beyond).

10a) If you work with school-aged children, how often do you receive referrals for children who had previously been discharged from S-LP services?

- A. Never
- B. Rarely
- C. Sometimes
- D. Often
- E. Very Often
- F. I don't know/I am unsure. Please specify:
- G. N/A. I do not work with children in this age range.

10b) What do you feel are the principal concern(s) that prompt referrals to S-LP services for school-age children who had previously been discharged from S-LP services? *(Please rank top three, with 1 indicating the most frequent concern.) (box next to each item for ranks)*

Concerns about:

- A. Reading and written language
- B. Academic achievement
- C. Listening skills and/or language comprehension
- D. Peer interactions
- E. Speech intelligibility
- F. Other (please specify)
- G. N/A

In the remaining three questions, we are asking for any additional information that you would like to share about your experiences working with children as they transition from preschool-age to school-age, and making decisions about ongoing needs for support.

11) In your opinion, what resources or knowledge do we lack as a field when it comes to predicting the future risk of children with language delays/disorders diagnosed in the preschool years? *(box for open-ended response)*

12) Is there anything else that you would like to tell us about your practices or ability to predict ongoing needs through the preschool- to school-age transition (i.e., 4–6 years)? *(box for open-ended response)*

13) What other questions do you have related to the issue of diagnosis and prediction of language delays/disorders through this age range? *(box for open-ended response)*

You have reached the end of the survey. Thank you for your participation!