Working with Children with Specific Communication Disorders
A Professional Development Programme for Teachers

Michele Cunningham, Suzanne C. Purdy and Linda Hand
Speech Science, Department of Psychology, The University of Auckland

ABSTRACT

Primary teacher training programmes in New Zealand do not provide training about specific communication disorders (SCDs), despite prevalence of SCDs of approximately 7%. This pilot study investigated the effectiveness of a three-hour professional development (PD) programme for a specialised group of primary teachers, Special Education Needs Coordinators (SENCOs), around working with children with SCDs in the classroom. Six SENCOs from different schools participated. Effectiveness was measured using a pre-test/post-test within-subjects design. Outcome measures were (1) a knowledge questionnaire and (2) a videoed interaction with a new-entrant child. SENCOs increased the specificity of responses to open questions and improved their scores on closed questions, with a significant improvement in knowledge about characteristics of the children. Eleven strategies were counted in the videoed interactions; seven improved and two deteriorated. SENCOs reported satisfaction with programme content and length. Additional research is recommended to further develop the PD programme into an effective resource for classroom teachers.

Practice Paper

Keywords: classroom, language, professional development, specific communication disorder, teacher.

INTRODUCTION

Specific communication disorders: definition and prevalence

Children with specific communication disorders (SCDs) are characterised by delayed or disordered acquisition of oral language in the absence of other major neurological, physical or global impairments (Knox, 2002). Tomblin et al. (1997) found a prevalence of 7.4% amongst five-year-old children in the United States, which is consistent with figures from the United Kingdom (UK) (Dockrell & Lindsay, 1998; Knox, 2002; Purdy, McConnell, Fraser & Gillespie, 2007).

Specific communication disorders are commonly referred to as specific language impairment (SLI) or more recently, specific speech and language difficulties (SSLD) (Dockrell & Lindsay, 1998). Due to the heterogeneous nature of children with SCDs and the fact that the terms "SLI" and "SSLD" are not used in New Zealand currently, this population will be referred to herein as *children with specific communication disorders (SCDs)*.

Impact of specific communication disorders on school-aged children

Specific communication disorders which continue beyond the pre-school years are likely to be long-term (Stothard, Snowling, Bishop, Chipchase & Kaplan, 1998). They have been shown to have a significant impact on affected children academically (Dockrell & Lindsay, 1998; Knox, 2002; Stothard et al., 1998), socially and behaviourally (Jerome, Fujiki, Brinton & James, 2002; Knox & Conti-Ramsden, 2003). Dockrell and Lindsay (1998) found an average delay of two years in the language and literacy skills of 59 Year 3 students with SCDs in the UK. Knox (2002) found that the majority of a group of 100 Year 6 students with SCDs in the UK did not reach the minimum standard in national curriculum assessments across subjects. Oral language is the medium of instruction in mainstream schools. Children with impaired language will therefore have difficulty accessing all areas of the curriculum.

North Shore Language Unit and inclusion

The majority of children with SCDs in New Zealand are educated in mainstream settings. New Zealand's only language unit, the North Shore Language Unit (NSLU), is based at Takapuna Primary School in Auckland and is due to close this year. This unit provides two years of full-time education for children with severe SCDs from new-entrant level to age seven. Achieving successful transitions from the NSLU to mainstream settings was one of the motivations for the current study. The majority of New Zealand teacher education programmes do not include compulsory papers on inclusive education. With the closure of the NSLU, virtually all children with SCDs will be educated in mainstream settings, with teachers who have received no training in this area.

International research indicates that teachers perceive they lack knowledge, training, resources and confidence to work with children with special needs (Dockrell & Lindsay, 2001; Marshall, Ralph & Palmer, 2002; Sadler, 2005; Scruggs & Mastropieri, 1996). Conti-Ramsden, Botting, Knox, and Simkin (2002) found that most mainstream teachers receiving a child from a language unit felt under-qualified and ill-resourced. Children

in their classes performed more poorly on language measures than those whose teachers were happy with the placement, highlighting the link between teacher perceptions and outcomes for children with SCDs.

Professional development programmes for teachers

The limited coverage of inclusive education in initial teacher education means teachers are likely to need post-graduate and in-service professional development (PD) in this area. Research investigating effectiveness of such programmes has shown the difficulty of changing teacher practice, and highlighted aspects of PD programmes that may lead to greater success (Ahsam, Shepherd & Warren-Adamson, 2006; Coggins, 2008; Gersten, Vaughn, Deshler & Schiller, 1997; Girolametto, Weitzman, & Greenberg, 2003; Showers, Joyce & Bennett, 1987).

Professional development programmes targeting language skills at the pre-school level were investigated by Girolametto et al. (2003) and Ahsam et al. (2006). In both studies pre-school teachers were trained to facilitate children's language development and interaction skills, and positive outcomes were shown. Coggins (2008) implemented a PD programme focusing on conversation, auditory processing, and vocabulary learning for teachers at an Australian primary school. A pre-/post-test showed a positive shift in teacher knowledge. Teacher feedback was overwhelmingly positive.

The aim of the present pilot study was to create a PD programme for SENCOs that would (1) increase SENCO knowledge about SCDs and (2) increase their facilitative interaction skills with children with SCDs. SENCOs are primary school teachers with an additional role of overseeing the needs of children with special needs within their school. The ideas of several authors were drawn upon, including Girolametto et al. (2003), Ahsam et al. (2006), Coggins (2008) and Wellington and Wellington (2002). It was hypothesised that following the PD programme, SENCOs would (1) demonstrate improved knowledge about SCDs through their responses to a knowledge questionnaire and (2) demonstrate increased use of strategies covered in the PD programme during a videoed interaction with a child. If successful, the PD programme and evaluation tools could be further developed for a wider group of teachers.

METHODOLOGY

Participants

Six SENCOs from different primary schools on Auckland's North Shore participated. They came from schools that parents of current NSLU attendees were considering enrolling their children in, after they had left the language unit. Informed consent was obtained from parents of NSLU children, and principals and SENCOs of the mainstream schools. Participating SENCOs had between 17 and 30 years teaching experience and reported little or no previous training related to working with children with SCDs.

The new-entrant teacher at each participating school was asked to identify a child who may benefit from additional oral language support. Informed consent was obtained from the parents/caregivers. The researcher also obtained consent from the children by reading aloud to them from an assent form written in child-friendly language. The researcher signed the form if the child agreed to participate. Information on the children's speech and language status was not collected as the investigation focused on SENCOs' interaction strategies.

Design and procedure

A PD programme, entitled *Working with Children with Communication Disorders*, was developed by the authors. Three SENCOs attended the programme together, and the remaining three attended individually. The programme aimed to (1) increase SENCO knowledge about SCDs, (2) assist SENCOs to interact more effectively with children with SCDs in order to maximise the children's learning and, (3) provide a package which SENCOs could easily deliver to other teachers.

Three one-hour sessions consisted of a powerpoint presentation, questions for discussion and practical activities. The focus of each session was as follows:
• Session 1: Introduction to communication disorders and general strategies for teachers.
• Session 2: Strategies for specific areas of difficulty.
• Session 3: Communication disorders and the curriculum.

SENCOs were asked to try specific strategies in the classroom between sessions for discussion in the following session. Following final assessment, each SENCO was given a resource folder and compact disc containing materials used during the programme.

A pre-test/post-test, within-subjects design was used to measure outcomes. SENCOs were assessed using a (1) knowledge questionnaire and (2) videoed interaction working on a set task with a child, prior to and following participation in the PD programme. SENCOs also completed a programme evaluation questionnaire.

The knowledge questionnaire contained two parts. Responses to Part 1 were collected before Part 2 was given.
Part 1 contained three open questions:
1) What characteristics would you expect a child from the NSLU to have?
2) Think about the curriculum. What will the child have difficulty with? Why?
3) In what ways could you help this child in the classroom?

Part 2 contained 40 closed questions to be answered with *yes, no* or *unsure*, and was in two parts:
Part A: Characteristics of children from the NSLU.
Part B: Strategies to help these children in the classroom.

Videoed interaction data was obtained by videotaping each SENCO completing a set task within a 20-minute time limit with the child participant from their school. Materials provided were: written instructions about how to complete the task; reading book; laminated line drawing related to the book with five items coloured in and three additional items drawn in colour; uncoloured copy of the same drawing; 10 different coloured pencils, including the eight colours used in the laminated picture. Two different reading books were used in counter-balanced order across SENCOs and across sessions. The task required SENCOs to: (1) go through the book with the child, trying to ensure that by the end (a) the SENCO had some idea of the child's concept of print and/or reading ability, and (b) the child had a good understanding of the book's content, and (2) get the child to colour and draw on their copy of the picture so it looked like the model picture. SENCOs were instructed to refrain from pointing to the coloured pencils or parts of the picture.

RESULTS

Questionnaire: open questions
The number of relevant points made by each SENCO for each open question was tallied (Table 1) and responses were analysed using content analysis (Thomas, 2006). Points were deemed relevant if they related directly to the question asked, even if they were not consistent with specific programme recommendations.

Qu.1 = child characteristics; Qu.2 = areas of difficulty;
Qu.3 = help in classroom

	Baseline				Final				Difference
	Qu. 1	Qu. 2	Qu. 3	Total	Qu. 1	Qu. 2	Qu. 3	Total	
SENCO 1	5	6	4	15	2	3	7	12	-3
SENCO 2	5	5	5	15	7	5	7	19	4
SENCO 3	3	3	1	7	4	2	6	12	5
SENCO 4	6	3	4	13	7	6	6	19	6
SENCO 5	5	5	4	14	3	2	6	11	-3
SENCO 6	5	5	9	19	5	6	6	17	-2
Total	29	27	27	83	28	24	38	90	7

Table 1: Number of relevant points made by each SENCO for open questions at baseline and final assessment.

The most notable change was seen in Question 3, for which the number of relevant points increased by 11, and five SENCOs showed improved knowledge. More detailed sub-categories were included in responses to this question after training, especially under *strategies for giving instructions* and *visual aids*.

Content analyses results indicate that following the PD programme:
• Information about strategies was more salient than theoretical information
• SENCOs were more focused on comprehension difficulties, particularly giving instructions and using visual aids
• There was more focus on the child's overall functioning in the classroom rather than specific deficits
• Some comments made at baseline that were not discussed or were discouraged during the PD programme did not appear at final assessment.

Questionnaire: closed questions
Results for Parts A and B were analysed separately (Table 2). Two points were assigned for correct answers, one point for *unsure* and no points for incorrect answers, with a possible total of 40 points for each part. The mean score for each part across the six SENCOs was calculated for baseline and final assessments, and compared using a Wilcoxon Matched Pairs Test. There was a significant improvement in Part A scores [Z=2.02, p=0.04]. Part B scores also increased, but the difference did not reach significance [Z=1.62, p=0.11]. Overall, there was an increase in the number of questions answered correctly, the number of questions answered incorrectly remained largely unchanged and there was a drop in *unsure* responses.

[a] Questions about characteristics; 20 items
[b] Questions about strategies; 20 items

Section of Questionnaire	Baseline			Final		
	Mean	SD	Range	Mean	SD	Range
Part A[a]	27.33	3.83	22-31	32.67	4.37	27-38
Part B[b]	25.50	1.64	24-28	29.00	3.74	25-35

Table 2: Baseline and final scores for each section of the closed questionnaire.

Closed questions were identified where there was an increase of three or more SENCOs answering correctly at final compared with baseline assessment, as these were the most useful for measuring change. The closed questions meeting this criterion related to:
(1) awareness of: a) the range of difficulties faced by children with SCDs and b) the children's difficulties being specific to language, and
(2) importance of teachers reducing language load and augmenting talk with gesture.

Videoed interactions
Videos were analysed for the number of occurrences of 11 strategies covered in the PD programme (Table 3). Strategies were selected which were appropriate for

use in a one-to-one setting, could be counted reliably, and encompassed a broad range of areas covered. For six strategies, negative points were counted when the strategy was not used when indicated, or a specified converse behaviour was observed. *Improvement* was defined as an increase in positive points, combined with a decrease or no change in negative points for strategies where negative points were measured. *Deterioration* was defined as a decrease in positive points, combined with an increase or no change in negative points for strategies where negative points were measured. Other patterns were defined as *neutral*. Detailed guidelines were developed to ensure consistency in counting the strategies, and the researchers watched each video several times to check accuracy. Due to time constraints, an inter-rater reliability check was not possible as part of this pilot study, however, ratings were discussed amongst the researchers to ensure consistency in the coding of behaviours.

The mean number of points for each strategy at baseline and final assessment was compared using Wilcoxon Matched Pairs Tests. No changes were statistically significant at the $p<.05$ level; however there was a statistical trend for reduction of negative points on the following measures: G4 (not attempting to elicit a correct answer) [$Z=1.83$, $p=0.07$] and C1 (giving indirect instructions) [$Z=1.75$, $p=0.08$]. Mean session lengths were: baseline 15.54 minutes (SD 5.08; range 8.33-21.17); final 16.36 minutes (SD 4.07; range 11.45-21.45).

[a]G=general (whole session); R=reading activity only; C=colouring activity only

Code[a]	Strategy	Difference in means		Outcome
		Positive points	Negative points	
G1	Active listening	0.17	---	Improved
G2	Visual aids to highlight words	2.50	---	Improved
G3	Response time	1.33	0.00	Improved
G4	Cueing strategies	1.83	-1.00	Improved
R1	Establishing story context	-2.5	---	Deteriorated
R2	Highlighting story vocabulary	1.5	---	Improved
R3	Discussion following reading	-3.5	---	Deteriorated
C1	Direct instructions	0.83	-2.83	Improved
C2	Breaking instructions down	-0.33	-0.33	Neutral
C3	Giving time to complete task	0.33	-0.33	Improved
C4	Exact repetition if needed	-0.50	-1.17	Neutral

Table 3: Differences in mean number of occurrences of strategies (positive and negative points) at baseline and final assessments and interpretation of outcome.

Programme evaluation questionnaires
Programme evaluation questionnaires were returned by five of the six SENCOs. Results of Part 1, where SENCOs were required to respond using a seven-point scale, are listed in Table 4. Responses to each open question contained in Part 2 of the questionnaire were organised into data-driven categories. A total of seven comments (both general and specific) were made about practical strategies under the *most useful parts of the programme* question. The majority of respondents did not make any comments under *least useful parts of the programme* and *additional things they would like to see in the programme*. Under *impact on day-to-day teaching*, five comments were made about modifying teacher-talk style, and two comments were made about increased awareness of children's needs. Four SENCOs felt increased confidence about working with a child from the NSLU, and three commented that they could refer to the programme notes. One SENCO commented that the realities of the classroom would have an impact on the support they could offer. Four SENCOs felt that the length of the programme was *just right*; the fifth did not respond to this question.

[a] Responses on a seven point scale, where 1=strongly disagree and 7=strongly agree

Question	Mean[a]	SD	Range
1. I have a better understanding of communication disorders now than I did before I took part in this programme.	5.8	0.84	5 - 7
2. I feel better equipped for working with children with communication disorders now than I did before I took part in this programme.	6.0	0.71	5 - 7
3. There are aspects of the training that I am able to use immediately in my day-to-day teaching.	5.8	0.45	5 - 6
4. I feel confident about passing my learning on to other teachers at my school.	6.2	0.45	6 - 7

Table 4: SENCO responses to Part A of the programme evaluation questionnaire.

DISCUSSION
This study aimed to increase SENCO knowledge of SCDs, and provide strategies which SENCOs could use to assist children with SCDs to succeed in the classroom. Outcomes were measured using questionnaires and videoed interactions.

Knowledge questionnaire
Part 1 of the knowledge questionnaire asked three open questions to gather information about the SENCOs' general understanding of SCDs and their impact on children. The 40 closed questions in Part 2 aimed to gather more specific information about the SENCOs' understanding of particular aspects of SCDs. Results indicate that practical information about strategies may have been more salient than theoretical information about SCDs. This is consistent with the findings of Gersten et al. (1997), who highlighted "the reality principle", that is, the importance to teachers of suggestions which are concrete, practical and specific.

In responses to the open questions, there was a much greater emphasis on comprehension difficulties at final than baseline assessment. This may reflect raised awareness of the comprehension difficulties faced by children with SCDs, and the pervasive impact of these difficulties on accessing the curriculum (Dockrell & Lindsay, 1998). The changes suggest that, after training, SENCOs were thinking more about the child in the context of the classroom than focusing on their deficits. The programme covered other topics that were less strongly reflected in responses such as modification of curriculum tasks and strategies to assist with reading comprehension. Future modifications of the programme should consider how best to change knowledge and behaviour in these areas.

Accuracy of responses to the closed questions significantly improved for Part A but not Part B, suggesting that SENCOs gained more knowledge about characteristics of children with SCDs than strategies to use with them. This is not consistent with responses to open questions and the use of strategies during videoed interactions, and is likely to reflect poor closed question design. The closed questions were designed so that it would be difficult to guess the correct answer, leading to somewhat obscure wording, which could have contributed to the negative finding. For example, for Part B, Question 4 (*ensure there is adequate lighting in the room*), several SENCOs commented that adequate lighting would be important for all children, so answered *yes*. The intended answer was *no*, as this was not specifically relevant to children with communication disorders. The discrepancy in these results highlights the value of including a range of outcome measures.

The knowledge questionnaire was designed specifically for this pilot study. Many previous studies looking at the effectiveness of PD programmes for teachers measured changes in observed behaviours, but not knowledge (Ahsam et al., 2006; Gersten, Morvant & Brengelman, 1995; Girolametto et al., 2003). Coggins (2008) used a questionnaire specifically related to the material she taught. As the questionnaire for the current study was designed to measure SENCO knowledge at a more general level it cannot easily be compared with existing literature. Some items in the knowledge questionnaire should be revised and reliability should be confirmed before it is used again as an evaluation tool.

Videoed interactions
The 11 strategies measured on the videoed interactions related to the ways in which SENCOs used language to facilitate successful participation for the child. Conversational analysis research has shown that the structure of conversation can affect learners' comprehension and expression (Schegloff, Koshik, Jacoby & Olsher, 2002). The way teachers use language is particularly important for children with SCDs (Nelson,

1991). There were no statistically significant changes in the coded results of the videoed interactions; however, there were some interesting trends. An improvement was seen for seven of the eleven strategies. Four of these (G1 active listening; G2 visual aids to highlight words; R2 highlighting story vocabulary and C1 direct instructions) are directly related to facilitating comprehension. A further two (G3 response time; C3 giving time to complete task) relate to comprehension in that they allow increased processing time and reduce language load. These findings are consistent with responses to the knowledge questionnaire. Comprehension difficulties and the use of visual aids and clear instructions were mentioned more frequently in responses to the open questions at final than baseline assessment. There was also a marked improvement in correct answers to the closed question about using gesture when speaking.

Showers et al. (1987) found that teachers' actions are directed by the cognitions which enable a practice to be selected and used appropriately. They emphasised the importance of generating these cognitions as part of PD programmes. SENCOs' increased knowledge of comprehension difficulties, evident in the knowledge questionnaire responses, may have led them to use a larger number of strategies that would assist with comprehension.

An apparent deterioration was found in the use of two strategies (R1 establishing story context; R3 discussion following reading). Both involved engaging the child in discussion, often by asking questions. Knowledge questionnaire responses indicated increased SENCO awareness of comprehension difficulties, and that asking a lot of questions may be inappropriate. This may have led to reduced discussion about the story. It would be beneficial to include in the PD programme alternatives to questioning, such as tasks to improve syntactic awareness and teaching the child strategies to monitor their comprehension (Tunmer & Cole, 1991).

The lack of significant findings for the videoed interactions may reflect the constraints of the selected tasks, or a lack of statistical power due to the small number of participants. Alternatively, the problem may have been lack of opportunity for observation and feedback for SENCOs using the recommended strategies in the classroom. Coaching with regular feedback and discussion is an important element of changing teacher behaviour (Gersten et al., 1995; Gersten et al., 1997; Showers et al., 1987). It may be beneficial to build this kind of coaching into the programme, although the benefits would need to be weighed against the additional time commitment.

The ability to draw comparisons between the video and questionnaire data highlights the benefit of measuring change in both knowledge and observed behaviours.

Future studies should also include inter-rater reliability checks of the video data.

Programme evaluation questionnaires

SENCOs were generally happy with the content and length of the programme. The enthusiasm with which they participated despite their busy timetables indicates that they strongly felt the need for support around working with children with SCDs. They felt the programme had had an impact on their day-to-day teaching, and were more confident about working with children with SCDs, as well as educating other staff. This feedback is similar to that received by Coggins (2008) following her PD programme for primary school teachers.

SUMMARY AND CONCLUSIONS

Results of this pilot study investigating the impact on SENCO knowledge and behaviour of a short, relatively simple PD intervention are encouraging. SENCOs gave more relevant, specific answers to open questions, scores improved on closed questions with the change reaching significance for "characteristics", and improvements were seen on seven of the eleven videoed interaction strategies. Results suggest the most salient information related to giving instructions clearly, using visual aids, and the impact of SCDs on performance across all areas of the curriculum.

Future PD programmes should include opportunities for observation and feedback in the classroom and more strategies for assisting children with SCDs with reading comprehension. Measuring both knowledge and observable behaviours is valuable. The three-hour PD programme improved SENCO knowledge of SCDs and there was a trend for increased use of some strategies, particularly those related to facilitating comprehension. Thus, further development of the PD programme and outcome measures is warranted.

REFERENCES

Ahsam, S., Shepherd, J., & Warren-Adamson, C. (2006). Working with pre-school practictioners to improve interactions. *Child Language Teaching and Therapy, 22*(2), 197-217.

Coggins, W. (2008). *An oral language toolkit for primary teachers: A school specific programme.* Paper presented at the Reflecting Connections Conference, Auckland, New Zealand.

Conti-Ramsden, G., Botting, N., Knox, E., & Simkin, Z. (2002). Different school placements following language unit attendance: Which factors affect language outcome? *International Journal of Language and Communication Disorders, 37*(2), 185-195.

Dockrell, J. E., & Lindsay, G. (1998). The ways in which speech and language difficulties impact on children's access to the curriculum. *Child Language Teaching and Therapy, 14*(2), 117-133.

Dockrell, J. E., & Lindsay, G. (2001). Children with specific speech and language difficulties: The teachers' perspective. *Oxford Review of Education, 27*(3), 369-394.

Gersten, R., Morvant, M., & Brengelman, S. (1995). Close to the classroom is close to the bone: Coaching as a means to translate research into classroom practice. *Exceptional Children, 62*(1), 52-66.

Gersten, R., Vaughn, S., Deshler, D., & Schiller, E. (1997). What we know about using research findings: Implications for improving special education practice. *Journal of Learning Disabilities, 30*(5), 466-476.

Girolametto, L., Weitzman, E., & Greenberg, J. (2003). Training day care staff to facilitate children's language. *American Journal of Speech-Language Pathology, 12*(3), 299-311.

Jerome, A. C., Fujiki, M., Brinton, B., & James, S. L. (2002). Self-esteem in children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 45,* 700-714.

Knox, E. (2002). Educational attainments of children with specific language impairment at Year 6. *Child Language Teaching and Therapy, 18*, 103-124.

Knox, E., & Conti-Ramsden, G. (2003). Bullying risks of 11-year-old children with specific language impairment (SLI): Does school placement matter? *International Journal of Language and Communication Disorders, 38*(1), 1-12.

Marshall, J., Ralph, S., & Palmer, S. (2002). 'I wasn't trained to work with them': Mainstream teachers' attitudes to children with speech and language difficulties. *International Journal of Inclusive Education, 6*(3), 199-215.

Nelson, N. W. (1991). Teacher talk and child listening: Fostering a better match. In C. S. Simon (Ed.), *Communication skills and classroom success: Assessment and therapy methodologies for language and learning disabled students.* Eau Claire: Thinking Publications.

Purdy, S. C., McConnell, L., Fraser, K., & Gillespie, L. (2007). Effectiveness of language units for children with severe speech and language disorder: Review of literature and evaluation of curriculum outcomes for children in the North Shore Language Unit and a comparison group of children in the mainstream. *Report prepared for Ministry of Education.*

Sadler, J. (2005). Knowledge, attitudes and beliefs of the mainstream teachers of children with a preschool diagnosis of speech/language impairment. *Child Language Teaching and Therapy, 21*(2), 147-163.

Schegloff, E. A., Koshik, I., Jacoby, S., & Olsher, D. (2002). Conversational analysis and applied linguistics. *Annual Review of Applied Linguistics, 22*, 3-31.

Scruggs, T. E., & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. *Exceptional Children, 61*(1), 59-74.

Showers, B., Joyce, B., & Bennett, B. (1987). Synthesis of research on staff development: A framework for future study and a state-of-the-art analysis. *Educational Leadership, 45*(3), 77-87.

Stothard, S. E., Snowling, M. J., Bishop, D. V. M., Chipchase, B. B., & Kaplan, C. A. (1998). Language-impaired preschoolers: A follow-up into adolescence. *Journal of Speech, Language, and Hearing Research, 41*, 407-418.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27*, 237-246.

Tomblin, L. B., Records, N. L., Buckwalter, P., Zhang, X., Smith, E., & O'Brien, M. (1997). Prevalence of specific language impairment in kindergarten children. *Journal of Speech, Language, and Hearing Research, 40*, 1245-1260.

Tunmer, W. E., & Cole, P. G. (1991). Learning to read: A metalinguistic act. In C. S. Simon (Ed.), *Communication skills and classroom success: Assessment and therapy methodologies for language and learning disabled students.* Eau Claire: Thinking Publications.

Wellington, W., & Wellington, J. (2002). Children with communication difficulties in mainstream science classrooms. *School Science Review, 83*(305), 81-92.

ACKNOWLEDGEMENTS

AUTHOR PROFILE

Michele Cunningham

Michele Cunningham is a recent speech-language therapy graduate, having completed the University of Auckland's Master of Speech Language Therapy Practice (MSLTPrac) degree in 2008. This work was completed as part of the MSLTPrac research requirements, in collaboration with two University of Auckland Speech Science staff members, Drs Suzanne Purdy and Linda Hand. It is hoped that this work will promote knowledge of specific communication disorders and facilitate development of resources to help these children succeed in mainstream education. Michele is currently working with adults with communication and swallowing disorders at Tauranga Hospital; however she also retains a strong interest in child language.

Linda Hand

Linda Hand is a Senior Lecturer in the Speech Sciences Programme, Department of Psychology at the University of Auckland. Linda worked as a Speech Language Therapist in NZ for around 10 years, before going to the US to do a MA in Speech Language Pathology at the University of Iowa, then working as a lecturer at the University of Sydney in Communication Sciences and Disorders where she stayed for 20 years, in the process completing a PhD in Linguistics at Macquarie University. She returned to NZ in 2007 to take up her present position. Her fields are child language, functional linguistics and culture and communication.

Suzanne C. Purdy

Suzanne C. Purdy is Head of Speech Science in the Department of Psychology at the University of Auckland. Her background is in psychology, audiology and speech science. After completing her Diploma in Audiology at the University of Melbourne she worked as a hospital and research audiologist before undertaking her PhD studies in the United States. She completed her PhD at the University of Iowa in 1990 and returned to New Zealand to a lectureship in the Audiology program at the University of Auckland. After ten years in New Zealand Dr Purdy moved to Sydney to a Senior Research Scientist position at National Acoustic Laboratories. She returned to New Zealand to take up her current position as Head of Speech Science in 2003.