Changes in New Zealand early childhood teachers' use of strategies to facilitate children's emergent literacy development

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The material presented in this thesis is the original work of the candidate except as acknowledged in the text, and has not been previously submitted, either in part or in whole, for a degree at this or any other University.

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ABSTRACT

The development of children's emergent literacy and language skills is facilitated by early childhood teachers. However, there appears to be variable practices amongst early childhood teachers, indicating that teachers may benefit from professional learning and development to strengthen their practice in this area. This project investigated the changes 15 New Zealand early childhood teachers made in their use of strategies to support children's emergent literacy development, after participating in two Teacher Talk (Greenberg, 2006) workshops combined with video coaching. The workshops focused on the use of meaning related and code based skills while interacting with children. After each workshop, teachers participated in an individual videocoaching session, focused on building teachers' self awareness and reflective skills in supporting children's emergent literacy. A multiple baseline across subjects research design (Portney & Watkins, 2014) was utilised to establish the effectiveness of the workshops and videocoaching for enhancing the teachers' use of meaning and code related strategies. Of the fifteen participants in the project, six made significant changes in their use of meaning related strategies, and three made significant changes in their use of code based strategies while sharing books with children. This project indicates that Teacher Talk combined with video coaching is promising professional learning and development for early childhood teachers in facilitating children's emergent literacy and language development.

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Introduction

Literacy is fundamental to achieving economic and social participation in society (National Early Literacy Panel, 2008). Literacy includes skills such as decoding, reading comprehension, writing and spelling (National Early Literacy Panel, 2008). Poor literacy skills can lead to long term vocational and psychosocial difficulties, that impact on life long outcomes around health, employment and social success (Antoniazzi, Snow, & Dickson-Swift, 2010). Successful literacy and learning outcomes impact positively on employment and psychological well being even when other demographic factors such as socioeconomic status are taken into account (Law, Rush, Schoon, & Parsons, 2009). With employment opportunities increasingly technology-driven, roles that requires low literacy levels are disappearing (Snow, 2016), further limiting opportunities for those with literacy difficulties.

An integral part of successful literacy acquisition is strong oral language, with spoken language skills supporting the development of literacy (Catts, Fey, Zhang, & Tomblin, 1999). Oral language includes grammatical, semantic and narrative knowledge (Whitehurst, & Lonigan, 1998). It includes knowledge of different syntactical structures, a wide vocabulary and an understanding of narrative text structure. Furthermore, the ability to understand and use grammatical, semantic and narrative knowledge in speaking is also an essential component of oral language proficiency. Oral language skills directly contribute to literacy through supporting decoding, spelling, reading fluency, reading comprehension and writing (National Early Literacy Panel, 2008). Being able to understand and use grammatical and narrative knowledge supports with understanding and using text, as well as with learning literacy.

Oral language ability, beyond its contribution to literacy, is also important for well being and successful learning (Snow, 2016). Being able to collaborate, discuss and problem solve verbally is a necessary part of learning in the classroom (Dockrell, Bakopoulou, Law, Spencer, & Lindsay, 2015). When the development of children's oral language skills are delayed, children are more likely to be described by their kindergarten teachers as having difficulties with social communication and behaviour competence (Justice, Bowles, Turnbull, & Skibbe, 2009). Children with language difficulties are also more likely to experience difficulties with social interactions, and are more likely to experience bullying and have difficulties in making friends (McCormack, Harrison, McLeod, & McAllister, 2011).

Children's difficulties with social communication and behaviour, as related to an underlying language difficulty may further compound their challenges in developing literacy skills. Social communication difficulties may particularly affect a child's ability to engage with teacher instruction, work collaboratively with peers and ask for help when necessary. Underlying language difficulties may impact on children's wellbeing, particularly in building positive, constructive relationships with their peers and with adults (McCormack, Harrison, McLeod & McAllister, 2011).

Emergent Literacy

Literacy development begins prior to the onset of formal literacy instruction with the development of emergent literacy knowledge in the preschool years (Westerveld, Gillon, van Bysterveldt, & Boyd, 2015). Emergent literacy skills can be broken down into code based skills, such as letter knowledge, print concepts and phonological awareness. Also included in emergent literacy are meaning-related skills such as vocabulary, grammatical ability and oral narrative ability (Justice & Pullen,

2003). This section reviews the importance of code based emergent literacy skills, followed by meaning related emergent literacy skills.

Code based skills include letter knowledge, print concepts and phonological awareness (Justice & Pullen, 2003). Letter knowledge is the ability to understand the relationship between individual graphemes and phonemes, and being able to both name and say the sound of individual letters (Justice & Pullen, 2003). Concepts about print includes understanding that print has meaning, the importance of directionality in print both at a page and book level, and concepts such as book, author and title (National Early Literacy Panel, 2008). Phonological awareness includes skills such as being able to identify sounds at the beginning and ends of words, break words into syllables and sounds, and to blend sounds into words, independent of meaning (National Early Literacy Panel, 2008).

Code based skills are directly linked to later success with word decoding and understanding the link between spoken and written words (Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012). Letter knowledge, which supports decoding, develops through experiences with books, and with explicit teaching with a familiar adult in context (National Early Literacy Panel, 2008). An example is where a child will use their knowledge of the sounds that letters make in order to sound out a word and read it. Concepts about print develop through supportive experiences with adults who facilitate conversation about print conventions, and make explicit how print works. This might include commenting on the title, or pointing to the text while reading to indicate directionality (Justice & Kaderavek, 2004). This supports children with understanding the conventions around print use. Phonological awareness is frequently developed through engaging in specific activities designed to directly target these skills, with the feedback provided by the adult important for engaging the

child and for developing their skills in this area (National Early Literacy panel, 2008). An example of where a child uses phonological awareness is to break words into sounds, in order to spell a word as part of writing. In particular, phonological awareness and letter knowledge are identified as having a medium to large predictive relationship with later literacy success (National Early Literacy Panel, 2008). Therefore, children who come to the task of formal literacy instruction with strong code based emergent literacy knowledge are more likely to respond favourably to literacy instruction.

Besides code based skills, meaning-related skills are also part of emergent literacy. Meaning-related skills include vocabulary knowledge, grammatical ability and oral narrative ability (Justice & Pullen, 2003). Vocabulary knowledge, including the development of abstract, decontextualised vocabulary supports later reading comprehension (van Kleeck, Vander Woude, & Hammett, 2006). Decontextualised vocabulary includes language used to reason, imagine, pretend, problem solve, predict or infer that goes beyond the present context, and is frequently language that is only heard in literacy based activities (van Kleeck, et al., 2006). Decontextualised language can be more precise or abstract, in order to provide more information as the background is not known. Teacher use of sophisticated vocabulary in early childhood predicts later reading comprehension and word recognition abilities (Dickinson & Porche, 2011). Grammatical ability includes developing an understanding of grammatical concepts of increasing length and complexity (Justice & Pullen, 2003). Oral narrative ability is an understanding of story structure, and being able to retell stories in a coherent manner, predicts later reading comprehension (Bishop & Adams, 1990). Opportunities to hear stories multiple times, ask questions about them, and retell them supports the development of oral narrative skills (McKeown & Beck,

2003) This can support learning across a range of subject areas, including Maths (Newman Thomas, Van Garderen, Scheuermann, & Ju Lee, 2015). Teacher facilitation of meaning based skills in everyday contexts as part of naturalistic interactions can support the development of meaning based emergent literacy skills (Justice & Pullen, 2003).

Shared book reading

Children's exposure to code based skills such as letter knowledge, and meaning related skills such as decontextualised language, generally takes place as part of book reading. In an early childhood setting, shared book reading is an ideal environment for teachers to facilitate the development of children's emergent literacy and language skills. Meaning related skills such as vocabulary and developing an understanding of oral narrative (Girolametto, Weitzman, & Greenberg, 2012) are supported in an authentic and meaningful context, that is child led and part of everyday routines and activities. High rates of decontextualised language are observed, and there are multiple opportunities for talking about the structure of the text (Cabell et al. 2012). Children have opportunities to ask questions and retell stories, as part of developing their knowledge of narrative structure.

Code based skills are supported within shared book reading through the adult commenting on specific letters to support the development of letter sound knowledge. Through explicit references to print both verbally and visually (by pointing), print knowledge is supported within book reading (National Early Literacy Panel, 2008). Phonological awareness can also be supported either through the emphasis of rhyme or through the adult commenting on the sounds in words (Justice & Pullen, 2003).

Shared book reading supports both the development of code based and meaning related skills, which in turn support later literacy.

Predictive value of emergent literacy skills

Emergent literacy skills predict the development of later literacy skills, including reading fluency and comprehension, spelling and writing (National Early Literacy Panel, 2008). Code based skills, including phonological awareness and letter sound knowledge, are strongly predictive (r = >.5 , National Early Literacy Panel, 2008) of later literacy development, including decoding, reading comprehension and spelling. Being able to sound out and blend sounds in words and then accurately write these supports the development of decoding and spelling (Hulme et al., 2012). Knowledge of how print works supports the development of decoding and reading fluency, particularly in knowing where to start reading on the page (National Early Literacy Panel, 2008).

Meaning based skills also predict the development of later literacy skills. Being able to use oral narrative skills to tell a story predicts later reading comprehension (Bishop & Adams, 1990). Vocabulary knowledge also predicts later reading comprehension with a more sophisticated, decontextualised vocabulary supporting understanding of text (van Kleeck, et al., 2006, Dickinson & Porche, 2011).

Children at risk of low emergent literacy skills

Certain groups of children are at risk for experiencing difficulties with emergent literacy. Two prominent groups who are more likely to experience barriers to emergent literacy development are children with language difficulties (Pentimonti,

Murphy, Justice, Logan, & Kaderavek, 2016) and children who come from a low socio economic background (Locke, Ginsborg & Peers, 2002).

Children with language difficulties are more likely to experience difficulties with developing emergent literacy knowledge (Catts et al.,1999) which is reflected in their later reading comprehension and phonological processing (Harrison, McLeod, Berthelsen, & Walker, 2009). For example, second grade children with reading difficulties had higher rates of language difficulties and phonological processing difficulties in Kindergarten (Catts, et al., 1999). Oral language difficulties include poor vocabulary and difficulties with text level processing. Phonological processing difficulties were also observed for phonological awareness (being able to blend and segment words into sounds and vice versa) and for short term auditory memory (Catts et al., 1999). Children with language difficulties are at an increased risk for experiencing difficulties with learning to read, affecting both code based and meaning based emergent literacy skills (Kaderavek, Pentimonti, & Justice, 2013).

A second group of children who are at risk for literacy difficulties are children from low socioeconomic backgrounds (Justice, Mashburn, & Pianta, et al. 2008, Locke, et al., 2002). At home, children from low socioeconomic backgrounds may be exposed to less language, have a limited number of interactive conversations, and the language that children do hear may be more directive with a limited vocabulary (Hart & Risley, 1995). Children from such backgrounds may thus have difficulties participating in extended conversations with their teachers, or there may be limited extension of conversational topics and the use of language facilitation techniques. This language delay increases the risk for these children of later academic difficulties and social skills (Piasta, et al., 2012). Focusing on the development of children's emergent literacy development may reduce the risks of difficulties with literacy for

children with language difficulties and children from low socioeconomic backgrounds.

Facilitating the development of emergent literacy skills

Quality early childhood experiences enhance the development of emergent literacy skills, and reduce the risk of later literacy difficulties (Dickinson & Porche, 2011). Frequent and responsive interactions between early childhood teachers and children can support developing knowledge of emergent literacy, for both code related and meaning related skills (Milburn et al., 2015). An explicit focus on language and emergent literacy in early childhood can support later literacy, and prevent later reading difficulties (Milburn, et al., 2015). However, integrating a focus on emergent literacy into early childhood teacher practice can be challenging.

Explicit modelling and teaching of emergent literacy skills within everyday contexts can support the development of children's knowledge of these concepts (Girolametto, Weitzman, & Greenberg, 2012, Justice & Pullen, 2003). When adults intentionally demonstrate and model these skills in context, children are exposed to ideas such as that letters make sounds, and that print has meaning. Children's learning can then be supported, as they engage with the specific focus at that time. Through responding to and extending the conversational topic, children experience multiple opportunities to engage with and enhance their knowledge of how sounds, letters and print works, and then go on to develop their emergent literacy skills (Girolametto, et al. 2012)

Sociocultural theory (Vygotsky, 1978) also supports an explicit focus on emergent literacy in an early childhood context where teaching is embedded within adult-child interactions and learning takes place in a social context. When adults

model language, print and phonological awareness within the child's zone of proximal development (Vygotsky, 1978), children are exposed to concepts and skills that are just above their current level of knowledge. Their learning is then scaffolded to support the development of these new skills (Girolametto, et al., 2012). Embedding emergent literacy as part of naturalistic, child directed activities supports the development of children's emergent literacy knowledge. This might include commenting on sounds in words or referring to print as part of interactions in play or in book reading.

Alongside naturalistic interventions, explicit and systematic teaching around code related skills such as phonological awareness and print referencing is also indicated for some children, to support the development of emergent literacy (Justice & Pullen, 2003). When a teacher draws children's attention to sounds and text, emergent literacy development is supported (Justice & Pullen, 2003). For example, when print is involved in adult-child interactions, children spend more time in engaging in reading and writing behaviours (Whitehurst & Lonigan, 1998). Embedding emergent literacy activities as part of everyday interactions with responsive adults supports later literacy development. Teacher directed activities around code based skills such as phonological awareness support the development and practice of these skills (National Early Literacy Panel, 2008).

As part of a focus on emergent literacy, quality early childhood experiences that support oral language as part of emergent literacy may also reduce the risk of language delay due to socioeconomic status (McGinty & Justice, 2009, Justice et al., 2008) and and/or the impact of language delay or disorder. Differences in children's language experiences, both in terms of quality and quantity, partially account for individual children's language development and later language outcomes (Hoff, 2003,

Girolametto & Weitzman, 2002). High quality language interactions in an early childhood context provide more opportunities for exposure to language, and participation in interactions that supports language development and later literacy development (Piasta, et al., 2012). Facilitated language experiences supports the development of meaning based skills such as vocabulary knowledge, narrative ability and grammatical knowledge (Dickinson & Porche, 2011).

High quality interactions between teachers and children includes teachers being conversationally responsive with children (Piasta, et al., 2012). Adults who are conversationally responsive use a range of language facilitating and communication facilitating techniques to support children in engaging in conversations with multiple turns (Piasta, et al., 2012). Language facilitating techniques include providing expansions, recasts and modelling appropriate language in context for children. Communication facilitating techniques include using a slow pace in conversation, and using open ended questions to facilitate engagement. Using open ended questions in conversation with children encourages more talk or extends the conversation (Cabell et al., 2015). Also included is emotional responsivity (Cabell et al., 2011) such as smiling, making eye contact and looking interested.

Adults who are responsive in conversation adjust their language to support children's engagements, particularly in their use of specific words (Dickinson & Porche, 2011). Adults also support by encouraging children to remain on topic in a conversation and to elaborate their ideas, leading to use of more complex language structures and sophisticated vocabulary (Milburn et al., 2014).
When adults are responsive, and therefore engage children in conversations with multiple turns, language development is facilitated, both in the amount and complexity of language use by children (Cabell et al., 2011)

Another aspect of high quality interactions includes conversations with multiple turns which provide opportunities to learn new vocabulary, within a supportive context with multiple linguistic cues (Cabell et al., 2015). Extended conversations can also support understanding of semantic networks between word meanings, further enriching vocabulary knowledge. When conversations with children are embedded in everyday social interactions, with the deliberate use of responsivity strategies , children's language development is supported (Dockrell et al., 2015).

Increasing the responsivity of early childhood teachers who are supporting children's emergent literacy mitigates the impact of language delay or disorder. This includes at risk groups of children with a language delay and children from a low socioeconomic background. Interventions that increase the responsivity of early childhood teachers can be effective, leading to improved emergent literacy outcomes for children, including language development (Justice, Meier, & Walpole, 2005, Justice & Pullen 2003, Cabell et al., 2011, Girolametto et al., 2012).

Early childhood teachers' skills in facilitating emergent literacy development

Despite the critical nature of early childhood teachers' role in supporting emergent literacy development, current practice in this area appears to be variable in terms of early childhood teachers' knowledge and skills (Education Review Office, 2011, Education Review Office, 2017). For example, minimal use of language facilitation techniques such as open ended questions or modelling more sophisticated vocabulary by teachers were observed and limited examples of literacy instruction that was explicit and systematic were also observed by Justice et al., (2008). Minimal references to print were also reported by Milburn et al. (2015).

Book reading, a common activity in early childhood, provides an optimal opportunity for naturalistic conversation about literacy, including specific references to print and phonological awareness. However, early childhood teachers are reported to make minimal references to print and phonological awareness during book reading, despite multiple opportunities (Milburn et al., 2015). Teachers are also reported to use more instructional, directive language rather than language that is responsive and enhances language development, such as questions that require minimal responses from children and so minimally extend thinking (Milburn et al., 2015). This may indicate that early childhood teachers need more support to integrate a focus on emergent literacy and language into their teaching practice.

A possible reason for the limited support for emergent literacy and language may be because early childhood teachers have limited expertise around developing children's emergent literacy and oral language skills (Girolametto, Weitzman, & Greenberg, 2012). Many early childhood teachers report not having accessed training around language development, either as part of their initial qualification or training to become an early childhood teacher or after qualifying (Mroz, 2006). Further, many early childhood teachers lack knowledge of typical child language development, or how to identify and support children who may be experiencing challenges (Scarinci, Rose, Pee, & Webb, 2014). Early childhood teachers may benefit from training on emergent literacy and language development and how to support these skills in children.

Besides teacher knowledge, curriculum also influences the support provided for oral language and emergent literacy development in early childhood (Westerveld, Gillon, van Bysterveldt, & Boyd, 2015). Explicit reference to the use of stories in the New Zealand curriculum, Te Whāriki (Ministry of Education, 1996) was suggested as

a potential reason for children showing improvements in story comprehension and retell ability from ages 4-5years, particularly when compared to a lack of improvement in code related skills such as naming letters, and initial phoneme awareness (Westerveld, Gillon, van Bysterveldt & Boyd, 2015). A lack of progress in code related skills may also be further connected to early childhood teachers lacking explicit phonological knowledge such as identifying sounds (as opposed to letters) in words (Carroll, Gillon, & McNeill, 2012). This has also been observed in other English speaking countries (Crim et al., 2008, Spencer, Schuele, Guillot, & Lee, 2008, Fielding-Barnsley, 2010). Early childhood teachers may find it challenging to facilitate the development of children's code based skills when they themselves may have limited knowledge.

To strengthen children's emergent literacy development, early childhood teachers may benefit from opportunities to develop their knowledge of how to support children's emergent literacy, as part of responsive interactions, within Te Whāriki (Ministry of Education, 1996), the New Zealand early childhood curriculum. Early childhood teachers may also benefit from opportunities to reflect on their knowledge of emergent literacy development, and how this links to their own knowledge of literacy and literacy practices. Developing teachers' skills and knowledge supports children who are at particular risk of experiencing literacy difficulties, including children who are experiencing a language delay and children from a low socioeconomic background.

Strengthening teachers' skills and knowledge indicates the need for effective professional learning and development for teachers. Effective professional learning and development involves a combination of underlying principles that lead to changes in teaching practice and outcomes for children (Sheridan, Pope Edwards, Marvin, &

Knoche, 2009). Principles of effective professional learning and development include that there is a rationale generated for learning new information and making subsequent changes to practice, the content relates closely to the environment in which the new learning is to be applied, and where there are opportunities to practice specific skills and for self reflection (Piasta et al., 2012). Components of effective professional learning and development include training and coaching.

Training, where a rationale for changing practice is established, and new information is shared, is a critical part of effective professional learning and development for early childhood teachers. This is where there is a focus on building skills and knowledge, facilitated by an expert, and includes a direct link to everyday practice (Milburn et al., 2015). Training provides generalised information for groups of teachers, is time limited and there is limited contact between the trainer and participants (Sheridan et al., 2009). Reflection of adult learning principles in training include offering a range of learning activities to support engagement of all learning styles. These activities might include problem solving discussions, small group brainstorming, evaluations of videos of teacher-child interactions and joint planning (Girolametto et al., 2012).

Generally, training by itself can shift teachers' knowledge, but does not always lead to changes in practice (Neuman & Wright, 2010). Teachers may also need coaching to shift their teaching practice. Coaching is a crucial element in supporting early childhood teachers' practice to support emergent literacy and oral language (Neuman & Wright, 2010). Coaching is where information is individualised for a teacher and their specific setting, and where they are supported to implement specific strategies in that setting (Wasik & Hindman, 2011). The skills and knowledge of the coach also impact on the effectiveness of the professional learning and

development, and changes in children's oral language and emergent literacy. Where speech language pathologists, with specialist knowledge around supporting oral language and emergent literacy, provided coaching to early childhood teachers, changes were seen in the teaching practices around phonological awareness (Milburn et al., 2015). This was in contrast to a similar study (Neuman & Wright, 2010), where highly qualified and experienced early childhood teachers provided coaching around oral language and literacy, and tended to focus on environmental changes. Minimal changes in teaching practice was seen as a result of the coaching (Neuman & Wright, 2010), when comparisons were made to participants who had only participated in coursework (a series of training sessions).

Coaching provides opportunities for behaviour rehearsal of the new knowledge, which then supports embedded changes in teacher practice (Sheridan et al., 2009). The use of video in coaching is an extension of the focus of coaching around supporting the implementation of specific strategies in a specific context. Video coaching has been used to film a teacher using specific strategies in context, and then reviewing the video with the coach and teacher, when then leads to a reflective conversation about the impact of the specific strategies and possible future changes (Girolametto et al., 2012).

In contrast, coaching at a distance, or at a low intensity, may be less effective (Cabell et al., 2011). When teachers videoed themselves applying strategies, and then receive coaching feedback 1-2 weeks afterwards, minimal change in teaching practice and use of language facilitation strategies was reported (Cabell et al., 2011).

Coaching appears to be crucial for changing teacher child interactions at an individual level (McCollum, Hemmeter, & Hsieh, 2011). Coaching appears to be particularly useful for supporting emergent literacy teaching, either as part of a

professional development program or as a standalone support. Video feedback and in person coaching is a critical element for supporting changes in teachers' practices to facilitate oral language and emergent literacy development in young children (McDonald et al., 2015).

Effective professional learning and development for teachers also considers intensity and sustainability (Cabell et al., 2011). Factors such as the time commitment to participate in training, or teacher release to participate in coaching while "on the floor" needs to be planned for and negotiated with teachers and their managers. Programs which require a time commitment over what a teacher is able to participate in will be a significant barrier to participation, regardless of the teachers' motivation or management support (Scarinci et al., 2014).

In summary, effective professional learning and development for early childhood teachers includes opportunities to participate in training, and direct coaching, particularly video coaching. Any professional development and learning opportunities also need to consider intensity and sustainability, particularly to support the engagement of early childhood teachers.

Effective professional learning and development for early childhood teachers to support emergent literacy

A range of effective professional learning and development programmes for early childhood teachers on increasing responsivity to support language and emergent literacy have been investigated (Girolametto, Weitzman, & Greenberg 2003, Cabell et. al., 2011, McDonald et al., 2015, Scarinci, et al., 2014, Milburn et al., 2015). Programmes that have led to positive changes in teaching practice have a combination

of training with coaching, while taking into consideration intensity and sustainability factors.

One such program is Learning Language and Loving it (LLLI) (Weitzman & Greenberg, 2002). This program, designed specifically for early childhood teachers, consists of eight x two and half hour group training sessions and six individual video coaching sessions. The training sessions include a range of activities to support adult learners, and focus on the development of responsivity skills to support emergent literacy with a particular focus on meaning-related skills. Video coaching sessions focus on building the teacher's self reflection and monitoring skills, in that a short film is taken of the teacher implementing specific strategies, and then this video is reviewed and discussed with the trainer. The early childhood teacher is supported to identify the impact of specific strategies, and future changes to be made in their teaching practice. This program has been shown to lead to changes in the ways in which early childhood teacher's use of responsivity strategies and the complexity of the teacher's oral language (Girolametto, Weitzman, & Greenberg 2003). Changes in children's language were also seen around increased participation in conversation, and an increase in use of abstract and more complex language (Girolametto et al., 2003).

Attempts to scale up or modify LLLI in order to meet the needs of participants (and funding agencies) have had varying levels of success. Cabell et al., (2011) investigated the delivery of LLLI to twenty five teachers working in nineteen early childhood centres, all in low socioeconomic areas in the United States of America. Participating teachers were spread out across a large area. Teachers participated in 3 days of inservice workshop prior to the start of the academic year, and then another 1 day of workshop later in the year. The same content over the same length of time

compared to LLLI was delivered, just compressed into 3 and 1 day workshops to meet the training needs of participants. For the video coaching component, teachers periodically filmed themselves in classrooms implementing specific strategies, and then submitted these videos for written feedback from a coach. Teachers were reported to increase their use of communication facilitating strategies such as slowing down the pace of conversation and using comments. However, there was no change in their use of language developing strategies such as recasting or talking about past events. One of the conclusions drawn by the authors from the study was that teachers may need more intensive support to shift their use of language facilitation techniques, in order to support children's emergent literacy development (Cabell, et al., 2011).

Other programmes based on LLLI have been evaluated. These tend to be of shorter duration, and probably reflect a more "real world" time commitment, and support sustainability. One example is "Let's Interact" (McDonald et al., 2015) in the United Kingdom. This training course consisted of 3 group workshops of 3 hours each. Before each workshop participating teachers videoed themselves, and then videos were reviewed as part of the workshop. Communication facilitation strategies and language development strategies were the focus of the training. Teachers were reported to increase their use of a communication facilitating strategy which was using comments to cue turn taking. A modest increase in language development strategies was also observed. The authors concluded that brief training for early childhood teachers can lead to some changes in the use of communication facilitation and language development strategies (McDonald et al. 2015). The increase in use of communication facilitation and language development strategies supported children's oral language, as part of emergent literacy.

Another shorter programme, based on the content of LLLI is Teacher Talk (Greenberg 2006). Teacher Talk consists of three x six hour workshops focused on encourage language development, supporting literacy and supporting peer interaction in early childhood centres. Evaluation of one part of this programme was carried out by Scarinci, et al. (2014) in Australia. Early childhood teachers participated in two three and half hour sessions, so the content of the first workshop of Teacher Talk was covered. There was no coaching for participants. As a result of participating in this program, teachers reported an increase in their knowledge of language development, and strategies to support language development. For the five teachers whose videotapes pre and post intervention that were analysed, an increase in use of language promoting strategies was reported (Scarinci et al., 2014).

In summary, it appears that a shortened version of LLLI may be more accessible for early childhood teachers, and meeting requirements around intensity and sustainability. Despite the shortened professional learning and development time, it appears that teachers made some changes to their use of language facilitating techniques, in order to support the emergent literacy development of children.

The Hanen programme ABC and Beyond (Greenberg, 2011) has a focus on emergent literacy, including oral language, print awareness and phonological awareness. This programme consists of seven half-day group workshops facilitated by Speech Language Pathologists and 5 individual coaching sessions for the teachers involved, facilitated by a Speech Language Pathologist. Evaluation of this programme indicated that teachers increased their references to sound and print, and increased their use of decontextualised language (Girolametto et al., 2012). Another evaluation of the same programme (Milburn et al., 2015) indicated changes in talk related to phonological awareness, but not increased references to print.

As indicated above, evaluation of programmes to support early childhood teachers' responsivity and teaching around emergent literacy has been carried out in a range of early childhood contexts. This includes the United States, United Kingdom and Australia. Each of these countries have different early childhood curriculums, and different teacher to child ratios. Particular characteristics of the New Zealand early childhood teaching context may influence the impact of a programme designed to support early childhood teachers' conversational responsivity and facilitation of emergent literacy. These characteristics include the skills and knowledge of the teachers, the focus in the curriculum, and the requirements for teacher to children ratio.

Skills and knowledge of New Zealand early childhood teachers includes their own knowledge of literacy and how to support it. A report published by the Education Review Office (2011) indicated that while there are many opportunities to support literacy in Te Whāriki (Ministry of Education, 1996), early childhood teachers were found to be lacking in their knowledge of how to support emergent literacy. They were reported to not be aware of their practices and how effective they were. Opportunities to extend children's literacy development were often not recognised, and there were limited opportunities for children to spontaneous engage in literacy in ways that were meaningful for them (Education Review Office, 2011). It appears that some New Zealand early childhood teachers may benefit form support in integrating emergent literacy practices into their teaching practices.

Having well developed skills around phonological awareness is also important for being able to model and teach these skills. Carroll, Gillon, & McNeill (2012) identified that early childhood teachers had significant difficulty in segmenting words into sounds, which then impacts on their ability to explicitly model and teach similar

skills when working with children. This then affects the ability of early childhood teachers to support the development of children's emergent literacy.

Te Whāriki (Ministry of Education, 1996) has a strong, child led focus. The curriculum focuses on learning as being socially and culturally mediated, and embedded in responsive and reciprocal relationships between adults and children (p.9 Ministry of Education, 1996). The role of the early childhood teacher is to guide, facilitate and support the learning of the child. Opportunities to utilise strategies that support language and emergent literacy development must be within the context of the curriculum. Consequently, as learning is child led (Ministry of Education, 1996), the opportunities to implement strategies are also dependent on the child. Early childhood teachers need to find opportunities to use strategies as part of naturalistic situations, and look for ways to facilitate and guide the development of emergent literacy, including oral language. Any interventions to support early childhood teachers' practices around language and literacy development must support the development of responsivity within the context of a child led curriculum.

A structural feature of the New Zealand early childhood context is the adult to child ratio. While this is variable depending on whether the early childhood service is available for the whole day or part of the day, the ratio for children aged three to five years can be at one teacher to six children, right up to one teacher to fifteen children (Ministry of Education, n.d.). This ratio is in contrast to adult to child ratios in other countries for children of the same age. For example in Ontario, Canada, the ratio is one teacher to eight children (Girolametto et al., 2003). In Queensland, Australia the ratio is one teacher to eleven children (Department of Education Queensland, 2015). This may impact on the opportunities for teacher child interactions, particularly in being responsive to children with a range of skills, and with higher numbers of

children needing teachers to have more a supervisory role of children's behaviour. This may affect the opportunities teachers have for facilitating children's emergent literacy skills within the child-led curriculum.

Overall, there are challenges for New Zealand early childhood teachers around supporting the language and emergent literacy development of the children they teach. Consequently, professional learning and development is indicated around supporting children's language and literacy development. Professional learning and development may be particularly important for teachers of children who are at risk for having literacy difficulties. This includes children who have language delays, and children from low socioeconomic background (Catts et al.,1999, Justice et al., 2008)

Appropriate professional learning and development must be aligned with Te Whāriki (Ministry of Education, 1996) and have evidence of being effective for increasing teacher responsivity and teaching around oral language and literacy. The professional learning and development must also be of an appropriate intensity and be sustainable.

The Hanen program Teacher Talk (Greenberg, 2006) has a social interactionist approach in that it focuses on supporting children's learning with everyday contexts and routines, in responsive interactions and relationships. It clearly aligns with the sociocultural approach of Te Whāriki (Ministry of Education, 1996), in that the role of the adult is to be a responsive partner in supporting the child's learning. It also emphasises the child-led context as the place for learning, as opposed to naming specific activities or resources where learning takes place.

From a curriculum perspective, Teacher Talk (Greenberg, 2006) aligns with the New Zealand Early childhood curriculum, Te Whāriki (Ministry of Education, 1996).

Teacher Talk (Greenberg, 2006) has a promising evidence base for shifting teacher practice towards increasing responsivity and supporting the development of emergent literacy (Girolametto, Weitzman, Lefebvre, & Greenberg, 2007). When combined with evidence from other programs that have a similar approach, the evidence is strengthened for leading to changes in teacher practice, and strengthening the oral language and emergent literacy skills of children (Girolametto, et al., (2012), Girolametto et al., (2003), Cabell et al., (2011), Milburn, et al., (2015)) Another aspect of Teacher Talk (Greenberg, 2006) is the manualised program, which ensures fidelity can be monitored and gives a degree of confidence about the effectiveness of the program (Kaderavek & Justice 2010).

In terms of effective professional learning and development, Teacher Talk (Greenberg, 2006) consists of interactive workshops that includes rationale for learning new information, and making subsequent changes to practice. The content relates to the early childhood teachers' context and there are opportunities to practice newly learnt skills in supportive contexts. When combined with video coaching, which further supports the implementation of strategies, then the effectiveness of Teacher Talk (Greenberg, 2006) is strengthened.

Teacher Talk (combined with video coaching) is also a program of appropriate intensity and sustainability, has potential to fit within a New Zealand early childhood context. Teachers can participate in workshops on Saturdays and video coaching can happen "on the floor" during the week.

Overall, Teacher Talk (Greenberg, 2006) combined with video coaching appears to be an appropriate professional learning and development for New Zealand early childhood teachers, to support the development of children's emergent literacy. This led to the research questions:

1. *What changes in New Zealand early childhood teachers use of strategies to support emergent literacy are seen, in response to Teacher Talk combined with video coaching?*

2. *What changes are seen in the use of strategies to promote the development of code based skills?*

3. *What changes are seen in the use of strategies to promote the development of meaning-related skills?*

Method

This study used a multiple baseline across subjects research design (Portney & Watkins, 2014) to investigate the impact of Professional Learning and Development (PLD) for early childhood teachers from three early childhood centres (ECCs). The PLD consisted of two Teacher Talk workshops (Greenberg, 2006) combined with two sessions of videocoaching. Initially the PLD was completed by 10 teachers from two ECCs. Two months later, a second group of five teachers from another ECC also participated in the research intervention. This study was approved by the University of Canterbury Educational Research Human Ethics committee.

The multiple baseline design across participants and behaviours was chosen as it allowed for investigating the impact of an intervention that was non reversible and would have carryover effects (Byiers, Reichle, & Symons 2012). This intervention design was also selected, because it is considered appropriate for interventions to support the development of children's communication skills, particularly in an educational context (Vance & Clegg, 2012). The inclusion of multiple participants strengthened the external validity of the project, particularly as all participants were early childhood teachers across three ECCs, reducing variability for the settings they worked in (Byiers, Reichle & Symons 2012).

The research design also allowed the effectiveness of the intervention to be evaluated in the manner it was required to be formatted by the Ministry of Education (MoE) and ECCs involved. These factors included (a) relatively small sample size, (b) inability to randomly allocate participants across intervention settings, (c) timing of the intervention in each centre was fixed. Due to the fixed timing, different approaches to the single subject design (i.e., different numbers of assessment points in

the baseline phase) was necessary for some participants. Full details regarding the data collection procedures for all participants are presented in the next section.

Data collection

Two groups of participants received the PLD training at different time points. Participants in Group A (n=5) were monitored for three data collection points in the baseline phase over fifteen weeks (i.e., prior to PLD), and then one data collection point in the intervention phase, and then one data collection point post intervention, with the intervention phase lasting for thirteen weeks. The data collection schedule for Group A is presented in Figure 1.

Group A

Measure 1   Measure 2   Measure 3   Measure 4   Measure 5

Baseline (15weeks)   Intervention (13 weeks)

Group B

Measure 1   Measure 2   Measure 3

Baseline
(2 weeks)   Intervention (14 weeks)
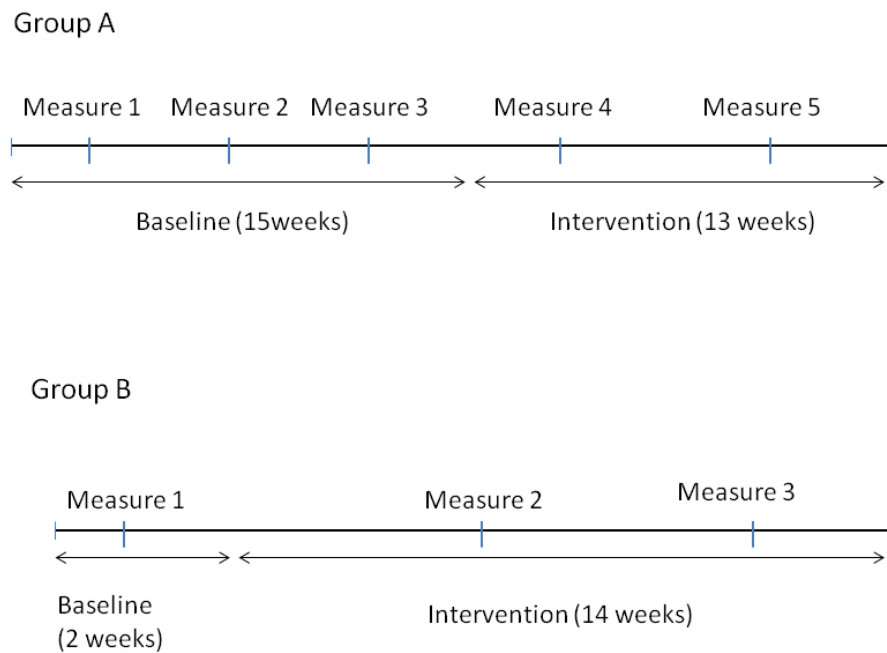
Figure 1. Data Collection schedule for Groups A and B

Participants in Group B (n=10) were assessed once within the baseline phase of two weeks, with one data collection point in the intervention phase and then one post intervention data collection point, over fourteen weeks. The data collection schedule for Group B is presented in Figure 1.

During each data collection point, a short video of each teacher reading to children was conducted to gather assessment data. Full details regarding the content and administration of this measure can be viewed in the Measures section below.

Participants

Recruitment Early childhood staff at the MoE identified a chain of ECCs as a priority for PLD through the Supported Early Learning Opportunities (SELO) fund for early learning centres.   SELO is targeted at early childhood education providers and ngā Kōhanga Reo that have low participation rates or need support in providing quality early learning (Ministry of Education, n.d.).

The owner and the manager of the chain of ECCs were approached to discuss participation in the research project alongside participation in the PLD. The owner and manager were supportive of their teachers participating and facilitated introductions of the trainers and researcher to centre managers through attendance at meetings.

Particular centres were selected by the manager for participation in the PLD, and then these centres were also offered the opportunity to participate in the research alongside the PLD. Five centres that had already committed to the PLD were then approached to participate in the research project alongside the PLD. Three centres took up the opportunity to participate in the research project. Two centres declined the opportunity to participate in the research project.

Centres were all based in Auckland, and employed between 8-15 staff and were licensed for 50 – 150 children. In all centres, children aged 0-5yrs attended. Deciles are a measure of the socio-economic position of a school's student community relative to other schools throughout the country, with one indicating low socioeconomic status and ten indicating the highest socioeconomic status (Ministry of Education 2015). The centres in Group B were in the area of schools that were decile ranked two and three. Teachers in the centre in Group A were in a decile area ranked ten.

Information regarding the research project was provided to all teachers at staff meetings, either by the managers or by the researcher. This provided opportunities for teachers to find out about the purpose of the project, the time involved and to ask questions. In one centre, all the permanently employed staff (five) participated in the project. In the other two centres, some staff chose to participate (ten) and some declined the opportunity. It was unclear how many staff participated compared to how many were approached to participate due to the number of relievers and temporary employees in each centre.

Teachers working with children aged 3-5years were encouraged to participate in the PLD and research. As there were spaces available on the PLD, centre managers also encouraged teachers working with children 0-2 years to participate. Three teachers from Group B were working with children aged 0-2 years participated in the project. Two teachers from Group A were working with children aged 0-2years. Once teachers had completed consent forms (see Appendix A), they then were asked to complete a brief questionnaire (see Appendix B) which surveyed their knowledge and experiences as early childhood teachers.

While not participants in the research, children were included in videos that were taken as part of data collection. Permission was given by their parents and caregivers to be involved in the videos by signing and returning a form, via their child's early childhood teacher (see Appendix A).

A summary of participants' demographic information can be viewed in Table 1.

Table 1. Demographic information of Participants		
Demographics	**Group A (5)**	**Group B (10)**
No. of teachers who returned questionnaires	4	10
Early childhood qualification	1 x No response 1 x Grad Dip in ECE 1 x B.ECE 1 x Diploma	1 x Unclear 1 x Post grad dip in ECE 1 x Grad Dip in Teaching 2 x Dip. in ECE 4 x B. Education B. Teaching (ECE)
Years of early childhood teaching experience	3 x 0-2 yrs 1 x 5+ years	2x 0-2 yrs 3x 2-5 yrs 5 x +5 yrs
English spoken as an additional language	3 spoke English as an additional language 1 did not	8x yes 2 x no
Previously participated in oral language workshops	None	None
Age range of children working with	2 x 0-2yrs 2 x 3-5 yrs	3 x 0-2yrs 4 x 3-5yrs 2 x 2-5yrs
Note: ECE =Early Childhood Education		

Each group was similar in terms of range of qualifications, years of experience and the number of teachers who spoke English as an additional language. Group B had a higher proportion of teachers who are working with older children. None of the teachers reported previously participating in workshops focused on oral language.

Procedures

The PLD consisted of Teacher Talk workshops (Greenberg, 2006) followed up by individual videocoaching "on the floor" of the teacher's early childhood centre. Teacher Talk is a manualised program consisting of 3 x 6 hour workshops, specifically designed to support early childhood teachers with facilitating the development of children's oral language skills. The PLD was delivered by two experienced New Zealand early childhood teachers who were certified by the publishers of Teacher Talk (Hanen) to deliver the PLD. The trainers were also experienced in facilitating professional development for early childhood teachers. It was the first time the trainers had delivered the Teacher Talk programme.

Prior to PLD, a whole centre self review (Ministry of Education, n.d.) was facilitated by one of the trainers, which involved all staff at the centre. This is a process which supports centre identification and reflection around what was currently happening to support oral language. This was in line with principles of adult learning around the need to generate reasons to change practice prior to introducing new information (Timperley,Wilson, Barrar, & Fung, 2007). The centre self review also provided the trainers with an opportunity to familiarise themselves with teachers and their centre.

PLD took place over 2 Saturdays, 5 weeks apart. Each workshop consisted of a mix of activities, designed to support adult learning. This included reflection on prior experience, new information, support with integrating the new information into current practice, and then an opportunity to practice using the new information with a colleague. This included activities such as observing videos of early childhood teachers, group discussion on aspects of teaching practice, small group brainstorming and problem solving, and small group role plays. Facilitation of meaning related skills in an early childhood context was the focus of the first round of PLD, with teachers supported to reflect on the use of specific strategies in a range of typical activities in an early childhood setting. Code based strategies was the focus of the second round of PLD, with teachers supported to reflect on the use of strategies in the context of shared book reading with children. This included interaction and conversation about the content of books, extending children's oral language with the book reading context as well a focus on sounds and concepts related to print such as commenting on unusual sounding words or drawing children's attention to print.

 The first five hour workshop focused on meaning related strategies which are summarised in Table 2.

Table 2. Meaning related strategies

Strategy	Time spent on strategy in PLD workshop (minutes)
Children's different conversational styles – initiating and responding to conversation	60
Roles teachers play throughout the day including entertainer and responsive partner	30
Stages of language development	30
Following the child's lead, including observe, wait, listen, be face to face	90
Interpret –say it as they would if they could	30
Comment –talk about what the child is doing	30
Keep the conversation going with questions and comments – that stimulate and extend children's thinking	30

Note: PLD= Professional Learning and Development

The second five hour workshop focused on primarily code based strategies which are summarised in Table 3.

Table 3. Code Based strategies

Strategy	Time spent on strategy in PLD workshop (minutes)
Encouraging interactions in groups –in small groups that support all children's participation	25
Becoming a successful reader and writer –this involves understanding the meaning of print and the form of print	20
Developing positive attitudes towards the use of print –be excited about books	10
Familiarise children with books-choose interesting books and read with expression	20
Make book reading a time for interaction and conversation	75
Match your language to the child's language stage –make it easy to understand and explain unfamiliar words	45
Encourage the language of learning – use language to think and learn, go beyond the here and now	45
Make print talk in the classroom –in daily activities and in book reading	30
Draw children's attention to print	30
Encourage children to play with words –encourage sound play	10

Note: PLD= Professional Learning and Development

Throughout each workshop, explicit links were made to the New Zealand early childhood curriculum, Te Whāriki (Ministry of Education, 1996). Teachers raised questions about how they could support oral language, as many children they worked with were learning English as an additional language. The trainers responded to the teachers' questions, and supported them to problem solve themselves, based on the new information that had been shared.

Two to three weeks after a workshop, teachers participated in videocoaching, with a brief video recorded of the teacher while they were working with children. This was facilitated by the same trainers who delivered the workshops. Teachers chose the area of the early childhood centre they wished to be videoed in. Videocoaching consisted of taking a brief video of a teacher implementing a strategy (ies) that had been focused on in the workshop, reviewing the video with the teacher and supporting the development of self reflection skills in reviewing the use of strategies. The teacher identified the focus of the videocoaching through their selection of the strategy (ies) focused on. Teachers chose a range of strategies to focus on, influencing the focus of the intervention to support their teaching practice. Below, in Table 4, teachers' chosen strategies are summarised. Significantly, the majority of teachers chose to focus on meaning related strategies as opposed to code based strategies. This was through a guided, coaching style conversation. The coaching conversation included the use of open ended questions (eg. "how do you think that went?", "what did you notice?"), actively listening to responses and then support to identify some concrete next steps.

At times, the facilitators utilised a peer coaching model which involved two teachers being trained to coach each other on reviewing their videos. Teachers were trained to coach each other, by asking structured questions to support self reflection

on practice and identifying areas for change. This peer coaching model was implemented when teachers appeared extremely anxious about participating in video coaching, and was implemented to support engagement with coaching. Once teachers appeared to be more comfortable, then video coaching was carried out one to one.

Table 4. Participant's chosen strategy to focus on as a result of videocoaching

Strategy	Group A		Group B	
Videocoaching	1st	2nd	1st	2nd
Follow the child's lead	5	1	4	2
Comment	3	1	3	
Use the language of learning		1		3
Make book reading a time for interaction		1		1
Choose books that match children's interests and stage of development		1		1

Note: Some teachers identified two strategies to focus on at the end of their coaching session

Measures

In order to evaluate the impact of the PLD, measures were taken of teachers' use of strategies while sharing books with children before, during and after the PLD. For Group A, three baseline measures were collected, then one midway through the PLD and then one after the PLD. For Group B, one measure was collected prior to the PLD, then one midway, and then one after the PLD were collected. The measures were designed to directly evaluate the use of the strategies focused on in PLD, looking at their use in the teachers' everyday context.

For Group A, a full data set was collected for four of the five participants. The last data collection point for one teacher was missed as they had moved to another

centre. For Group B, a full data set was collected for eight of the ten participants. At the second data collection point, two participants were missed due to leave and illness. The data collection could not be rearranged prior to the second PLD workshop.

Rationale for measures. As teachers' use of strategies was the dependent variable, it was important that direct observation and an empirical summary could be generated to track changes in response to PLD (Horner et al., 2005)

Teachers' use of strategies while sharing books with children was a direct measure of the use of the strategies focused on in the PLD. This was also consistent with earlier research projects demonstrating the impact of similar PLD (Piasta et al., 2012). A focus on teachers' use of actual strategies in an authentic context as possible was important, as variations have been shown between what teachers report they are doing and what they are actually doing in their use of strategies to support oral language and literacy development. This supports social validity, demonstrating that the intervention can be applied by fidelity in real world conditions leading to changes in everyday contexts over time (Horner et al., 2005).

Teachers' use of strategies to support communication during the shared book interaction were coded and analysed. The definitions of the strategies are provided in Table 5.

Table 5. Strategies to Facilitate Children's Oral Language and Literacy

Strategy	PLD content (From Leader's guide/PLD manual)	In book reading context
Meaning related Strategies		
Follow the child's lead	-respond immediately to child -say or do something on the child's topic -respond with warmth and enthusiasm -wait to see if the child responds (p. 31)	**Key feature**: responds to child's utterance or action With on topic comment -Child chooses the book, page not turned until child finished listening/talking about it, when child wants to move on to next book this happens -Responds to child's initiation of other topics not related to the book are responded to -child's initiations may be verbal or non verbal -waiting for the child to say or do something -responding to child's facial expressions
Be face to face	At eye level so can see what child is looking at, and facial expression	-if teacher attempts to make eye contact with child Sitting so easy for adult to have 3 point gaze shift (child, book, child) Not having child on lap, or side by side -may be sitting at an angle
Interpret	Give meaning, say it as they would if they could (p37)	When child makes gesture or facial expression, teacher models language -for example, names what child is pointing to
Comment	On what the child is doing or what has been said (p41)	**Key Feature**: comment is part of adult initiation of interaction, not in response to the child Commenting on the book or child's actions -simplifies language as appropriate to match child's language level (based on language child is using in activity) -may be the teacher answering their own question,

Table 5. Strategies to Facilitate Children's Oral Language and Literacy

Strategy	PLD content (From Leader's guide/PLD manual)	In book reading context
Cue turns with questions and comments	Make a comment and then ask a question to encourage another turn, match language complexity to child's (p. 60)	Make a comment and then ask a question (not just a comment) -includes repetition of what child says and then asking a question -does not include asking a question and then answering it, this goes in comment
Encourage interactions in group settings	-small group -set up an appropriate activity -carefully observe each child's level of involvement -adapt response to each child's needs (interacting, participating, attending) -keep it going	-actively involve 2 or more children -respond to, or make comments that reference 2 or more children's talking or actions -accepting non verbal communication from quieter children -waiting/creating space/ignoring more verbal children to support participation by quieter children -asking a specific child a question and then waiting for an answer to support participation
Code Based Strategies		
Developing positive attitudes towards print	Get excited about books, talk about books, show writing as part of your everyday	-comments positively on book, particularly on introducing books Examples include: -"look at this nice book" -"this looks interesting" -"let's read this book"
Familiarise children with books	Choose the right book, read the right way (pause for children to fill in the blanks, use different voices for characters, lots of expression) p. 86	While reading the book: -reads with animation -uses different voices for characters -pauses for the child to fill in the blanks
Choose books that match children's interests and stages of development		N/a as appropriate choice of books was offered
Make book reading a time for interaction and	Use all of the interactive strategies listed above	N/a –covered by above in more specific detail

Table 5. Strategies to Facilitate Children's Oral Language and Literacy

Strategy	PLD content (From Leader's guide/PLD manual)	In book reading context
conversation		
Match language to child's language stage	In book reading, exaggerate intonation, repeat key words, explain unfamiliar words, repetition (p102)	-when "reading text" -rephrases text to support comprehension reflects language being used by children in video -repeats key words, explains unfamiliar words, uses repetition -may not read text word for word so can adjust to child's stage of language development
Use language of learning	Go beyond here and now, pretend, predict, compare, explain, connect to previous experience	Examples include: -do you remember when...? -what do you think happened next? -why do you think they did that?
Make print talk	Associated with visual cues, important to kids, related to the spoken word, drawn to children's attention (p 114)	n/a –covered by in more detail by other strategies
Draw children's attention to print	At eye level, point to the words as you read them, comment on print (122)	-points to the words while reading -comments on print/draws children's attention to print
Encourage children to play with words	Provide opportunities	-comments on "funny sounding" words -responds to child's comments when playing with words

Note: PLD = Professional Learning and Development

A frequency count using interval recording (Portney & Watkins, 2014) was utilised to track the use of strategies. Teachers' use of strategies to support communication were coded and analysed, in thirty second cycles, over 7.5 mins, starting from the beginning of the interaction (Piasta et al., 2012). When teachers used a particular strategy in a thirty second cycle, a score of one was given. If they used the strategy again in that particular thirty second cycle, then they still only scored one.

This meant that the maximum a teacher could score for use of a particular strategy over the 7.5 minutes was fifteen.

The strategies that were monitored were selected as they directly linked to the focus of the PLD. The strategies also reflected evidence based practice around effective strategies to support the development of children's oral language and literacy skills (Piasta et al., 2012, Milburn et al., 2015).

Collection of measures

Data collection took place in the area that the early childhood teacher normally worked in. They were familiar with the resources that were available, and familiar with the children participating. Data collection happened during free choice time, where children were able to self direct their learning.

The instructions to teachers were "share a book with a child or children". The teacher chose where to sit –often this was the book corner, on a low couch. At times teachers asked specific children to join them, at other times children chose to participate. On the few occasions when a child wandered off or appeared distracted, they were gently encouraged to reengage with the book. No child was forced to participate.

Teachers were offered the choice of four common children's books to use– "The Hungry Caterpillar" (Carle, 2008), "The Gruffalo" (Donaldson, 1999), "Room on the Broom" (Donaldson, 2002) and "Doctor Grundy's Undies" (McMillan, 2014). These books were utilised as they are readily available and widely used books in early childhood centres. It was also anticipated that teachers would be familiar with them. The choice of books was limited to four as this supported comparison across and within participants. It also provided an opportunity for a child to make a choice about

which book(s) were read to them, reflecting the child directed learning focus in the early childhood curriculum. During videoing, teachers frequently read at least two books. At times, teachers chose to use their own books, possibly because they had planned what they were going to say. Teachers' own books appeared to be similar in containing a narrative story with attractive pictures, and with having a range of opportunities for language and print interactions. Teachers chose their own books on seven occasions, with one teacher choosing to do this at all data collection points.

Teachers shared the book while being videoed. Approximately ten minutes of interaction was filmed. If they had completed their book before 10minutes was finished, they were encouraged to share another book. The first 7.5 minutes of each interaction were coded, particularly as the first cycle often captured a teacher following a child's lead. Additional time was coded in the interaction beyond the first 7.5 mins if sections of the video were edited out due to inadvertent filming of children not involved in the study. Teachers were videoed using a Smartphone camera, operated by the researcher sitting 1-2metres away. As a backup, teachers were also recorded on a digital voice recorder, which was positioned within 1 metre of the teacher. No feedback was provided to teachers after their video.

Intervention fidelity

Monitoring of fidelity (Kaderavek & Justice 2010) was carried out in several ways to ensure the intervention aligned with the prototype intervention. Direct fidelity measures (Kaderavek & Justice 2010) included observation of the intervention in action. Indirect fidelity measures (Kaderavek & Justice 2010) included self- report checklists and logs.

Intervention fidelity was established by documenting adherence to the manual. Tables 2 and 3 describe the strategies targeted during the workshops. The researcher confirmed that all strategies were targeted across the workshops and that the timing outlined in Tables 2 and 3 was followed.

Adherence to the research intervention was also supported by all participants using the same workbook to record their notes and plans for implementing strategies. Attendance records for each workshop were also kept, documenting the presence of participants. As an indirect fidelity measure (Kaderavek & Justice 2010),   trainers also completed coaching logs to document the focus of their coaching conversations. The logs documented what the teachers said in their videocoaching session:

-"I am happy that.."

-"I wish that I had..."

-"I will continue to ..."

The logs indicate that coaching focused on the development of self-reflection skills and identifying next steps in interacting with children. This was the intention of the video coaching which was to develop participant's own self reflection and awareness skills, as opposed to "telling" them what to focus on. By monitoring the coaching log, fidelity to a focus on enhancing teachers' self reflection skills and identifying next steps was ensured.

Where teachers' missed a workshop or video coaching the trainers offered make-up sessions at the teachers' early childhood centre. Make up workshop sessions happened for one teacher after the first workshop and for two teachers after the second workshop. Every attempt was made to offer make up sessions for video coaching but at times this was not possible due to the time constraints of the timing of the PLD and data collection.

Reliability

   Interrater reliability was established through random selection of twenty percent of the videoclips. An independent researcher (a 4th year Speech language therapy student) participated in PLD on coding teachers' use of strategies. During PLD, when there was no agreement, consensus was reached through discussion. Agreement for interrater reliability was achieved at 85% for the coded videos.

Results

Analysis of the results was carried out to investigate the impact of PLD on early childhood teachers' use of meaning related and code based strategies, to support children's oral language and literacy development. The results were analysed using a single subject experimental design, by looking at multiple baselines across participants. Different analyses were necessary across Groups A and B to allow for variations in the number of baseline data collection points across the groups.

Group A

For Group A, three baseline data points, one intervention data point and one post intervention data point were collected, for each of the five participants. For each participant in this group, the celebration line and two standard deviation band (2SD) methods (Portney and Watkins 2014) were used to establish the intervention's effectiveness.

The celebration line method was implemented by calculating the trend in the data for the baseline phase for a participant and continuing that trend line through the intervention and post-intervention phases within the graph (Portney & Watkins, 2014). Calculation of the cerelation line involved separating the three data collection points in the baseline phase into two parts, with the separation at the second data collection point. The median score was calculated for each half, and a line drawn through the median score, parallel with the Y axis. A line was then drawn from the intersection of the median score for each phase at the midpoint of data collection for each phase. These two intersections were joined together by the cerelation line, with the slope of the cerelation line indicating the rate of change in the data. A significant

intervention effect was established when the intervention and post intervention data point was above the cerelation line. An example of this analysis method is presented in Figure 2 below, showing changes for Participant 2.

The two standard deviation band (2SD) method was also used to investigate if there were significant differences between the baseline and intervention phases (Portney & Watkins, 2014). By combining the two standard deviation band method and the celeration line method, the criteria were tightened in terms of demonstrating a significant effect. To complete this analysis, firstly the standard deviation of the baseline phase was calculated. This number was then doubled and applied to the data to create a band across all phases that encompassed two standard deviations above and below the mean of the baseline phase. When two data points in the intervention phase were outside the two standard deviations band, then the change was deemed significant (Portney & Watkins, 2014).

Two graphs are presented below to given an example of significant change and non-significant change in strategy use according to celebration line and 2SD band analysis methods (see Figure 2 and Figure 3 respectively).

Figure 2 is an example of where some changes were made in the use of strategies. This is shown below. The cerelation line in the baseline phase is indicating a decrease in the use of strategies. During the intervention phase and post intervention there is an increase in the use of strategies, indicating a positive change according to this method. Both the intervention and post intervention data points are above the cerelation line.
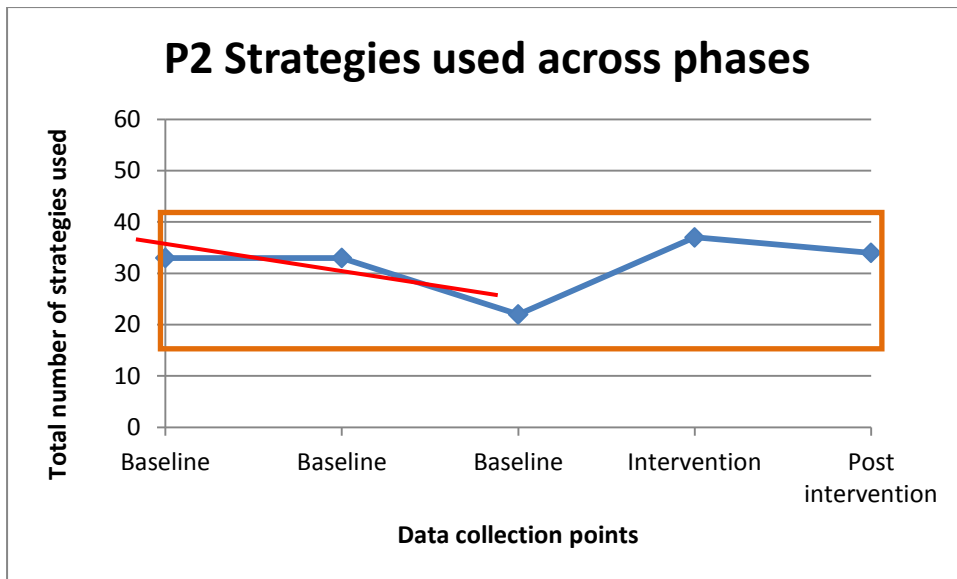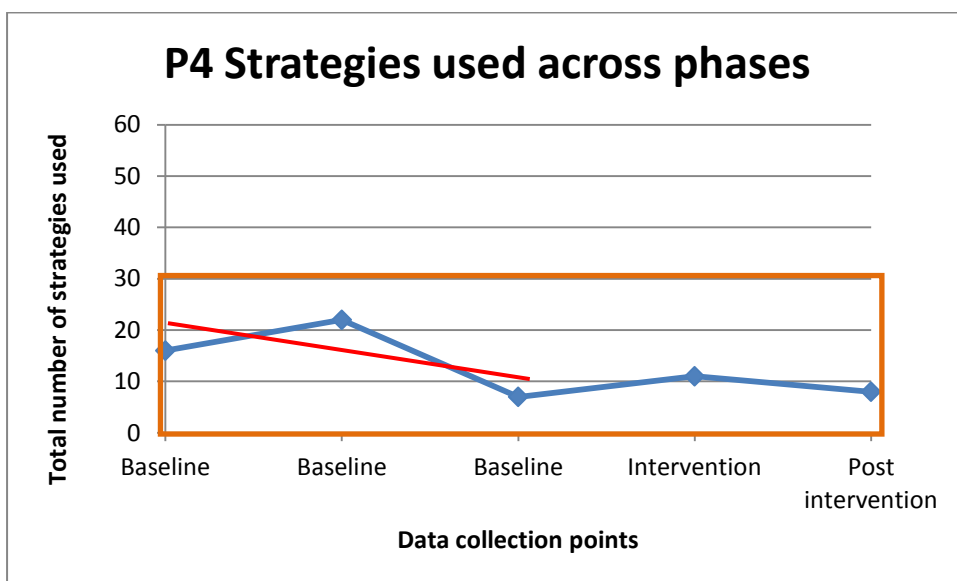
Figure 2. Participant 2 Strategies used across phases

☐ = Baseline 2 standard deviation band   ⎯⎯⎯ = Cerelation line

Participant 4 Baseline and Intervention

Analysis of the assessment data for Participant 4 showed no change in intervention or post-intervention strategy use according to the celebration line and 2SD methods. The intervention and post intervention data points were not above the celebration line or the two standard deviation band as depicted in figure 3.

Figure 3. Participant 4 Strategies used across phases

☐ = Baseline 2 standard deviation band   ⎯⎯⎯ = Cerelation line

Table 6 summarises the scores for all participants within Group A in response to the intervention. There were no significant changes in participants' use of strategies in the intervention phase, particularly as no scores were more than two standard deviations above the baseline phase.

Analysis using the cerelation line showed significant changes for participants 3 at the intervention phase, and for participant 5 for both the intervention and post intervention phases.

Table 6. Summary of scores for Participants 1-5

| Part icip ant	Baseline phase scores	Inter- vention phase score	Post intervention score	Slope of cerelation line indicating stability in baseline phase	2 standard deviation range above and below the mean
P1	34, 50, 48	50	n/a	1.17	26.56-61.44
P2	33, 33, 22	37	34	.83	16.63-42.04
P3	12, 16, 12	19*	28	1	8.71-17.95
P4	16, 22, 7	11	8	.8	-.1-30.1
P5	37, 34, 23	29*	21*	.8	16.59-46.07

*Note: * indicates significant change according to the cerelation line method*

Group B

For group B, one baseline data point, one intervention data point and one post intervention data point, was collected for each of the ten participants. Visual analysis was employed to investigate the results for Group B (Byiers et al., 2012) . This was deemed the most appropriate method of analysis due to number of data collection points across each phase. A cerelation line, standard deviation or effect size could not

be calculated, due to their being only one data collection point in the baseline phase. Instead, the clinical significance of the data was considered, particularly with an increase in the use of strategies at the intervention and post intervention phases when compared to the baseline being considered significant.
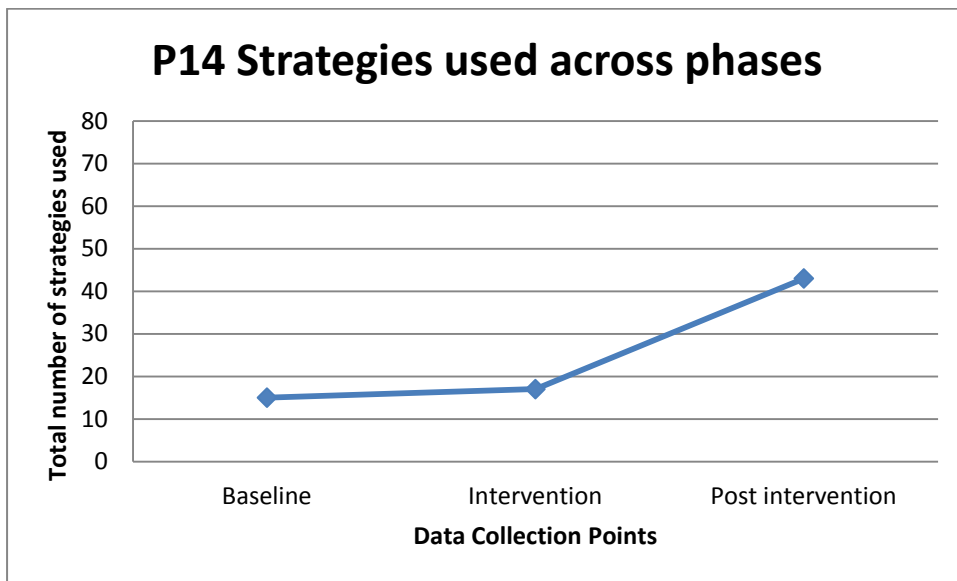
Participants 6, 11 and 14 (Figures 4, 5 and 6 respectively) demonstrated an increase in their use of strategies to support children's oral language and emergent literacy.
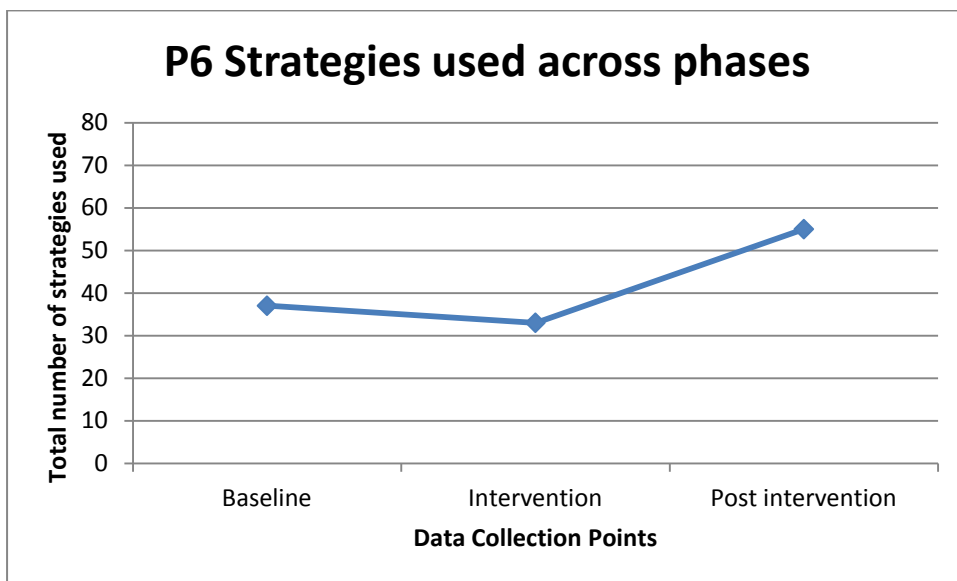
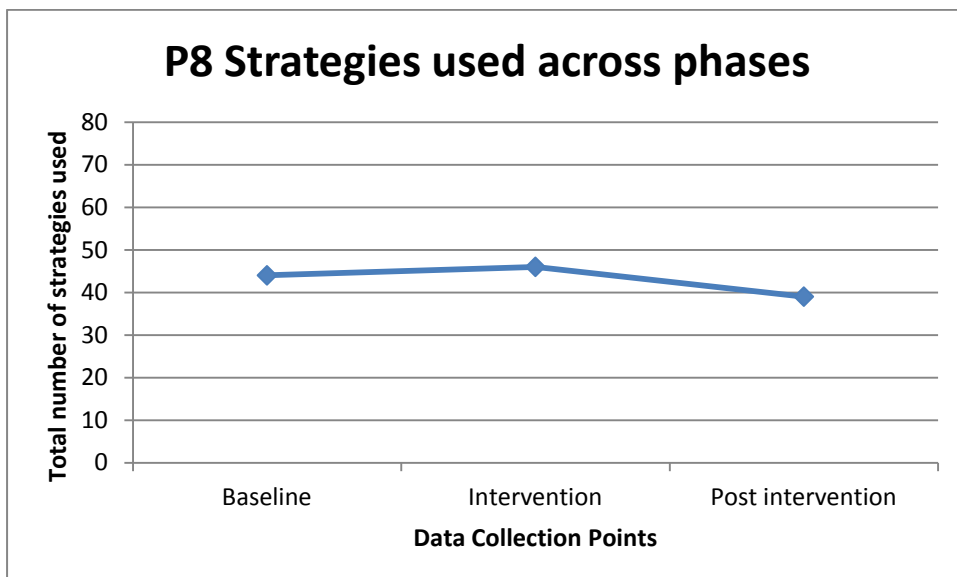**Figure 4. Participant 6 Strategies used across phases**
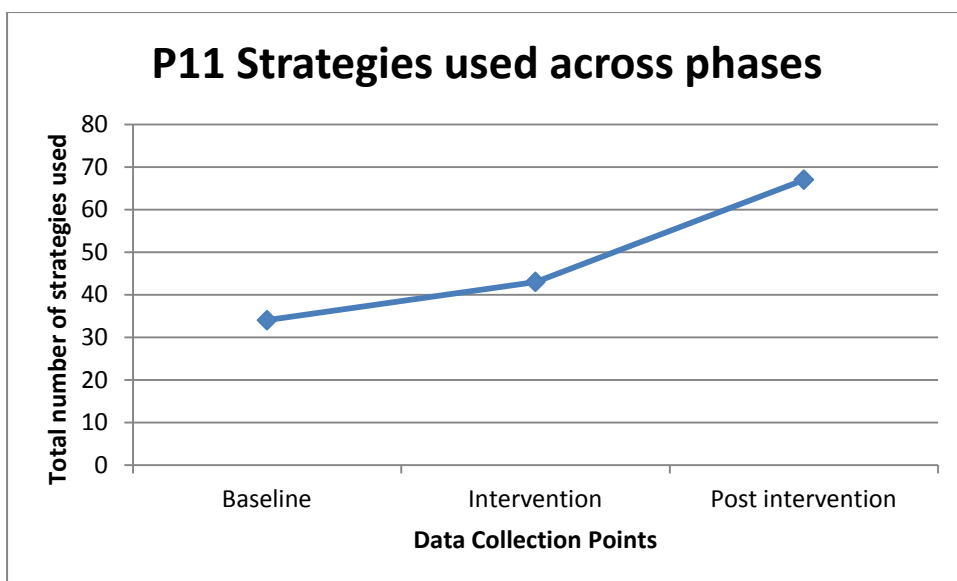
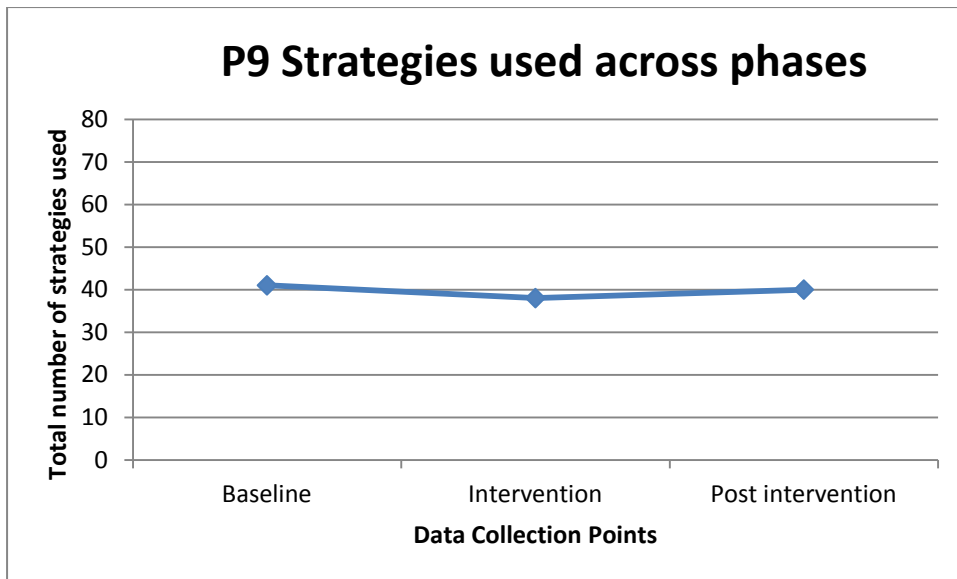**Figure 5. Participant 11 Strategies used across phases**

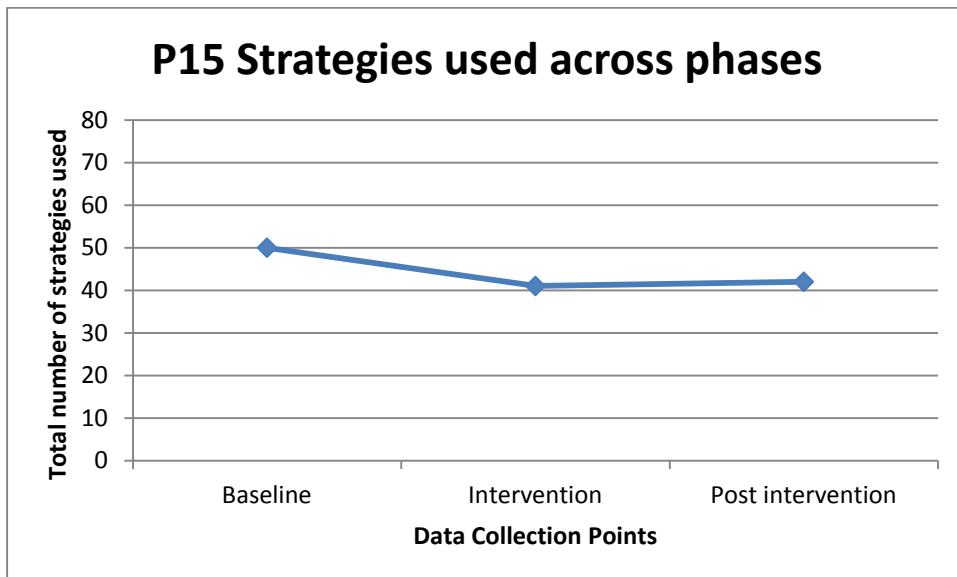**Figure 6. Participant 14 Strategies used across phases**

Participants 8, 9 and 15 (Figures 7,8 and 9 respectively) show no change in their use of strategies to support children's oral language and emergent literacy skills. Their post-intervention data point was lower than that achieved in the baseline assessment.

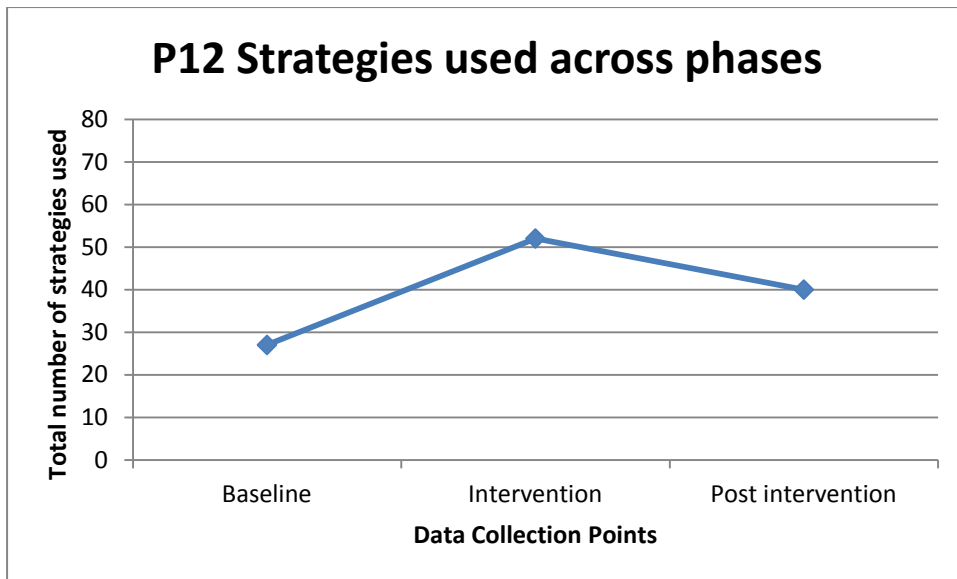**Figure 7. Participant 8 Strategies used across phases**

Figure 8. Participant 9 Strategies used across phases

Figure 9. Participant 15 Strategies used across phases

Participants 12 and 13 show an increase in their use of strategies in the intervention phase (after the first workshop and vidoecoaching) and then a decrease in their use of strategies at the post intervention phase (see Figures 10 and 11 respectively). This indicates that Participants 12 and 13 may have had difficulty maintaining changes in their use of strategies to support children's oral language and emergent literacy.

Figure 10. Participant 12 Strategies used across phases

Figure 11. Participant 13 Strategies used across phases

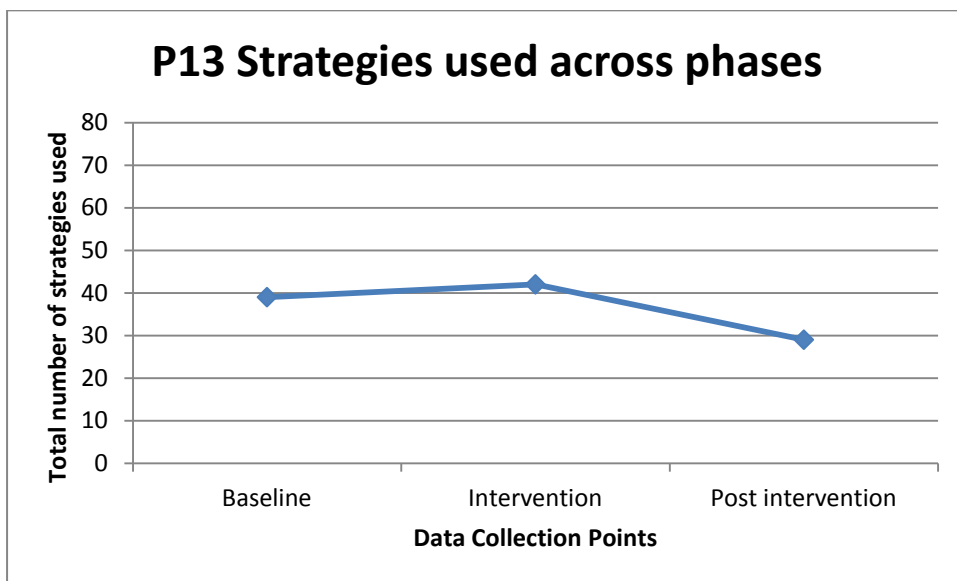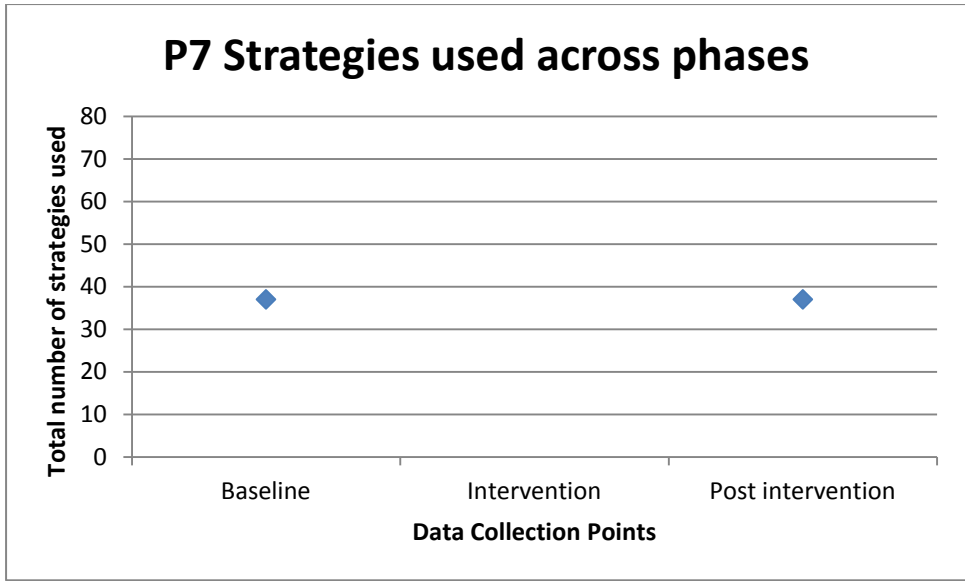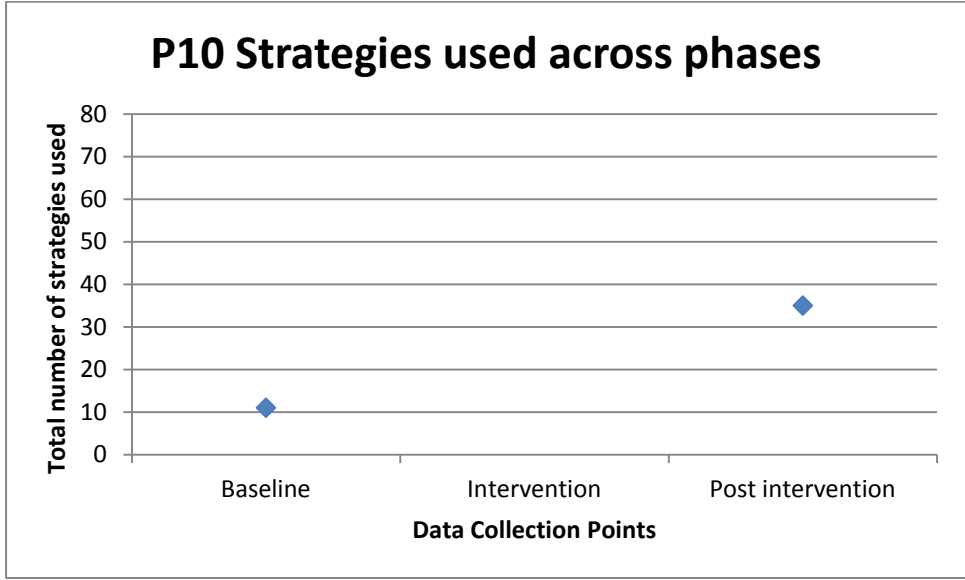Full visual data analysis could not be carried out for Participants 7 and 10 as the intervention data collection point did not take place (see Figures 12 and 13 respectively).

Figure 12. Participant 7 Strategies used across phases

Figure 13. Participant 10 Strategies used across phases

Table 7 (below) is a summary of the results for participants 6-15 in group B

Table 7. Summary of scores for Group B

Participant	Baseline phase score	Intervention phase score	Post intervention score
6	37	33	55
7	37	n/a	37
8	44	46	39
9	41	38	40
10	11	n/a	35
11	34	43	67
12	27	52	40
13	33	42	29
14	15	17	43
15	50	41	42

Note: n/a =Not available

Participant 15 was unique in that she chose to use her own books for data collection throughout the project. This may have limited the opportunities to use strategies to facilitate children's oral language and emergent literacy.

Based on visual data analysis which considered changes in the data, Participants 6, 10, 11, and 14 demonstrated an increase in their use of strategies. Participants 7, 8,9, and 15 stayed the same and Participants 12 and 13 decreased their use of strategies over time.

Comparison of meaning related strategies versus code based strategies

As discussed in the Method, meaning related strategies were focused on in the first half of the PLD. These strategies were discussed in the everyday contexts of an early childhood centre, and teachers were supported to use these strategies in a range of situations. The second half of the PLD focused on code based strategies specifically focused on the use of strategies to support literacy within the context of shared book reading. Also included were interaction and conversation about the language in a book, as well as concepts about print and sound awareness. As outlined above, most participants chose to focus on meaning related strategies in their coaching sessions, and so the differences in the use of meaning related strategies versus code based strategies was investigated.

Group A

Analysis of Group A's use of meaning related strategies versus code based was carried out by looking at the cerelation line and the range of scores plus or minus two standard deviations of the mean, for the baseline phase as described above. The results are in Table 8 below.

In terms of identifying significant change the same method as described above was used. A significant change occurred when the intervention and post intervention data points were above the cerelation line established at baseline. Participant 2 and participant 3 had significant change according to the cerelation line method, for both their meaning related and code based strategy use. Participants 1, 4 and 5 did not have significant change in that their intervention and post intervention data points were on or below the cerelation line.
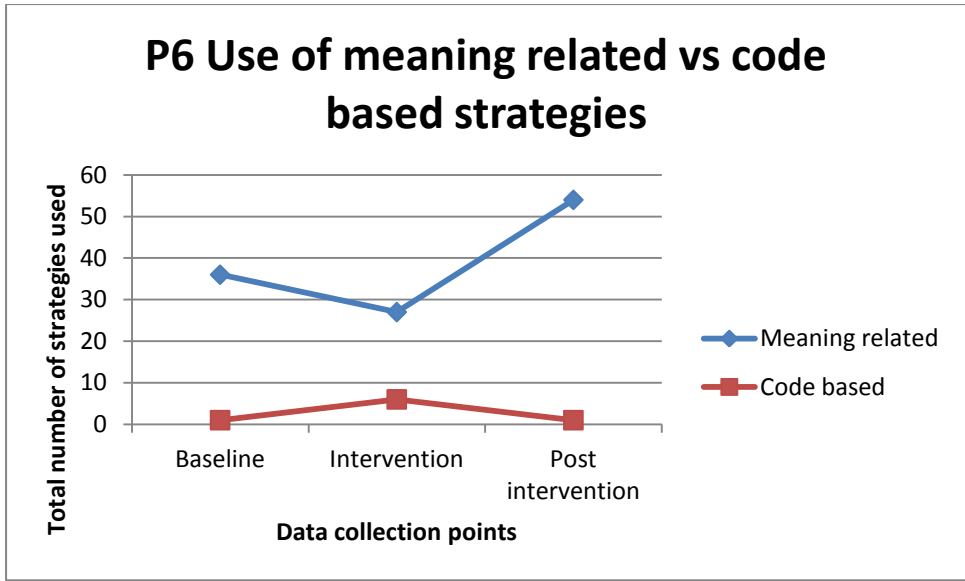
Table 8. Use of meaning related strategies versus code based strategies for

participants 1-5

Partic i-pant	Strategi es	Basel ine	Baseli ne	Baseli ne	Interve ntion	Post interven tion	Cerela tion line	2 std deviati ons
P1	MR	32	46	38	40	n/a	1.08	25-53
	CB	2	4	10	10	n/a	2.33	-3-14
P2	MR	29	28	22	32	30	.88*	18-33
	CB	4	5	0	5	4	.56*	-2.-8
P3	MR	11	14	8	18	22	.88*	5-17*
	CB	1	2	4	1	6	2*	.75-5*
P4	MR	16	22	7	11	8	.76	-.09-30
	CB	0	0	0	0	0	0	0
P5	MR	35	29	24	24	19	.83	18-40
	CB	2	5	5	5	2	1.11	.5-7

Note: MR = Meaning Related
   CB = Code based
   n/a= not available
   *= change was considered significant

Group B

　　　Visual data analysis was used to consider the results of Group B for meaning

related versus code based strategies. Visual analysis involved looking at changes in

the data over time, particularly focused on an increasing use of strategies over time

(see Figures 14-23).

Figure 14. Participant 6 use of meaning related versus code based strategies
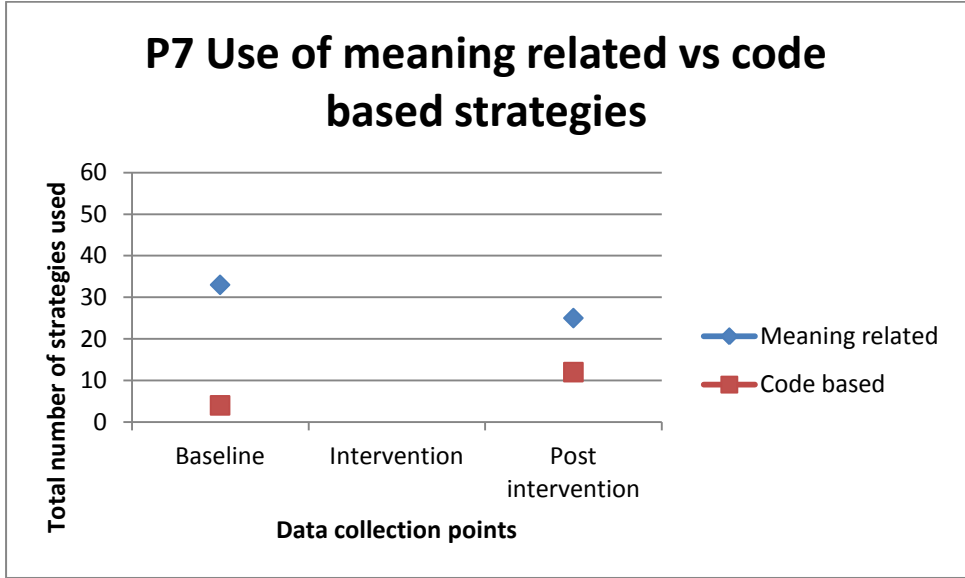
Figure 15. Participant 7 use of meaning related versus code based strategies
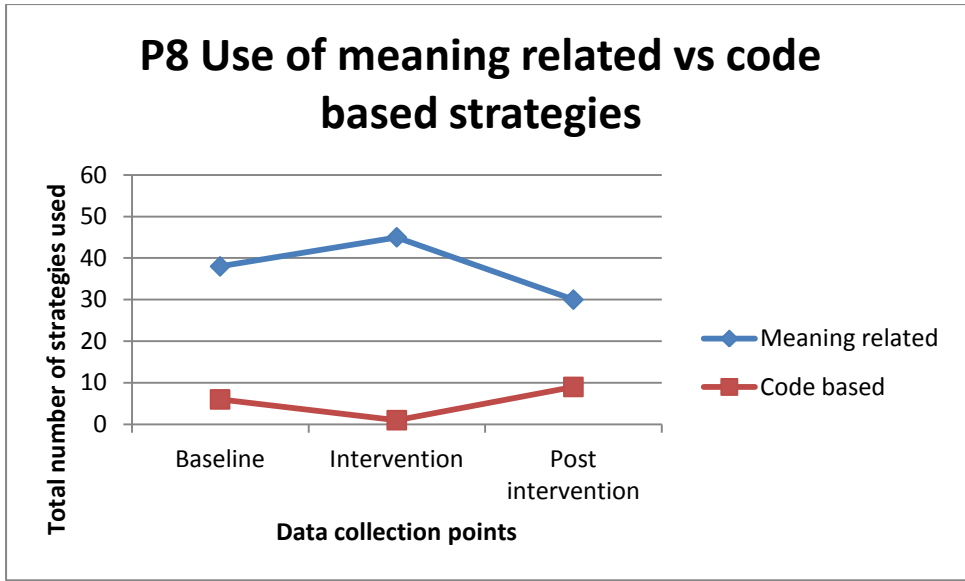
Figure 16. Participant 8 use of meaning related versus code based strategies

Figure 17. Participant 9 use of meaning related versus code based strategies

Figure 18. Participant 10 use of meaning related versus code based strategies
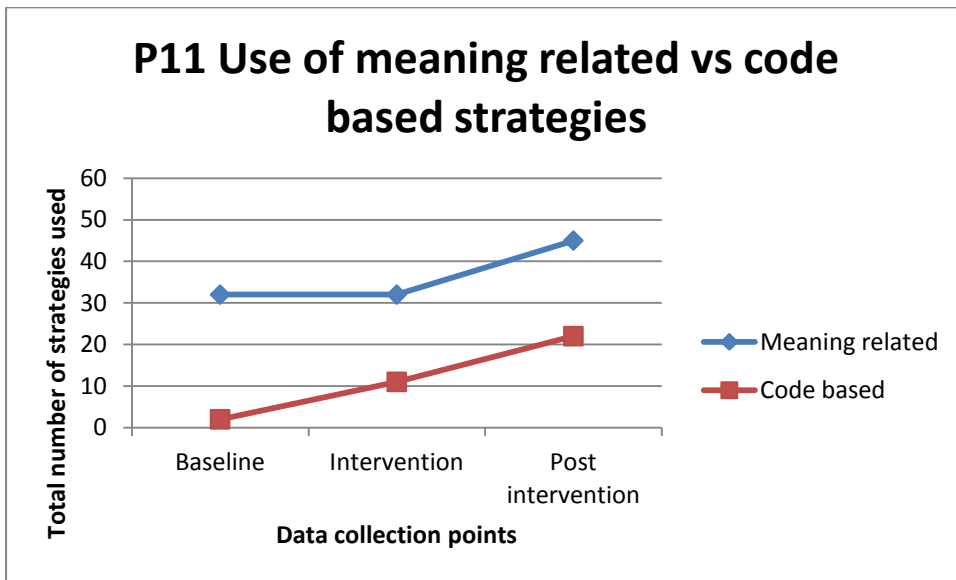
Figure 19. Participant 11 use of meaning related versus code based strategies
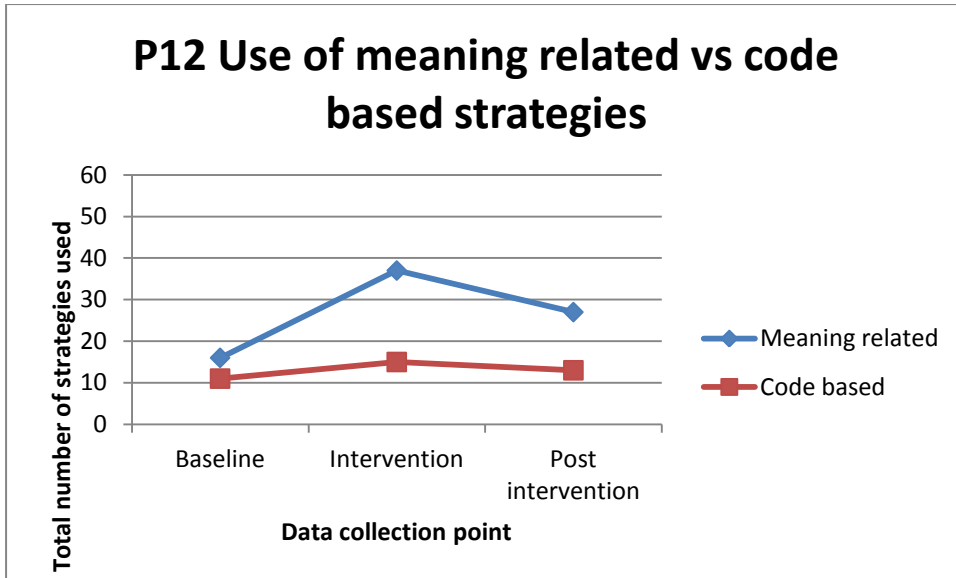
Figure 20. Participant 12 use of meaning related versus code based strategies
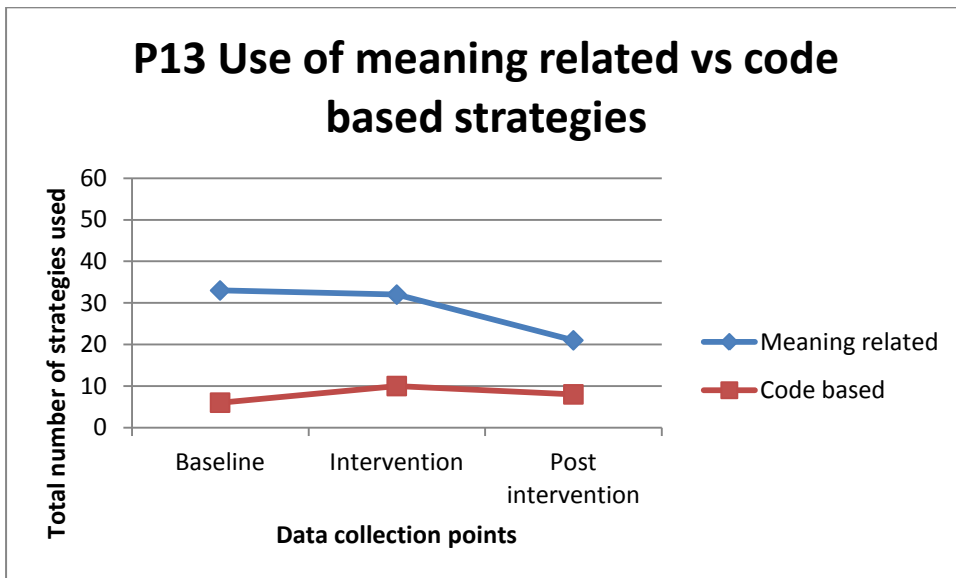
Figure 21. Participant 13 use of meaning related versus code based strategies
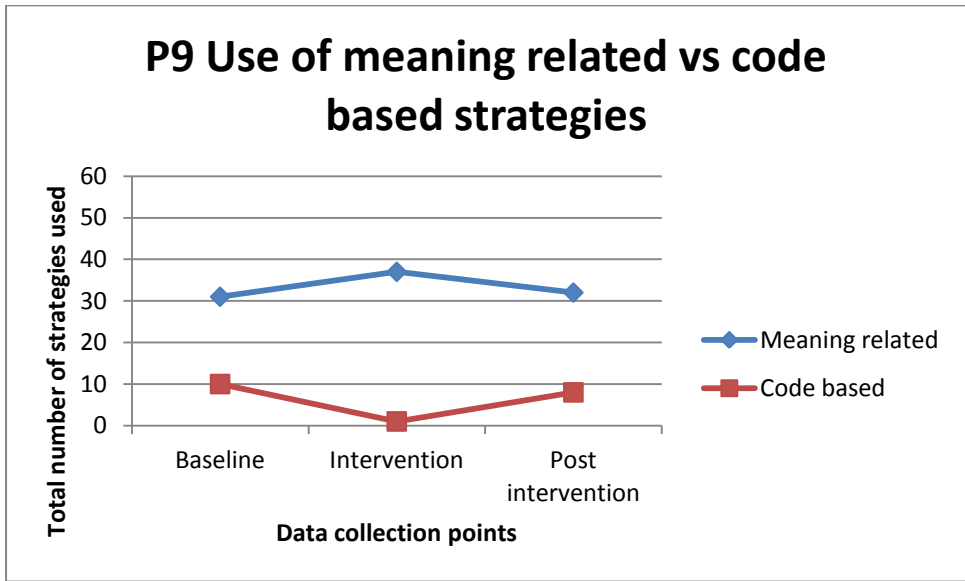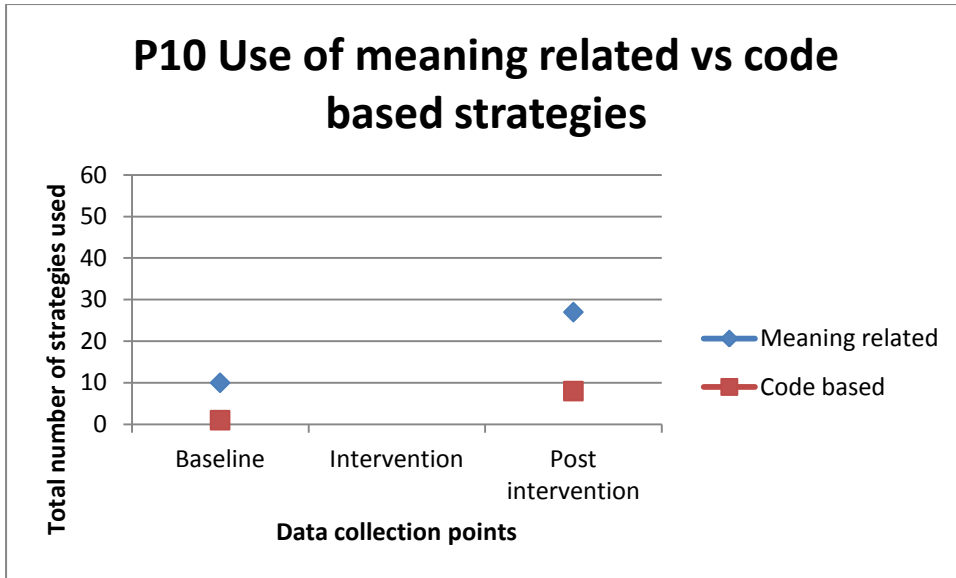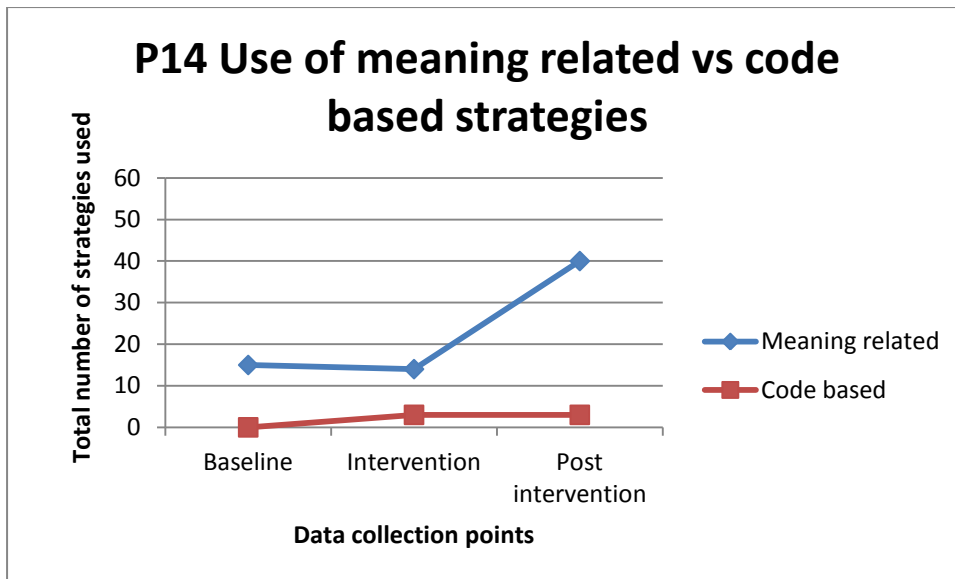
Figure 22. Participant 14 use of meaning related versus code based strategies
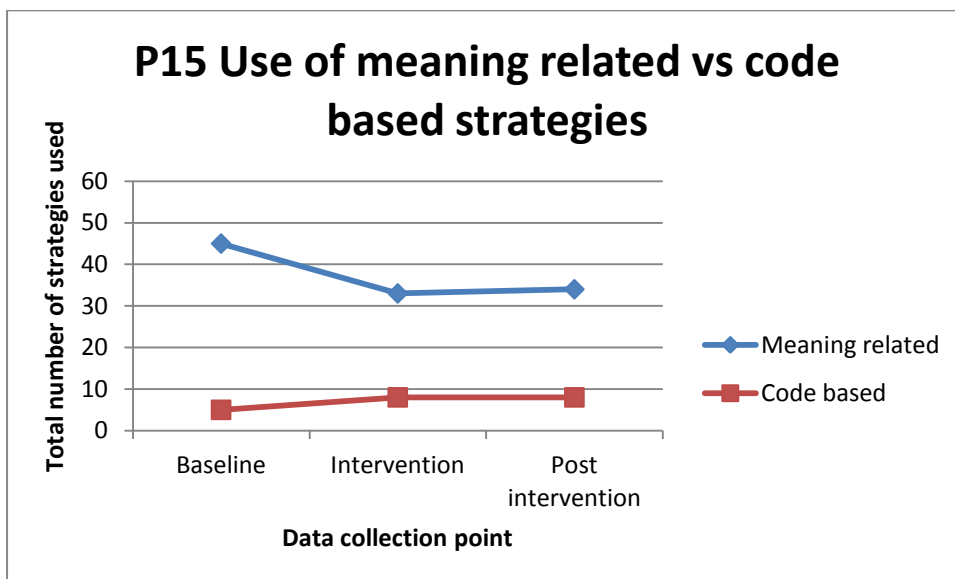
Figure 23. Participant 15 use of meaning related versus code based strategies

The results for Group B Participants of six to fifteen are similar to that of participants one to five. Meaning related strategies are frequently in use at baseline, with minimal change in the use of code based strategies.

Summary

Analysis of the results looking at multiple baselines across participants demonstrated that Participants 3 and 2 from Group A made a significant change in their use of meaning related strategies while sharing books with children. For Group B teachers, visual data analysis indicates that Participants 6, 10, 11, and 14 made changes in their use of meaning related strategies and Participants 10, 11, 15 made changes in their use of code based strategies.

Discussion

This project investigated the changes 15 New Zealand early childhood teachers made in their use of strategies to support children's emergent literacy and language development, after participating in two Teacher Talk (Greenberg, 2006) workshops combined with video coaching. The focus of the first workshop (Encouraging Language development in early childhood settings) was on supporting teachers in using language facilitation techniques in their interaction with children. The focus of the second workshop (Let Language lead the way to literacy) was to support teachers in using techniques to facilitate emergent literacy development as part of shared book reading. After each workshop, teachers participated in an individual videocoaching session, focused on building teachers' self awareness and reflective skills in supporting children's emergent literacy. A multiple baseline across subjects research design (Portney & Watkins, 2014) was utilised as it allowed for investigating the impact of an intervention that was non reversible and would have carryover effects (Byiers et al., 2012). Of the fifteen participants in the project, six made significant changes in their use of meaning related strategies, and three made significant changes in their use of code based strategies while sharing books with children.

The first research question examined what changes New Zealand early childhood teachers made in their use of strategies to support emergent literacy, in response to the two Teacher Talk workshops combined with video coaching. While six teachers' demonstrated changes in their use of meaning related strategies and three

teachers made changes in their use of code based strategies, some teachers did not make any changes.

Multiple studies have found limited change in teachers' use of strategies to support children's emergent literacy, as a result of PLD including workshop and coaching time (Cabell et al, 2011, McDonald et al., 2015, Scarinci et al., 2014). The results of this intervention are similar to those reported in the literature which show variability in how much change teachers' make in supporting emergent literacy as a result of PLD. Several factors that appear to impact on the effectiveness of PLD are the intensity of the PLD and the methods used to measure the impact of the PLD.

Intensity of PLD was identified as an important factor by Cabell et al. (2011). Teachers' participated in three concentrated days of training at the start of the academic year, and then one day of training later in the year. Videocoaching involved teachers videoing themselves and then receiving written feedback a week later. Growth curve analysis indicated that teachers made changes in their use of strategies to support interaction but there were no changes in the use of language facilitation strategies (Cabell et al., 2011). Intensity of PLD in this study (Cabell, et al., 2011), including contact with the facilitators was relatively spread out, compared to the other PLD programmes investigated here.

In contrast to the PLD being investigated, shorter PLD with less workshop time, and with training sessions closer together were reported to lead to changes for some teachers in their use of language facilitation strategies (McDonald et al., (2015), Scarinci et al., (2014)). For example, Let's Interact, (McDonald et al., (2015), reported changes in some teachers' use of language facilitation strategies after three x three hour workshops (a shorter intervention time). Changes in teacher practice were measured using a checklist of behaviours, which captured teachers' changes in their

use of strategies to facilitate children's communication. Change was defined as a .5 increase in the number of times a strategy was used over 7.5mins (McDonald et al., 2015). Five out of eight teachers increased their use of language modelling techniques, while six out of eight teachers decreased their use of conversation hindering strategies, and one teacher made no changes. The measures were taken from videos that teachers had filmed and submitted themselves.

Another study, reported by Scarinci et al., (2014) reported that overall the five participating early childhood teachers increased their use of seven of the eleven targeted strategies to support the development of meaning based skills (although these changes were not significant). This was after participation in two x three and half hour sessions a week apart. The measures were taken from videos filmed by the researchers.

In contrast, reports of the impact of PLD with more time for workshops and videos compared to the current study show different outcomes (Girolametto, et al., 2012, Milburn et al., 2015). Investigation of teacher practice around shared storybook and a related craft activity was carried out by Girolametto et al., (2012). Teachers in this study participated in eighteen hours of workshop time and three individual coaching visits in their early childhood centre. Measures were taken of a thirty minute video of the teacher sharing a book and facilitating a related craft activity, filmed by the researches. A large effect size was reported for changes in teacher use of contextualised talk and references to print. A medium effect size was reported for the use of alphabet letter names (Girolametto et al., 2012). These results are in contrast to the current study where few teachers made changes in their use of code based skills.

Another intervention study investigated the effects of coaching on early childhood teachers' use of references to print and phonological awareness during a

craft and writing activity (Milburn et al., 2015). A medium to large effect size was reported for the fifteen teachers in the experimental group who increased their utterances that referenced either print or phonological awareness. This was after both the experimental and control group of teachers participated in twenty one hours of workshop time, with the experimental group also participating in three individual coaching sessions in the centre. The measures were collected through transcription and coding of utterances, based on videos collected by the researcher. Again, the increased effect size for references to print or phonological awareness are in contrast to the current study which showed three teachers made changes in their use of strategies to support code based skills. Overall, it appears that increased workshop and video coaching time leads to a larger effect size for the impact of the PLD.

The variety of methods used to measure the impact of the PLD also impact comparison of the results of the current study with those published elsewhere (Cabell et al., (2011), McDonald et al., (2015), Girolametto et al., (2012) and Milburn et al., (2015)). Coding of behaviours reflecting strategy use over a specific length of time and in a specific context was utilised by Cabell et al., (2011) and McDonald et al., (2015). This is similar to the current study, and enables comparison of results. For example, in McDonald et al., (2015) five out of eight teachers increased their use of language modelling techniques (similar to meaning related). Cabell et al., (2011) was able to indicate changes in teachers based on growth curve analysis, reporting changes in use of interaction strategies but not in language facilitation strategies. However, both Cabell et al.,(2011) and McDonald et al., (2015) involved coding strategy use of videos that teachers submitted themselves, which may have biased the outcomes, compared to the current study where videos were filmed by the researcher. Overall the results of the current study are in line with results reported for other studies that have

used similar measures (Cabell et al., 2011 and McDonald et al., 2015), with some teachers increasing their use of strategies.

In contrast, studies reporting on coding and transcription of videos of teachers implementing strategies in specific contexts (Girolametto et al., 2012, Milburn et al., 2015) are able to report on medium to large effect sizes for use of decontextualised talk, references to print, references to phonological awareness or use of alphabet letter names. Comparisons with the results of the current study are more challenging here due to the different measures being used. However, the reported medium to large effect sizes are greater than the current study, and may be indicative of the need to further refine measures to demonstrate changes in early childhood teachers skills in using meaning related and code based strategies to support children's emergent literacy.

The potential reasons for the limited shift in use of strategy of this study are explored below and include the New Zealand early childhood context, characteristics of the participants, characteristics of the early childhood centres, and the design of the study

New Zealand early childhood context

Aspects of the New Zealand early childhood context that may have influenced the limited changes that some teachers made and the lack of change in other teachers include the focus on child directed learning, and the ratio of teachers to children in early childhood centres.

New Zealand's early childhood curriculum, Te Whāriki (Ministry of Education, 1996), has a strong emphasis on child directed learning For example, Te Whāriki states that: "the curriculum builds on a child's current needs, strengths and

interests by allowing children choices" (p. 20 Ministry of Education, 1996). This means that learning and activity choice is child led, with some routines around meal times and mat time being the only time that a child is expected to participate in an adult led activity. For data collection, many teachers chose to invite one child to read with them, and occasionally other children would join them. A child led curriculum may create more opportunities to engage in books and use strategies such as following the child's lead. As there is a close alignment with the child directed curriculum, a the focus on responsive interactions to support children's learning, and the implementation of language facilitation skills that include follow the child's lead, early childhood teachers may have found the language facilitation strategies more aligned from a pedagogical perspective. In contrast, Te Whāriki (Ministry of Education, 1996) has a different emphasis on print based skills, with a learning outcome focused around familiarity with print and authentic experiences with print, but no explicit reference to phonological awareness or letter sound correspondence.

The teacher to child ratio is another variable of the New Zealand early childhood context. The ratio of one teacher to children over the age of three is fifteen (Ministry of Education, 2008). This is higher than some overseas contexts where similar studies have investigated the impact of similar PLD on teachers' skills in facilitating children's oral language and literacy. For example, a Canadian study reporting on facilitating conversations in shared book reading took place in a one to eight ratio (Milburn et al., 2014). This may be even more significant in the context of a child directed learning environment, where an increasing number of children may have a diverse range of interests and abilities. While this may create a range of opportunities for conversation, it may the limit the extent of conversations that facilitate oral language.

Characteristics of Participants

The characteristics of individual participants may have also influenced the changes in teachers' use of strategies to facilitate emergent literacy.

Variable uptake of both meaning related and code based skills by early childhood teachers who have participated in the same PLD and work in the same centre has been reported by numerous researchers, in a range of contexts (Girolametto et al. 2003, Cabell et al., 2012, Scarinci et al., 2014)). Similar results in this project, where some teachers made changes to their use of strategies to promote children's emergent literacy and some did not indicates that there are multiple factors that influence teachers' use of strategies, that are beyond the scope of this PLD.

The variability of teaching qualifications in the current sample may have impacted on the effectiveness of the intervention. Teachers in this study had a range of teacher qualifications, with some having none through to some having a four year Bachelor degree in teaching early childhood. Variation in teacher qualification is seen in other similar studies (Piasta, et al., 2012, Milburn et al., 2014, Scarinci et al., 2014). The impact of teacher qualification on the use of meaning related and code based strategies is unclear, with some observations made that there is no link between teachers' use of language facilitation techniques and their levels of education or years of teaching experience (Piasta et al., 2012). Similar observations were made by Sheridan et al., (2009). The results of this study are consistent, in that there is not a clear link between teacher qualifications and the use of meaning related and code based strategies. This indicates that all teachers, regardless of qualification, have potential to increase their use of meaning related and code based strategies.

Another characteristic of the participants that may have affected the study is that most participants in this study spoke English as an additional language, and came from culturally and linguistically diverse backgrounds, with this weighted more heavily in Group B. This is consistent with the wider Auckland population (Chen, 2015) . At times, some teachers appeared to struggle with reading unfamiliar children's books, possibly due to the unfamiliar vocabulary used in the book. Teachers themselves may have had different experiences in literacy, and different expectations and knowledge regarding literacy in young children which may have influenced their beliefs around self efficacy and the development of children's language and literacy skills. Teachers' knowledge of literacy and language development impacts on their use of emergent literacy strategies with children, as reported by Cash et al., (2015). Teachers' variable knowledge and belief around literacy and language development may have affected their use of strategies to support the development of emergent literacy.

Another characteristic of the participants is that at times, some teachers chose to read their own books for data collection, as opposed to utilising the books offered by the researcher. This may have been for a range of reasons, including familiarity with the text or to maintain their interest. However the opportunities to utilise meaning related or code based strategies was limited at times by the teachers' choice of books. An example was where one teacher chose several times to use books designed to support early word recognition development, so the book consisted of sentences of 3-4 words that were repetitive and used simple language. This was despite an explicit focus on choosing appropriate books to facilitate oral language development in the second workshop of the PLD. Teachers choosing to read their own books is in direct contrast to other investigations of sharing book reading carried out

by early childhood teachers. An example is Girolametto et al., (2012) where the researcher supplied the books that teachers' used in shared book reading. By providing the books (and not allowing choice), multiple opportunities for meaning related and code based strategies could be anticipated. In this project, the opportunities to use the language of learning or comment on the print were limited due to the simplicity of the book. Teachers' choice of books may have affected their use of meaning related or code based strategies.

Characteristics of the early childhood centres

Characteristics of the early childhood centres that may have influenced this project include the socioecomonic status of the areas in which the centres were located and the facilitators of the PLD.

The socioeconomic status of the areas of the centres may have influenced the impact of the PLD on teachers' use of meaning related and code based strategies. Decile ranking of the local schools (Ministry of Education, 2015) was used as a proxy for the socioecomonic status of the local area. Group A was in a Decile ten area (high socioeconomic status) while Group B centres were in Deciles two and three (low socioeconomic status) (Ministry of Education, 2015). A link between delays in children's oral language skills and socioeconomic status has been observed (Snow 2016)) with more children in low socioeconomic areas observed to experience language delay (Locke et al. 2002). As responsive educators, teachers in low socioeconomic areas may be simplifying or modifying their language, to support children's engagement. There may be limited opportunities to use meaning related or code based strategies, particularly if children are observed to not be interested in print, or not to be ready for language facilitation strategies. Teachers may also have variable

expectations for children, and a limited awareness of the impact they can have on children's language and literacy development. A New Zealand study, focused on investigating early childhood teachers' skills in supporting children's' phonological awareness and alphabet knowledge in low socioeconomic areas (McLachlan & Arrow, 2014), found that short term professional development did not lead to significant changes to teachers' knowledge or children's emergent literacy skills.

The design of the study

The design of the study may have influenced the outcomes of this project, both in the design of the intervention, and in the sensitivity of the measures used. Investigating the impact of PLD in an early childhood context is complex. This particular project was affected by staff turnover and the capacity of staff to engage in PLD and to engage in research. A group study design was intended, however due to small numbers of participants, this was replaced with a single subject design.

One strength of a single subject design is that it supports analysis of clinically significant results as opposed to statistically significant results (Byiers et al., 2012). Teachers' shift in their use of strategies to support meaning related and code based knowledge has clinical significance in terms of the impact of the PLD in shifting teacher practice. While drawing conclusions from a statistical point of view may be challenging, the results are indicative that further investigation around the impact of this PLD may be warranted. External validity for this study was strengthened by looking at multiple baselines across participants and investigating multiple behaviours across baselines. This supports generalisation of the results to other early childhood teachers in a New Zealand context.

The *design of the intervention* may have also influenced the results of the project. This includes issues around social validity. Social validity is a measure of the importance and acceptability of an intervention, particularly in terms of its outcomes, from the point of view of the participants (Foster & Mash, 1999). This project appears to be have been affected by several issues related to social validity.

The structure of the PLD was intended to support early childhood teachers' engagement as much as possible, particularly in terms of intensity and sustainability (Cabell et al., 2011).. This included offering workshops outside of teaching time, and offering video coaching in the early childhood teacher's centre. However, this led to teachers attending PLD in their own time on a Saturday. This may have affected teachers' engagement with the PLD.

Another social validity issue around the design of the PLD was the video coaching. The facilitators reported that some teachers appeared extremely anxious around having a short video of their practice filmed and then having a reflective conversation around this. At these times, the facilitators adopted a peer coaching method, which involved including a peer in the process, and then supporting a peer to have the reflective conversation. Participation in the video coaching may have been seen as a barrier for some potential participants, and so have been a barrier to their participation. Future projects may require more upfront discussion with potential participants around the process for videocoaching. The effects on changing practice through the use of videocoaching may also require more discussion, particularly how it generates insights for the participants. However, the coaching logs indicated that teachers engaged in video coaching, and the strategies they focused on indicated they found it useful.

The sensitivity of the measures used to capture changes in teachers' use of strategies to facilitate children's oral language and literacy may have been another factor that impacted on the results. The measures of the instructional strategy were aligned with the definition of the strategy being used. In this study, the measures were a direct frequency count of the specific strategies being implemented by the early childhood teacher in context (Burchinal, Vandergrift, Pianta, & Mashburn, 2010) . In order to maximise external validity and clinical significance, measures were developed base on earlier studies (Piasta et al., 2012). These measures were intended to directly capture teachers' use of specific strategies in context, however they may not have been sensitive enough to capture change, particularly compared to measures used in similar studies using transcription and coding (Girolametto et al., 2012, Milburn et al., 2015).

A follow up data collection point was not included to investigate whether the gains made were maintained, and where teachers appeared to not have made changes, whether these teachers began to implement specific strategies, particularly as video coaching may have lead to deeper learning (Rezzonico et al., 2015). Uptake from this kind of PLD may vary across strategies, and teachers show a gradual increase in their implementation of strategies over time (Piasta et al., 2012). A follow up data collection point one to two months later would have strengthened the evaluation of the impact of PLD.

Overall, some teachers made changes that early childhood teachers made in their use of emergent literacy strategies after participating in Teacher and Talk and video coaching. The changes in teachers' practice may be related to the New Zealand early childhood context, characteristics of the participants and early childhood centres, and the design of the study.

Use of strategies to support the development of code based skills

The second research question investigated the changes that are seen in the use of strategies to promote the development of code based skills. Overall, there were three participants from Group B who made changes to their use of strategies to support the development of code based skills, while twelve participants did not.

Other studies that have investigated similar interventions have reported changes in teachers' use of strategies to promote the development of code based skills (Milburn, et al., 2015, Girolametto et al., 2012)). After eighteen hours of workshop time and three individual coaching sessions with a speech language pathologist, teachers as a group were reported to increase their references to print or sounds, promoting the development of print knowledge and phonological awareness (Girolametto et al., 2012). Similarly, after twenty one hours of workshop time and five individual coaching sessions, teachers as a group were reported to facilitate phonological awareness but not references to print (Milburn et al., 2015.). Both these studies highlight the importance of coaching in supporting teachers' to make changes to their use of strategies to support the development of code based skills.

Possible reasons for only some teachers changing their use of strategies include the influence of curriculum, the skills and knowledge of the facilitators of the PLD, and the skills and knowledge of early childhood teachers own code based skills.

Te Whāriki, the New Zealand early childhood curriculum (Ministry of Education, 1996) has a strong emphasis on the development of children's story telling skills, and a different emphasis on the development of print based skills. The focus in Te Whāirki (Ministry of Education, 1996) on developing children's familiarity with print and their use of code based strategies may have influenced teachers' skills in

implementing meaning related strategies as opposed to code based strategies. Similar observations were made by Westerveld et al., (2015) in their study looking at the emergent literacy skills of four year old children in Kindergarten. In this study, children demonstrated progress in the development of story comprehension and retell skills, but minimal progress in the development of their code related skills. The differences in performance were linked in part back to the focus in Te Whāriki (Ministry of Education, 1996) by the authors. The focus in Te Whāriki appears to be influencing the emphasis placed on language facilitation, alongside building familiarity with print, by New Zealand early childhood teachers.

The facilitators of the PLD were both experienced, qualified early childhood teachers, who also had experience in facilitating the learning of early childhood teachers. They were able to connect the content of the PLD with Te Whāriki, the New Zealand early childhood curriculum. The facilitators were also able to support common early childhood practices in New Zealand, including facilitating centre self review (Ministry of Education, n.d.) The qualifications and experience that the facilitators brought to the PLD may have influenced their facilitation, particularly the focus in coaching. Even though this was led by the participants, the focus on meaning based strategies as opposed to code based strategies possibly reflects the facilitators' high level of skills and knowledge in promoting responsive interactions with children. Similar observations were made by Milburn et al., (2015) where the focus of coaching reflected the skills and knowledge of the coach. Coaching carried out by Speech Language Pathologists lead to changes in code based strategy use, particularly references to phonological awareness. Milburn et al., (2015) further comment that his was in contrast to another study reported by Neuman & Wright (2010) where early childhood teachers were coaches, with changes being seen in environmental or

structural differences to facilitate oral language as this was the focus of the coaching sessions, as opposed to supporting teachers with facilitating language development in responsive interactions. The focus in coaching sessions, while being participant led, may have also reflected the skills and knowledge of the early childhood teachers who facilitated the PLD, leading to a stronger focus on meaning related techniques, and reduced focus on code based strategies. This may be reflected in the results which showed minimal change in the use of code based strategies.

Observations by other authors suggest that early childhood teachers use low levels of print referencing as part of their practice (Milburn et al., 2015), and require support to make changes to their practice in this area.

Participants own code based skills and knowledge may have also impacted the use of code based strategies to support children's emergent literacy. Limited knowledge amongst early childhood teachers of emergent literacy skills such as phonological awareness has been demonstrated (Carroll, et al., 2012). This limited knowledge may have influenced the focus of coaching on meaning related techniques as opposed to code based, and limited the skills teachers had to implement code based strategies for the children they were working with.

Overall, the use of code based strategies to support children's emergent literacy by participants was limited. This may have been affected by the focus in the curriculum, the skills and knowledge of the PLD facilitators, and the development of the participants own code based skills.

Use of strategies to support the development of meaning related skills

The third research question investigated changes that were seen in teachers'
use of meaning related skills. Overall, six teachers made significant changes in their
use of meaning related skills. Similar results have been observed in other studies
(Cabell et al., (2011), Rezzonico et al., (2015)), where despite all teachers
participating in the PLD, only some teachers make changes in their use of strategies to
support the development of meaning related skills. An increase in strategies to support
interaction or communication facilitation techniques such as commenting was
reported by Cabell et al., (2011) but not a change in teachers' use of strategies to
support language development. This was after twenty hours of workshop time and
access to written feedback from a consultant on submitted videos of teaching practice
over an academic year. An increase in teachers' use of inferential questions during
shared book reading was reported by Rezzonico et al., (2015), after teachers
participated in four workshops and five coaching sessions. The increase in use of
inferential questions was reported in comparison to a control group of teachers who
had only participated in workshops, but had not received coaching.

 Possible reasons for six teachers making changes in their use of meaning
related skills (but not the other nine teachers) include the influence of the early
childhood curriculum and the length of the PLD.

The early childhood curriculum, Te Whāriki (Ministry of Education, 1996) has
a strong focus on teachers building reciprocal relationships with children, in following
their lead and facilitating their learning. Within the communication strand of Te
Whāriki (Ministry of Education, 1996) there is a focus on supporting children's skills
in using verbal communication for a range of reasons, including telling stories. This

focus on using language in functional ways aligns with a focus in supporting the development of children's meaning related skills. Opportunities to extend vocabulary, promote an understanding of narrative and use increasingly complex sentence structures (grammatical ability) are available where there is a focus on the functional use of language. In contrast, a study by Cabell et al., (2012) found that early childhood teachers in the United States after fifteen hours of PLD made changes in their use of strategies to promote interaction (such as making eye contact and encouraging turns in conversations) but minimal change in their use of meaning based skills such as expanding children's sentences or using more complex vocabulary.

The length of the PLD may have been insufficient for many teachers to make changes in their use of meaning related strategies. Overall, teachers participated in twelve hours of workshop time and then had two individual coaching visits. This is in contrast to other studies such as Girolametto et al., (2003) where teachers participated in eight x two and half hour sessions, and six individual coaching visits. In this study, teachers showed changes in their use of language facilitation strategies, including strategies that are meaning related.

Overall, six teachers made changes in their use of meaning related strategies. This may have been related to the New Zealand early childhood curriculum focus on functional language and the length of the PLD.

Conclusion

As a result of the PLD, six teachers made changes in their use of meaning related skills while sharing books with children. Three teachers made changes in their use of code based strategies. The results may have been influenced by the New Zealand early childhood context and characteristics of the participants and the facilitators. The design of the study and the model of the PLD may have also influenced the results. A limitation of this study is the small number of participants, however the single subject design has allowed detection of clinically significant changes. Overall, Teacher Talk combined with video coaching does lead to shifts in how some teachers facilitate children's emergent literacy and language development. Further adaptation may be required to support early childhood teachers' skills in facilitating the development of meaning related and code based skills. This might include increasing the workshop and coaching times, and further refining the measures of changes in teachers' practice. This study demonstrates that teachers can make changes in their use of meaning related and code based skills to support teachers' facilitation of children's emergent literacy skills, as a result of the Teacher Talk workshops and video coaching.

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APPENDIX A

Telephone: 0211240004
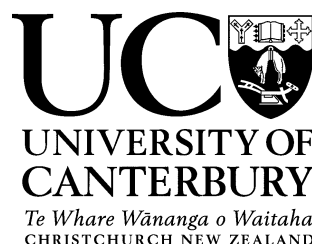
Email: maryanne146@gmail.com

UC

UNIVERSITY OF CANTERBURY

Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Supporting early childhood teachers to facilitate children's emergent literacy and oral language

Information sheet for Early Childhood Teachers

Kia ora

I am a student at the School of Communication Disorders, University of Canterbury. I also work as a Speech Language Therapist at the Ministry of Education. I am interested in ways to support early childhood teachers to facilitate the emergent literacy and oral language development of children.

I would like to invite you to participate in my project. If you agree to participate, you will be asked to:

- complete a brief questionnaire, taking about five minutes

- take part in video taping of you talking with children at your centre as part of everyday book reading activities. This will be for ten minutes each time, for up to five times

- approach parents and whanau to gain consent for their child to participate in video sessions

Participation in this project is voluntary. You also have the right to withdraw from the project at any time without penalty. If you do withdraw, I will do my best to remove any information relating to you, provided this is practically achieveable.

I will take particular care to maintain confidentiality of all the data gathered for the study. I will also take care to ensure your anonymity in the publication of the findings. The questionnaires and videos will only be used for analysis. All the data, including videos, will be securely stored in password protected facilities and locked storage at the University of Canterbury for five years following the study. It will then be destroyed.

The results of this research will help in finding out what supports early childhood teachers to facilitate oral language and emergent literacy, particularly in the ways they interact with children. The results will also be reported internationally, at conferences and in journals.

If you would like to receive a copy of the report please record your email address on the consent form.

If you have any questions about the study, please contact me or my supervisor, Jayne Newbury, on 03 364 2987 ext 8317.

This project has received ethical approval from the University of Canterbury Educational Research Human Ethics Committee. Any complaints about the project can be addressed to The Chair, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz)

If you agree to participate in this study, please complete the attached consent form and return it in the envelope provided by Wednesday 28th October.

Thank you for considering taking part in this project.

Ngā mihi nui

Maryanne O'Hare

Telephone: 0211240004

Email: maryanne146@gmail.com

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Supporting early childhood teachers to facilitate children's emergent literacy and oral language

Information Sheet for Parents

Kia ora

I am a post-graduate student at the Department of Communication Disorders, University of Canterbury. I also work as a Speech Language Therapist at the Ministry of Education. I am studying how to support early childhood teachers to help children at their centres to learn better language and early literacy skills.

Your child's early childhood teacher has agreed to participate in a research study. This study will see whether teachers are using new teaching strategies taught in a professional development course. The course is called *Teacher Talk* and is a standard course offered to teachers about effective ways to support children to learn language and early literacy skills.

If you consent to your child's participation they **may** be involved in:

- Up to five 10 minute videotapes of your child talking with other children and their teacher, as part of everyday book reading at the centre.

My main interest when examining these videos is to note how the teachers are interacting with the children – what the children say and do won't be analysed.

You don't have to let your child take part in these recordings if you don't want to. Even if you sign below, you could change your mind at a later date and withdraw your child from the study by contacting the centre manager or myself. There would be no penalty for this and you wouldn't have to give a reason.

It is possible that your child may not want to read a story with the teacher on the day(s) that the recordings are scheduled. This is okay – your child is free to choose whether they want to read the story with the group or not. In this way, they can choose if they are in the study or not.

I will take particular care to maintain confidentiality of all the data gathered for the study. The videos will only be used for analysis. I will also take care to ensure your child is not identified in the publication of the findings. All the data, including videos, will be securely stored in password protected facilities and locked storage at the University of Canterbury for five years following the study. It will then be destroyed.

It is hoped that the results of this research will be used to inform future planning around supports for early childhood teachers to teach language and early literacy well.

The results will be written up in a master's thesis which will be available in the University of Canterbury library. They will also be reported internationally, at conferences and possibly in journals.

If you would like to receive a copy of the report please record your email address on the consent form.

If you have any questions about the study, please contact me on 021 1240 004 or my supervisor Dr Jayne Newbury, on 03 364 2987 ext 8317.

This project has received ethical approval from the University of Canterbury Educational Research Human Ethics Committee. Any complaints about the project can be addressed to The Chair, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz)

If you agree to participate in this study, please complete the attached consent form and return it in the envelope provided by Wednesday 28th October.

Thank you for considering taking part in this project.

Ngā mihi nui

Maryanne O'Hare

APPENDIX B

Telephone:0211240004

Email: maryanne146@gmail.com

Supporting early childhood teachers to facilitate children's oral language

Centre:

Do you hold a qualification in early childhood education? YES/ NO

What is the qualification?

How long have you been working as an early childhood teacher?

0-2yrs   2-5yrs   5+yrs

Do you speak English as an additional language?

Have you participated in workshops around oral language before?

What is the age range of children you currently work with

0-2yrs   2-3yrs   3-4yrs   4-5yrs