

Impacts of an in-service education program on promoting language development in young children: A pilot study with early childhood educators

Child Language Teaching and Therapy
2015, Vol. 31(1) 37–51

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DOI: 10.1177/0265659014537508

clt.sagepub.com



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Abstract

Early childhood educators (ECEs) play an important role in fostering language development in young children. In-service education, led by speech-language pathologists (SLPs), has a potential role in educating ECEs about language development. In this pilot study, 42 ECEs attended an in-service education program and completed pre- and post-questionnaires to explore their perceptions of the impact of the in-service on their knowledge of child language development and language-promoting strategies and their confidence in this knowledge. To explore ECEs' actual use of strategies, five ECEs also participated in pre- and post-video recordings of their interactions with children. ECEs' knowledge of language development and language-promoting strategies increased post-program. Confidence in this knowledge and awareness of their roles also increased. Although not statistically significant, video recordings captured an overall increase in ECEs use of seven of the eleven rated language-promoting strategies. This pilot study has highlighted potential benefits of SLP-led education programs for ECEs, which is promising given the important role of ECEs in facilitating child language development.

Keywords

Early childhood educators, in-service education, language development, speech-language pathology

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I Introduction

Approximately 35%–55% of children aged between 2 and 4 years in Australia are enrolled in formal childhood services (Australian Bureau of Statistics, 2011a). Access to high quality childhood services is essential in promoting social and language development in children (Howes et al., 2008). It is important that early childhood educators (ECEs) have knowledge of language development (Cunningham et al., 2009; Locke et al., 2002) and are able to create environments which promote language development and importantly, use this knowledge to identify children with potential language difficulties and make appropriate referrals (Letts and Hall, 2003). However, many ECEs lack knowledge of child language development (Cunningham et al., 2009; Mroz and Hall, 2003) and receive limited training in this area (Letts and Hall, 2003; Mroz, 2006a, 2006b; Mroz and Letts, 2008). For example, Letts and Hall (2003) found that more than half (52.7%) of 829 ECEs surveyed reported receiving less than eight hours training in normal speech and language development, and the majority (72.3%) reported receiving no training about speech and language delays or disorders during their initial education. Letts and Hall (2003) further showed a link between training and ECE confidence in their knowledge of speech and language development, with ECEs who reported low levels of confidence identifying high training needs. ECEs have identified the importance of increasing their self-confidence in the area of child language development (Mroz, 2006b). As ECEs become more confident in promoting language development, they may be better able to contribute to the provision of high quality childhood services (Leeson et al., 2012).

Training in child language development is clearly necessary in order to meet the educational needs of ECEs (Lanigan, 2011). Ahsam et al. (2006) developed a 12-week onsite training package for ECEs, whereby a speech-language pathologist (SLP) or SLP assistant attended the childhood setting for one session per week. The ECE initially observed the SLP modelling language activities in small groups then ran the activity, and received feedback from the SLP. A purpose-built rating scale was used to examine the behaviours of three ECEs captured in pre- and post-video recordings. Whilst no statistically significant differences were found in the pre- and post-data, ECEs showed differences in many of the rated behaviours, for example, their ability to ‘use opportunities to draw children into an activity’, ‘ensure children had time to respond’, and ‘encourage contingent discussion between child and adult’.

Girolametto and Weitzman (2002) also highlighted the importance of training ECEs in language-promoting strategies. Their study compared language interaction strategies used by 26 ECEs within a book reading and play dough activity. Three types of strategies were examined:

1. child-centred strategies, i.e. following the child’s lead and allowing them to initiate activities;
2. interaction-promoting strategies, i.e. facilitating turn-taking and participation in conversations through asking questions; and
3. language-modelling strategies, i.e. modelling language by labelling, expanding, and extending a child’s utterances.

The 104 children in the Girolametto and Weitzman study were found to produce more language when the ECEs used all three types of language promoting strategies.

More recently, a systematic review exploring ECEs’ skills for promoting language and literacy development in young children identified four key skill areas: developing high-quality adult–child

interactions; explicit literacy instruction; developing storytelling skills; and supporting peer-to-peer interactions (El-Choueifati et al., 2012). Equipping ECEs with language stimulating strategies has also been found to facilitate the development of language skills in toddlers and preschoolers (Loeb and Armstrong, 2001). One such training program is Learning Language and Loving It (LLLI): The Hanen Program® for Early Childhood Educators and Preschool Teachers (The Hanen Centre, 2011a).

The LLLI Program has been evaluated through two small, randomized control trials (RCTs). The first RCT investigated the efficacy of the LLLI Program on ECEs' use of strategies and its impact on children's verbal participation (Girolametto et al., 2003). The second RCT investigated the impact of the LLLI Program on educators' use of strategies to promote early literacy skills (Flowers et al., 2007). Sixteen educators participated in both studies. Eight educators were randomly assigned to participate in a 14-week LLLI Program (experimental group), consisting of eight group training sessions and six individual video feedback sessions. The other eight educators did not receive LLLI training (control group). Each educator cared for four children, and outcomes were measured following the 14-week period. The first RCT found that educators in the experimental group were more talkative in their interactions with children (as measured by number of utterances and words used per minute) compared to the educators in the control group (Girolametto et al., 2003). Further, the children in this study being cared for by educators in the experimental group showed an increase in spontaneous language production, multiword combinations, and engagement in conversations with their peers. In the second RCT, Flowers et al. (2007) found that ECEs in the experimental group were more likely to expose children to a greater range of language functions. These children were observed to use utterances that were more linguistically advanced (e.g. making judgements instead of labelling actions).

Despite these positive findings, it must be acknowledged that these studies were small scale and, further, there are some limitations to this program. Specifically, the substantial time commitment required to complete the program may prevent busy ECEs from attending. As such, a shorter modified program, consisting of four group training sessions and three individual video feedback sessions, was developed by Girolametto et al. (2004). Girolametto et al. (2004) investigated the impact of this modified program on how educators facilitated peer interactions among children within their care. Eight educators completed the modified LLLI Program (experimental group), which taught them strategies to encourage peer interactions; and eight educators were taught general strategies to improve their communication with children (control group). Video recordings were transcribed and all ECE utterances were examined and coded to determine ECEs use of verbal prompts to encourage peer interaction. Educators in the experimental group used more language-promoting strategies than those in the control group, resulting in children in their care being engaged in more peer-directed conversational turns. The positive outcomes of this study highlighted the potential benefits of in-service education programs for ECEs and the children they care for.

Therefore, the study reported here aimed to explore the impact of an in-service education program on ECEs':

1. knowledge of the stages of language development and confidence in this knowledge;
2. knowledge of strategies for promoting language development and confidence in this knowledge;
3. reported use of strategies discussed in the program; and
4. actual use of strategies discussed in the program.

II Method

This pilot research comprised two studies. The first study involved ECEs attending the in-service education program and completing pre- and post-questionnaires. A subset of five ECEs who attended also participated in a second study which involved pre- and post-video observations.

Study 1

a Participants. A total of 42 adult ECEs who worked in early childhood settings in metropolitan and regional areas in Queensland, Australia, attended the in-service education program. Participants had a range of years working experience (2 to > 20 years), and the majority (70.0%, $n = 28$) worked in long day-care centres. These settings were located in lower socio-economic areas (Australian Bureau of Statistics, 2011b). The ECEs worked with children who were less than 5 years of age. The number of children that the ECEs worked with ranged from fewer than 5 children to more than 16 children. All participants were female. Participant demographics are presented in Table 1. These ECEs had a range of educational backgrounds and years of experiences (see Table 1).

b Procedures. Local advertising was used to invite ECEs to attend the in-service education program. The in-service used in this study was the Hanen Teacher Talk program, which provides ECEs with strategies for encouraging language development in early childhood settings (The Hanen Centre, 2011b). The in-service was delivered in two 3.5 hour sessions conducted one week apart by a certified SLP.

c Materials. Pre- and post-questionnaires (see Appendix 1) were purposefully developed to address the study aims. Both questionnaires comprised a mix of response formats and were completed onsite in a group setting. The pre-questionnaire was completed at the beginning of the first session, and the post-questionnaire at the end of the second session. The post-questionnaire contained an additional section exploring the ECEs' satisfaction with the in-service.

d Data analysis. Quantitative and qualitative data analysis was used to evaluate questionnaire responses. The quantitative data were entered in the IBM SPSS Statistics Version 20.0.0 for Windows (IBM SPSS, 2011). The Wilcoxon signed ranks test was used to test for significance between ECEs' responses pre- and post-program. Qualitative content analysis, as described by Graneheim and Lundman (2004), was used to analyse ECEs' responses to open-ended questions. Missing data from the questionnaires can be explained by limitations in the administration in that the questionnaires were not completed in a one-on-one interaction with the researchers to permit prompting of missed items.

Study 2

a Participants. Five female ECEs who attended the in-service education program participated in the second study, which involved pre- and post-video observations with the children they care for in their early childhood education setting in which they worked.

b Procedures. ECEs who registered for the in-service were contacted by the researchers and asked if they would be willing to participate in two videotaping sessions. Participants were videotaped in their usual workplace setting a week before, and within two weeks following their attendance at the program. The video recordings captured ECEs during a typical childhood activity with the children

Table 1. Participant characteristics.

	Number of participants			
	Study 1 (n = 42)		Study 2 (n = 5)	
	n	%	n	%
<i>Workplace:</i>	(n = 40)		(n = 5)	
Long day care centre	28	70.0	3	60
Playgroup	1	2.5	0	0
Other (e.g. home-based)	8	20.0	1	20
Multiple workplaces	3	7.1	1	20
<i>Roles:</i>	(n = 38)		(n = 5)	
Director	7	18.4	0	0
Childhood teacher/ group leader	24	63.2	4	80
Childhood assistant	7	18.4	1	20
<i>Number of years experience:</i>	(n = 41)		(n = 5)	
≤ 5	17	41.5	2	40
≥ 5 to < 10	12	29.3	1	20
≥ 10 to < 20	8	19.5	1	20
≥ 20	4	9.8	1	20
<i>Highest qualification:</i>	(n = 41)		(n = 5)	
Bachelor degree or higher	8	19.5	1	20
Diploma or associate diploma	12	29.3	1	20
Advanced diploma	4	9.8	1	20
Certificate III	14	34.1	1	20
Other (e.g. on the job training)	3	7.2	1	20

they cared for. The contexts in which these interactions took place are described in Table 2. Parental consent for the children to be videoed was obtained. The length of the video recordings ranged from 20 to 60 minutes.

c Materials. The Teacher Interaction and Language Rating Scale (TILRS; Girolametto et al., 2000) was used to analyse the pre- and post-program video recordings. The TILRS assesses educators' use of language and interaction-promoting strategies across 11 domains: (1) waiting and listening, (2) following the child's lead, (3) joining in and playing, (4) being face to face, (5) using a variety of questions, (6) encouraging turn-taking, (7) scanning, (8) imitating, (9) using a variety of labels, (10) expanding, and (11) extending. The TILRS uses a 7-point rating scale, with a rating of 1 indicating that the strategy is almost never used, and a rating of 7 indicating that the strategy is used consistently. More detailed information about the TILRS is available in Girolametto et al. (2000).

d Data analysis. Two SLPs independently viewed the pre- and post-videos and rated the first 20 minutes of ECEs' interactions using the TILRS (Girolametto et al., 2000). The SLPs were blinded to whether the videos were recorded prior to or following ECEs' attendance at the in-service. Additionally, the order in which the SLPs viewed the videos was randomized so as to reduce bias and increase inter-rater reliability. Following the independent ratings, the two SLPs compared their analysis and reached consensus on the ratings within each domain. Ratings of ECEs' use of

Table 2. Study 2: Contexts for pre- and post-program video recordings ($n = 5$).

Participant	Pre-program video contexts	Post-program video contexts
1.	Mealtime, free play	Mealtime
2.	Mealtime, nappy change, bedtime	Mealtime, nappy change, transition
3.	Craft, computers, free play	Mealtime, transition, painting
4.	Painting, craft	Book reading, craft
5.	Puzzles, painting	Puzzles, playdough

language and interaction-promoting strategies on the TILRS were analysed using the Wilcoxon signed ranks test to test for pre- and post-program differences.

III Results

Study 1

Comparison of the ECEs' pre- and post-questionnaires indicated that the in-service education program had a positive impact on ECEs':

1. knowledge of the stages of language development and perceived confidence in this knowledge;
2. knowledge of strategies for promoting language development and perceived confidence in this knowledge; and
3. reported use of strategies discussed in the program.

a ECEs' knowledge of language development and confidence in this knowledge. The first three items of the questionnaire (see Appendix 1) explored ECEs' knowledge of the stages of children's developmental language milestones. Comparison of pre- and post-responses indicated that ECEs knowledge of vocabulary development increased following completion of the program (see Table 3). The Wilcoxon signed ranks test showed a significant difference ($z = 4.894, p \leq .001$) between ECEs' perceived confidence in this knowledge pre- ($Mdn = 6$) and post-program ($Mdn = 8$) (item 4).

b Knowledge of strategies for promoting language development and confidence in this knowledge. Comparison of the pre- and post-program responses indicated that ECEs' knowledge of strategies for promoting language development increased following completion of the program (Questionnaire items 5–7). Post-program, more than half of the ECEs were able to identify all six language-promoting strategies (item 5) introduced in the program for following a child's lead (see Figure 1).

ECEs were also asked to identify strategies they could use to keep the conversation going (item 6). The number of different strategies identified by ECEs for keeping the conversation going increased from four categories pre-program to eight categories post-program (see Table 4). Post-program, ECEs were able to identify more specific ways in which questions and comments can be used to keep the conversation going.

Post-program, more than two-thirds of the ECEs were able to identify all five of the steps they could use to encourage interactions in group situations (item 7) (see Figure 2). The Wilcoxon signed ranks test showed a significant difference between ECEs pre- and post-ratings of their perceived confidence in their ability to follow a child's lead (item 8; $z = 3.156, p = .002$), keep the conversation going (item 9; $z = 4.10, p \leq .001$), and encourage interactions in group situations (item 10; $z = 2.947, p = .003$).

Table 3. Study 1: Change in ECEs' knowledge of child language development.

	Number of participants (<i>n</i> = 42)			
	Pre		Post	
	<i>n</i>	%	<i>n</i>	%
<i>1. Age at which typically developing children start to say their first words</i>	<i>(n</i> = 37)		<i>(n</i> = 42)	
0 to < 10 months	13	35.1	6	14.3
≥ 10 to ≤ 14 months*	21	56.8	35	83.3
≥ 15 months	3	8.1	1	2.4
<i>2. Number of words a typically developing child at 2 years of age should a child be using</i>	<i>(n</i> = 35)		<i>(n</i> = 38)	
< 50	15	42.9	7	18.4
≥ 50 to ≤ 200*	17	48.6	27	71.1
> 200	3	8.6	4	10.5
<i>3. Age at which typically developing children should start to combine words</i>	<i>(n</i> = 38)		<i>(n</i> = 41)	
< 12 months	0	0.0	1	2.4
≥ 12 to < 18 months	3	7.9	5	12.2
18 to < 24 months*	16	42.1	29	70.7
≥ 24 to < 36 months	16	42.1	6	14.6
≥ 36 to ≤ 60 months	3	7.9	0	0.0

Note. An asterisk (*) denotes correct response as discussed in the in-service; Pre = pre-program questionnaire; Post = post-program questionnaire.

The majority of ECEs (90.5%) reported that the strategies taught in the program were new to them (item 11). In addition, all ECEs indicated that the 'red flags' information was useful in helping them identify children with potential speech and language difficulties (item 12; *Mdn* = 10; range 7–10).

The Wilcoxon signed ranks test showed a significant difference in ECEs pre- and post-ratings relating to the importance of their role in facilitating language development (item 13) ($z = 2.436$, $p = .015$). Following the program, two-thirds of the ECEs who responded ($n = 19$) also indicated that they would now refer some children within their care to a SLP (item 14). The Wilcoxon signed ranks test showed a significant difference between ECEs' pre- (*Mdn* = 5) and post-program (*Mdn* = 8) ratings regarding their level of concern with respect to a child having no words at 2 years of age (item 15) ($z = 5.041$, $p < .001$).

c ECEs' reported use of strategies taught in the program. All 32 ECEs who responded agreed that they had changed the way they interacted with children as a result of attending the program (*Mdn* = 10, range = 6 to 10) (item 16). ECEs were able to list a range of specific strategies taught in the program (item 17) (see Table 5).

d Overall satisfaction with the in-service education program. Nearly all ECEs (97.6%) reported that the program was very useful (item 18). The majority of ECEs ($n = 27$, 93.1%) reported the best aspect of the program (item 19) was its relevance and practical application (e.g. 'I appreciated the sharing of practical ideas and realizing the importance of language in early childhood'). All of the ECEs who responded ($n = 41$) stated that they would recommend the program to other ECEs (item 20).

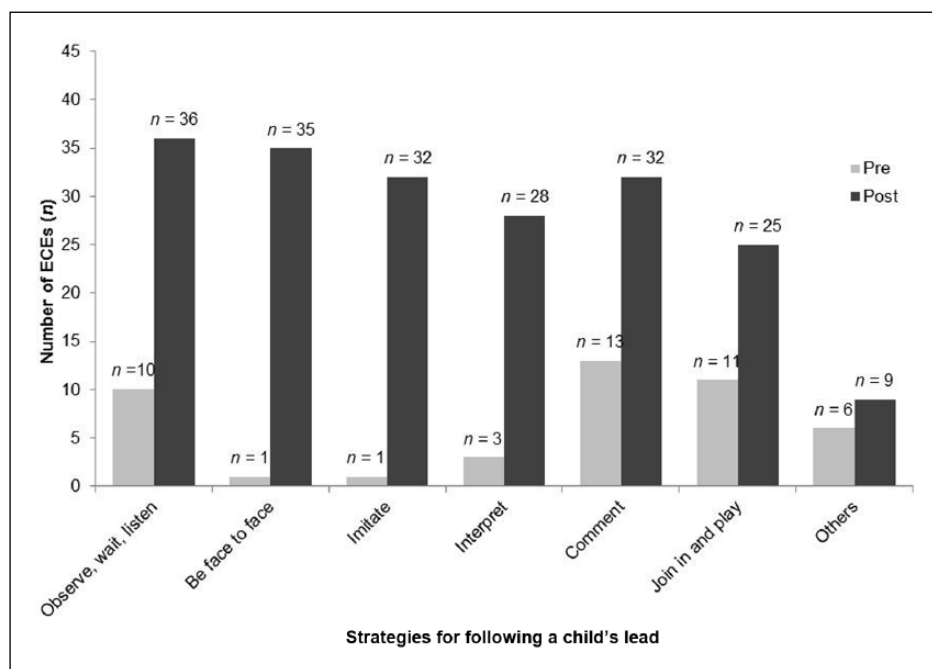


Figure 1. Comparison of Early childhood educators' (ECEs') pre- and post-program responses on strategies they could use to follow a child's lead (item 5)

Table 4. Study I: Change in ECEs' knowledge of language-promoting strategies.

	Number of participants (n = 42)			
	Pre		Post	
	n	%	n	%
<i>6. Strategies to keep the conversation going</i>				
Asking general questions	16	59.3	26	63.4
Making general comments	10	37.0	30	73.2
Questions that child can easily answer with a gesture, sound, or single word*	0	0.0	8	19.5
Questions that check that you have understood the child's message*	0	0.0	6	14.6
Questions that allow the child to make choices*	0	0.0	7	17.1
Questions/ comments that show your interest and create anticipation*	5	18.5	15	36.6
Questions/ comments that are easy for the child to understand*	0	0.0	7	17.1
By being attentive to the child	13	48.1	24	58.5

Note. An asterisk (*) denotes strategies specifically discussed in the in-service; Pre = pre-program questionnaire; Post = post-program questionnaire.

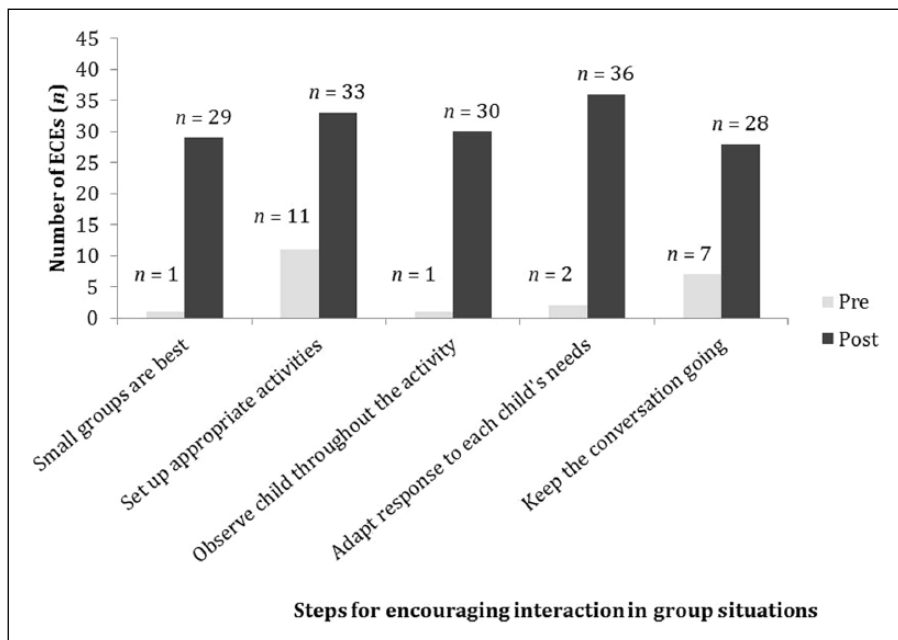


Figure 2. Comparison of Early childhood educators' (ECEs') pre- and post-program responses on the steps they could use to encourage interaction in group situations (item 7).

Table 5. Study I: Teacher talk strategies identified by ECEs' for future use.

	Number of participants (n = 42)	
	n	%
<i>17. Strategies ECEs intended to implement in their workplaces</i>		
Observe, wait, listen	18	72
Be face to face	10	40
Imitate	1	4
Comment	9	36
Join in and play	1	4
Following the child's lead	3	12
Think about the conversational styles of the children ECEs work with	3	12
Setting up experiences that prompt language	3	12

Study 2

Comparison of pre- and post-program video ratings did not identify a statistically significant increase in ECEs' actual implementation of strategies to promote language development, with the Wilcoxon signed ranks test showing no significant differences between pre- and post-program ratings on any of the 11 domains of the TILRS. However, the video recordings captured an overall increase in ECEs use of seven of the 11 strategies, with the most notable

Table 6. Study 2: Changes in actual use of language-promoting strategies in five ECEs.

	Mdn (range) TILRS Rating		z	p
	Pre	Post		
1. Wait and listen	2.0 (1.0 to 3.0)	4.0 (2.0 to 5.0)	1.89	.059
2. Follow the children's lead	2.0 (1.0 to 4.0)	4.0 (2.0 to 5.0)	1.36	.174
3. Join in and play	1.0 (1.0 to 2.0)	2.0 (1.0 to 5.0)	1.51	.131
4. Be face to face	3.0 (1.0 to 5.0)	5.0 (2.0 to 6.0)	1.63	.102
5. Use a variety of questions	3.0 (1.0 to 3.0)	3.0 (2.0 to 5.0)	1.30	.194
6. Encourage turn-taking	2.0 (1.0 to 3.0)	3.0 (1.0 to 5.0)	1.11	.269
7. Scan	1.0 (1.0 to 3.0)	3.0 (1.0 to 5.0)	1.60	.109
8. Imitate	1.0 (1.0 to 2.0)	1.0 (1.0 to 6.0)	1.00	.317
9. Use a variety of labels	2.0 (1.0 to 3.0)	2.0 (1.0 to 6.0)	1.34	.180
10. Expand	1.0 (1.0 to 2.0)	2.0 (1.0 to 4.0)	1.13	.257
11. Extend	1.0 (1.0 to 1.0)	1.0 (1.0 to 2.0)	1.41	.157

Note. Mdn = median; Pre = pre-program video observation; Post = post-program video observation.

increase in the use of the 'wait and listen' strategy which was marginally significant ($z = 1.89$, $p = .059$). See Table 6.

IV Discussion

Following participation in the in-service education program, there was an overall increase in ECEs' knowledge of child language development and strategies for promoting language development. Given that many ECEs currently receive limited training regarding child language development (Letts and Hall, 2003; Mroz, 2006a, 2006b, Mroz and Letts, 2008), these findings are promising, particularly in light of the relatively small time commitment required by ECEs in this study. The ECEs also reported high levels of satisfaction with the program, which may be related to the format of the in-service used in the current study (i.e. two half-day sessions delivered one week apart). Previous research exploring the training needs of ECEs has found that workshops are a suitable means for training ECEs, and that ECEs value time between workshops to practice learnt skills in their own setting (Mroz, 2006b).

The increased knowledge of child language development reported in this study also has implications for the referral of children with speech and language difficulties to SLPs. This is of relevance given the increasing reliance on ECEs to refer children at risk of communication difficulties (Mroz, 2006b). Oberklaid and Drever (2011) assert that knowledge of language development milestones impacts on the appropriate referral of children to SLPs. ECEs have previously identified that they want further training in communication development, with a particular focus on being able to gain knowledge and skills in the early identification of children who have communication difficulties (Mroz, 2006b). In order for ECEs to identify children with language difficulties, they must first be aware of the stages of language development (Stott et al., 2002). This knowledge allows ECEs to accurately match the stage of a child's language development to that expected of a typically developing child, and therefore better positions ECEs to identify children with delayed language and who may require additional support (Luinge et al., 2006). It was indeed positive to find that the majority of ECEs who participated in this study indicated that they had increased awareness of children in their group

who may require SLP services. In future research, it would be of interest to explore ECEs' rationales for why they would now refer children to an SLP in order to ascertain the correctness of these potential referrals, as unjustified referrals could potentially cause unnecessary parental concern.

Another positive finding was that ECEs reported feeling more confident in their knowledge of language development stages and strategies for promoting language development. Confidence has previously been identified as an indicator of underlying knowledge and skills (Stormont et al., 2011). ECEs who feel more confident in their training have been found to invest more effort into promoting language development in their workplace (Green et al., 2006), and has been positively associated with actual practice of these skills (Stormont et al., 2011).

Given the diversity in ECE's pre- and post-program knowledge, it is important to be cognizant that some ECEs may require ongoing professional education opportunities beyond this in-service education program in order to learn more about language development and referral to SLP services. Further, the ECEs in this study worked in early childhood education settings, which were located in lower socio-economic areas. Given that low socio-economic status has been strongly associated with speech, language, and communication difficulties (e.g. Fernald et al., 2012; Letts et al., 2013; McIntosh et al., 2007; Reilly et al., 2010), the ongoing professional development of these ECEs is of particular relevance due to the increased support these ECEs may need to provide to these children. It is important to note that in-services represent only one aspect of interprofessional collaboration between ECEs and SLPs, and ECEs may require additional support in the form of post-program follow-up sessions, and increased education regarding early childhood language in their pre-professional training. Ager and O'May (2001) suggested that ongoing support and coaching was essential for generalization and transference of learning to the workplace. In future research, it will be important to explore ECEs' ongoing training needs and to consider how in-services could be further developed to increase ECEs' use of language-promoting strategies in various childhood settings. For example, future research could explore the role of video feedback in training ECEs to use strategies. Previous research has identified that the acquisition and implementation of new strategies occurs primarily when specific training is combined with individualized on-line feedback and coaching (Kealey et al., 2000). However, the feasibility, including cost-effectiveness, of any ongoing support in addition to the program, would also need to be considered in future research.

Despite the improvements found in ECEs' knowledge, perceived confidence, and implementation of language-promoting strategies, it is acknowledged that this was a small scale pilot study and further research using a larger sample is required. It is also acknowledged that inclusion of a control group in future research would assist in determining if changes in ECEs' knowledge, confidence, and implementation of language-promoting strategies resulted from attendance at the in-service education program. This future research should also include random allocation of ECEs to groups to account for any participant biases regarding experience and motivation to learn. In order to allow ECEs to better demonstrate a change in their use of language-promoting strategies pre- and post-program, future research should ensure that pre- and post-video recordings are completed in similar contexts and during appropriate activities. Other studies that documented positive effects of in-service education on ECEs' facilitation of language development restricted the video recordings to specific contexts, such as a book reading activity (Flowers et al., 2007; Girolametto et al., 2004). In the present study, there were no specified contexts within which the videos were recorded. Some recordings, for example, captured ECE and child interactions during mealtime routines. ECEs have previously been observed to restrict their talking during mealtimes so as to focus on children's behaviour management, as well as to reduce noise levels (Bradley and Reinking,

2011). Hence the context of the video recordings in this study may have influenced the ECEs ability to demonstrate learnt skills.

V Conclusions

This research identified that ECEs increased their knowledge of language development and strategies for promoting language following completion of an in-service education program. As a result of attending two in services, ECEs reported feeling more confident in this knowledge and were more aware of the important role they play in facilitating language development. Although there were no statistically significant findings on the TILRS video ratings for the five ECEs who were videoed during interactions with children, results were suggestive of an overall positive change in ECEs use of a number of language-promoting strategies. Cost- and time-effective educational programs, that are well received by ECEs, are indeed needed at this time when many children attend long hours of childcare. This preliminary study has highlighted the potential of SLP-led in-service education programs in equipping ECE's with knowledge and strategies for promoting language development in the children for which they care.

Acknowledgements

The authors would like to thank the West Moreton Hospital and Health Service, Queensland Health, Australia, and Michelle Trevino for her support of this study. This study would not have been possible without the support of the early childhood educators who willingly gave their time to participate.

Declaration of conflicting interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

This work was supported by a Speech Pathologists Board of Queensland Enhancing Clinical Practice Grant (grant number 2011003095). The views expressed do not necessarily represent the views of the Board or the members, executive officer, or staff of the Board.

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Appendix I. Pre- and Post-Program Questionnaire.

Item	Question	Response format
<i>Section A: Pre- and post-program questions:</i>		
1.	At what age do typically developing children start to say their first words?	Open-ended
2.	At 2 years of age, in typical development, approximately how many words should a child be using?	Open-ended
3.	At what age do typically developing children start to combine words?	Open-ended
4.	How confident do you feel in your knowledge of the ages at which children should acquire different language skills?	Likert scale (1–10) (not confident at all – completely confident)
5.	List six (6) strategies you could use for following a child's lead.	Open-ended
6.	List as many strategies as you can that you could use to keep the conversation going.	Open-ended
7.	List five (5) steps for encouraging interaction in groups.	Open-ended
8.	How confident do you feel in your ability to follow a child's lead?	Likert scale (1–10) (not confident at all – completely confident)
9.	How confident do you feel in your ability to keep the conversation going?	Likert scale (1–10) (not confident at all – completely confident)
10.	How confident do you feel in your ability to encourage interactions in groups?	Likert scale (1–10) (not confident at all – completely confident)
<i>Section B: Additional post-program questions:</i>		
11.	The strategies discussed in the program were new to me.	Yes/No
12.	How useful was the red flags information?	Likert scale (1–10) (not useful – very useful)
13.	Rate your level of agreement with the statement: Early childhood educators play an important role in language development.	Likert scale (1–10) (strongly disagree – strongly agree)
14.	Are there any children from your group that you will now refer to a speech-language pathologist?	Yes/No

Appendix I. (Continued)

Item	Question	Response format
15.	If a child in your class has no words at 2 years of age, would you be...	Likert scale (1–10) (not concerned at all – extremely concerned)
16.	Please indicate your level of agreement with the following statement: As a result of attending this program, I have changed the way I interact with children.	Likert scale (1–10) (strongly disagree – strongly agree)
17.	If agree (with Question 16), please list the strategies that you intend to implement in your workplace.	Open-ended
18.	Please rate your overall satisfaction with the program.	Likert scale (1–10) (not useful at all – very useful)
19.	What did you like best about the program?	Open-ended
20.	Would you recommend the program to other ECEs?	Yes/No