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Supporting early oral language skills for English language learners in inner city preschool provision

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Background. A significant number of children now enter formal education in England with reduced levels of proficiency in oral language. Children who come from disadvantaged backgrounds and who are English language learners (ELL) are at risk of limited oral language skills in English which impacts on later educational achievement.

Aims. This paper reports the development of a theoretically motivated oral language intervention, *Talking Time*, designed to meet the needs of preschool children with poor language skills in typical preschool provision.

Sample. One hundred and forty-two 4-year-old children attending three inner city preschools in a disadvantaged area of London, England.

Method. This is a quasi-experimental intervention study comparing children exposed to *Talking Time* with children exposed to a contrast intervention and children receiving the statutory early years curriculum. Measures were taken of both targeted and non-targeted language and cognitive skills.

Results. Data were analysed for the ELL. The intervention had a significant effect on vocabulary, oral comprehension, and sentence repetition but not narrative skills. As predicted, there were no effects on the skills which were not targeted.

Conclusions. Regular evidence-based oral language interactions can make significant improvements in children's oral language. There is a need to examine the efficacy of more intensive interventions to raise language skills to allow learners to access the curriculum.

Oral language development is central to a child's ability to access the curriculum and develop literacy skills. Children whose oral language is compromised through disadvantage or who are English language learners (ELL) are at risk of literacy difficulties and academic failure (August & Shanahan, 2006; Hart & Risley, 1992; Kieffer, 2008). Pupils with poor oral language skills are also less likely to respond to reading interventions (Al Otaiba & Fuchs, 2006). The established links between oral language and educational achievement have resulted in both policy changes within the

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educational system (USA, NICHD Child Care Network; UK, Every Child a Talker) and the development of a range of programmes designed to encourage language development in preschool children (Justice & Pence, 2004). Currently, little is known about the ways in which educators can accelerate oral English language development among ELL and there is a need for effective early interventions for ELL (Cheung & Slavin, 2005; Gersten & Baker, 2000). The current study contributes to our understanding of the efficacy of preschool oral language interventions by implementing a theoretically motivated oral language intervention for ELL from disadvantaged circumstances. The intervention was compared with local good practice and a contrast intervention in which children experienced regular small group story reading (NICHD, 2000).

Over 300 languages are spoken in schools in England, with more than 9% of pupils recorded as having English as an additional language (DfES, 2003). Punjabi, Urdu, Bengali, and Gujarati are the languages that are most supported with one-fifth of Bangladeshi pupils having English as their main language (Madood *et al.*, 1997). While children who are ELL are disproportionally represented in the group of high academic attainers in the UK (UNESCO, 2008) some ELL fail to reach their potential. In addition, ELL are more likely to come from low-income families, with 31% of ELL eligible for free school meals compared to just 15% of all other children (DfES, 2003). Socio-economic indices are related to differences in the amount of time spent talking with children which impacts on subsequent language levels (Hart & Risley, 1992). Although there are debates about the most favourable language environment for ELL, the range of different languages present in urban English schools and the current National Curriculum means that children are taught and assessed through oral and written English. The children's needs are the responsibility of the whole staff (NLS, 1999). Teachers are often unprepared to meet children's varying oral language levels (Lewis *et al.*, 1999).

Access to the curriculum is constrained for pupils who have limited proficiency in English or who experience significant disadvantage. For these children, there is an elevated risk of reading difficulties in English, which becomes particularly evident as texts place higher demands on pupils' English language knowledge (Kieffer, 2008; Ofsted, 1999). These difficulties have often been linked to relatively low levels of English fluency at school entry (Hutchinson, Whiteley, Smith, & Connors, 2003) and to differences in the children's ability to listen to adults and each other (Mercer, Wegerif, & Dawes, 1999). The limited training in oral language development experienced by staff further impedes the potential for developing oral language skills.

To date, interventions to support ELL have typically been targeted at kindergarten and school-aged children (Gersten & Baker, 2000), focused on Spanish-speaking populations, lacked comparison or control groups and rarely present oracy outcomes (Tong, Lara-Alecio, Irby, Mathes, & Kwok, 2008). The lack of evidence relating to effective preschool practice for children in disadvantaged areas is a barrier to raising achievement.

Preschool settings provide an opportunity to address language learning needs early; however, they often fail to provide children with sensitive and responsive language learning opportunities. Relatively large doses of quality language input are required to accelerate language development in preschool settings (Justice, Mashburn, Hamre, & Pianta, 2008) but many children with poor language skills are not receiving the necessary support to develop their oral language skills (Bond & Wasik, 2009; Howes *et al.*, 2008).

Preschool settings are often dominated by teacher talk and this talk has been criticized as being overly directive and unresponsive (McCathren, Yoder, & Warren, 1995),

often focusing on procedural or management information which is associated with restricted and less complex language use by the children (Girolametto, Weitzman, van Lieshout, & Duff, 2000). In contrast, where children receive frequent examples of language models, development is enhanced (Hargrave & Sénéchal, 2000; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; Peterson, Jesso, & McCabe, 1999). There is also a strong and highly statistically significant relationship between vocabulary use and language acquisition in bilingual children (Pearson, Fernandez, Lewedeg, & Oller, 1997). These studies highlight the importance of children being exposed to the target language in sufficient amounts to develop later language skills. The quality of the language in the environment is differentially more important for the language development of children from disadvantaged backgrounds (Burchinal, Peisner-Feinberg, Bryant, & Clifford, 2000).

The use of comments and prompts by teachers contributes to the development of interaction with children producing more original pieces of language (Girolametto *et al.*, 2000). The impact of sensitive, frequent oral language exposures can be further enhanced through specific ways of talking with children that involve expanding children's oral language responses by using prompts, open-ended questions, expansions, and recasts (Chapman, 2000; Peterson *et al.*, 1999; Vasilyeva, Huttenlocher, & Waterfall, 2006). Typically, these approaches have failed to generalize to practice in preschool educational settings (Assel, Landry, Swank, & Gunnewig, 2006), partly because researchers have failed to consider the need for non-intrusive interventions which can easily be implemented (Tong *et al.*, 2008).

The current study targeted three preschool settings which were representative of a UK inner city with high levels of disadvantage and ELL. To ensure the intervention would be sensitive to the needs of ELL, we examined studies from the What Works Clearing House (WWC, n.d. ELL) which were judged to be effective in supporting the oral language development of school-aged ELL. These included evidence that guided discussion and questions (Serrano, 1987), small group discussions about stories, key concepts, and related personal experiences (Saunders & Goldenberg, 1999) and small group activities to support vocabulary learning (Carlo *et al.*, 2004) are effective in supporting oracy. This evidence base informed the development of the intervention.

The content of the intervention was designed to address language skills which are developing rapidly in the later preschool years and identified as challenges for ELL: vocabulary, the ability to describe or recount a situation and the ability to make predictions and draw inferences from the oral language. Insufficient vocabulary knowledge is a critical problem for many young children, particularly ELL (August & Shanahan, 2006) and reduced vocabulary knowledge is an obstacle to accessing information in the classroom (Carlo *et al.*, 2004). Exposures in which word meanings are explicitly highlighted or where teachers offer direct instruction are known to facilitate vocabulary acquisition for both monolingual English speakers and ELL (August & Shanahan, 2006). Acquisition can be further supported by the use of visual material; acting out may be particularly helpful for ELL (Gersten & Baker, 2000; Silverman & Hines, 2009).

Children's vocabularies support their ability to create narratives and engage in conversations. Conversations provide the primary tool for oral language development in the preschool classroom (Bond & Wasik, 2009). The ability to understand and draw inferences from language plays a role in understanding oral and written language (Cain, Oakhill, & Bryant, 2000). Thus, in addition to developing an extensive vocabulary and creating narratives, the opportunity to develop the ability to understand literal and inferential communication is important for children's developing language skills.

The current intervention included these three dimensions. First, vocabulary was developed through play-acting around themes that targeted key vocabulary items, including nouns, verbs, and adjectives. Second, the ability to understand and draw inferences was developed through an activity which provided structured discussions around books where the focus was the pictures in the books, what they illustrated, what might be predicted and how they linked to the children's own experiences. Third, narrative development was supported by using pictures of common activities in the children's local environment and providing children with the opportunity to describe and discuss these events.

The three activities were produced together as an oral language intervention called *Talking Time*. To support, the teachers' language use emphasis was placed on the use of contrasts that highlighted differences in lexical items and in syntactic structures, the use of open questions and expanding or recasting the children's utterances, modelling language structures that the children were not yet producing and event casting where the adult provided a description of the activity to take place. All staff in the intervention setting were provided with training in the key activities and language processes and intervention fidelity was evaluated through weekly visits to the centres where information about activity sessions and groups was collected and ongoing sessions observed to ensure that the activities were carried out as designed and adult language use matched the intervention criteria.

The performance of children in the *Talking Time* intervention was compared with two other groups: a contrast intervention and a group which received no language support beyond the national preschool curriculum. The contrast intervention, *Story Reading*, involved regular exposures to stories read in small group settings, thereby providing children with regular encounters with good oral language models. Listening to adults read books has been shown to have a positive impact on vocabulary acquisition (see Mol, Bus, & de Jong, 2009, for a review) and read alouds are a method regularly used to support vocabulary development (NICHD, 2000) therefore the story book condition provided a viable contrast condition (Pressley & Harris, 1994). The *Non-intervention* group was a 'good oral practice' preschool as defined by the English school inspectorate. The key measures of efficacy were: differential improvement between groups and differential improvements across measures.

We predicted that when retesting the children: (1) the *Talking Time* intervention would differentially improve children's language skills in comparison with the two other conditions; (2) the *Story Reading* intervention would also produce more improvement in children's language skills than the *Non-intervention* group; (3) that the three groups would not differ in their performance on the non-targeted abilities: non-verbal abilities and phonology. Data were analysed to take account of both differential performance at baseline and changes in progress over time (Dockrell & Law, 2007).

Method

Participants

Participants attended three inner city preschools which had agreed to participate in the study. All three settings were non-selective state nursery schools for girls and boys aged 3–5 years, based in the same densely populated urban borough. According to the 2001 census, almost half of the borough's population was made up of a number of different ethnic groups. The largest of this group was the Bangladeshi community, which makes

up 34% of the borough's population, with a growing Somali community. The borough is currently (2009) ranked third most deprived borough in the country, using a measure which combines indicators, chosen to cover a range of economic, social, and housing issues, into a single deprivation score (Communities and Local Government, 2008). The chosen settings served borough wards with the highest levels of deprivation.

Characteristics of ELL children in each setting (the majority of whom had either Bengali or Sylletti as their home language; in addition Turkish, Amharic, and Somali were home languages) and of children no longer present at post-test are shown in Table 1. It was not our original intention to consider only ELL children, and all children in each setting were given the pre-test measures and took part in the interventions. However, monolingual English-speaking children were unevenly distributed across the three settings, with only 8 of the 36 monolingual English speakers coming from the two settings where interventions were implemented. It was clear from the pre-test data that English monolingual children, despite performing at a low level with regard to oral language skills, performed significantly better than the ELL children on all language measures. The two groups also differed at pre-test in non-verbal ability as measured on the British Ability Scales (BAS II; Elliott, Smith, & McCulloch, 1997): mean percentile rank English monolingual = 69.44 ($SD = 16.29$), ELL = 62.25 ($SD = 18.26$); $F(1, 140) = 4.39$, $p < .04$. This difference was due to significant differences on the Picture Similarities subtest, perhaps indicative of the additional load on language skills in this subtest relative to Block Building. We therefore decided to analyse data only from the 96 ELL present at post-test. This decision impacted most on the *Non-intervention* group, where ELL (17) and English monolingual (24) children were present in more equal proportions. It was not possible to conduct separate analyses of the performance of English monolingual children as by post-test there were no monolingual children in the *Story Reading* group, and only 4 in the *Talking Time* group.

Table 1. Characteristics of participants

	Talking Time preschool	Story Reading preschool	Non-intervention preschool
Age at pre-test (months)	42.8 (3.3)	43.3 (2.9)	43.5 (3.9)
Gender	23 girls, 30 boys	13 girls, 28 boys	30 girls, 18 boys
ELL	46	40	20
English monolingual	7	1	28
Total children	53	41	48
Children 'lost' to sample	7	4	7
Gender of 'lost' children	1 girl, 6 boys	2 girls, 2 boys	4 girls, 3 boys
Language of 'lost' children	4 ELL, 3 English	3 ELL, 1 English	3 ELL, 4 English
Total present at post-test	46	37	41
Total ELL at post-test	42	37	17

Preschool settings

All settings adhered to the Statutory Framework for the Early Years Foundation stage for children aged 3 and over. This requires the presence of one person with qualified teacher status or early years professional status to be working directly with the children. In addition, one member of staff is required for every 13 children, with at least one other member of staff possessing full and relevant level 3 qualification to be present in the setting (see National Strategies, Early Years Foundation Stage Statutory Framework, n.d.).

The classes were open plan settings with small break out rooms for specific activities. All had outdoor play areas and children were free to move from one activity area to another throughout the day. The settings followed the UK English Early Years Foundation stage curriculum (National Strategies, Early Years).

Assessment procedure

Each child was seen separately for either two or three sessions for pre-test assessments in the autumn of their last year in preschool. Post-testing occurred at the end of their period in preschool, summer term (9 months later). At post-test, each child was seen twice. Assessment sessions were up to 30-min long. All assessors were trained psychologists, experienced with children and trained in the use of the psychometric tests. Assessors were blind to the intervention.

Testing materials

Age-appropriate language and non-verbal measures were identified to profile the children's performance on outcome and control variables.

Control variables

Picture Similarities and Block Building subtests of the Early Years core scales of the BAS II (Elliott *et al.*, 1997) were used to assess children's non-verbal ability. In the Picture Similarities subtest, for each item, the child is shown a row of four pictures and given a card with a fifth picture. The child places the card under the picture with which the card shares an element or concept. In the Block Building subtest, the child is asked to copy two- or three-dimensional designs built with wooden blocks. The measures have acceptable test–retest reliability (Picture Similarities .63; Block Design .67). Concurrent validity has been established with Wechsler Preschool Primary Scale of Intelligence Performance scale (Picture Similarities .47; Block Design, .53).

The Grammar and Phonology Screening Test (GAPS Test; Gardner, Froud, McClelland, & van der Lely, 2006) consists of two subtests, Sentence Repetition and Non-word Repetition. Non-word Repetition was a control variable, as phonology training was not included in the interventions. In the Non-word Repetition test, the child is asked to repeat nonsense words which increase in phonological complexity and syllable length. Cronbach's alpha for Non-word Repetition is .73. All items are positively correlated with the scale of the remaining items and internal consistency is reported to be .85 (Gardner *et al.*, 2006). Concurrent validity has been established with The Children's Test of Non-word Repetition (Gathercole & Baddeley, 1996) and is reported to be .67 (Gardner *et al.*, 2006).

Target variables

Children's receptive and productive language abilities in English were assessed using two further BAS II subtests, Verbal Comprehension and Naming Vocabulary. In the Verbal Comprehension subtest, the child is asked to point to pictures or manipulate objects in response to oral instructions from the administrator. In the Naming Vocabulary subtest, children are shown a series of familiar items and asked to name them. The measures are reported to be reliable (Verbal Comprehension .81; Naming

Vocabulary .80) and validity has been established with Wechsler Preschool Primary Scale of Intelligence Verbal scale (Verbal Comprehension .77; Naming Vocabulary .68).

In the GAPS Sentence Repetition subtest, children are asked to repeat sentences presented in a story format. Certain structures in each sentence must be correctly repeated by the child in order for the sentence to be marked as a correct repetition. Cronbach's alpha for the Sentence Repetition component is .86. All items are positively correlated with the scale of the remaining items and internal consistency is reported to be .85 (Gardner *et al.*, 2006). Concurrent validity has been established with the sentence structure subscale of the Clinical Evaluation of Language Fundamentals – Preschool (Wiig, Secord, & Semel, 2000) and is reported to be .53 (Gardner *et al.*, 2006).

Narrative skills (the ability to give a coherent description of a continuous series of events) were assessed using the Bus Story Test (Renfrew Language Scales, Renfrew, 1997). The assessor tells the child a short story about a naughty bus, supported by pictures. The child is asked to retell the story as accurately as possible using the pictures as cues. Two scores are calculated: an information score, which measures the amount of information the child transmits in their retelling, and a sentence length score, which we calculated as mean sentence length of the first five sentences of each child's story. Test–rest reliability coefficients for the sentence length measure are .73 and for the information measure .79. Criterion prediction validity for the British and American versions of the test are .97 for information and .98 for sentence length.

Interventions

Intervention procedure: Talking Time

Talking Time was carried out over two terms; vocabulary development and inference activities occurred in the first term (autumn) while the narrative activities were introduced in the second term (spring) when children had acquired greater levels of oral language competence. Children took part in the 15 min activities twice a week for a total of 15 weeks; each child received a total 7.5 h of intervention. Observations of the activities over the intervention period indicated that the staff were implementing the intervention as designed for 80% of the observation points. Where the implementation did not correspond to the instructions additional modelling was provided at the time.

Staff placed all children into small groups of four or five children with a range of language levels in each group. A timetable was drawn up to ensure that each group participated in the required number (and type, for the *Talking Time* intervention) of language activities each week. Registers were kept to ensure that each child received two sessions each week, and programme compliance was monitored by at least weekly visits from the research team: during these visits staff in both preschools were observed to adhere closely to the requirements of the intervention.

Three activities were designed for *Talking Time*: Acting Out, Story Talk, and the Hexagon Game. Acting Out involved a series of dramatic activities using target vocabulary. Story Talk supported children in talking about the pictures in a book they were looking at and drew parallels with their own experiences. The Hexagon Game provided children with a visual stimulus to support the construction of narratives. The activities, their aims and a prototypical example are presented in the Appendix. In the early sessions, staff frequently responded to their own open-ended questions, thus modelling responses for the children. In later sessions, quieter children, in particular, were encouraged to respond. Throughout all the activities open-ended

questions were used as prompts, and the staff member expanded on or recast the children's contributions. The situations also provided staff with opportunities to model correct grammatical constructions in highly contingent situations.

Intervention procedure: Story Reading

In this contrast intervention, age-appropriate picture books were identified and stories were repeated as appropriate to ensure familiarity with content and language. The story reading session followed a read aloud format. The children were thus exposed to oral language twice a week in small groups and took part regularly in discussion in relation to the stories that were read. Staff were trained in story-telling techniques (for example, providing an introduction to frame the story, ways to introduce new and unfamiliar vocabulary, providing opportunities for children to discuss the story and relate to their own experience, making the stories available for children to return to on their own or with other children) but no specific information or training was provided about how certain ways of talking with children, such as modelling and recasts, can support language development.

In the *Story Reading* intervention, grouping of children and timetabling of intervention sessions proceeded exactly as in the *Talking Time* intervention, with each child receiving two approximately 15 min sessions each week of interactive story telling throughout the programme. The intervention ran for 15 weeks, and each child therefore also received a total 7.5 h of intervention. Observations of 15 *Story Reading* sessions over the intervention period confirmed that the staff were implementing the intervention as designed for all observation points.

Intervention procedure: Non-intervention preschool

The *Non-intervention* preschool had been recommended by the Local Authority Advisory team as a model of good practice with respect to facilitating language development and had received a grade of good for learner progress. As in the experimental groups, the National Preschool Curriculum was followed during the intervention period (National Strategies, Early Years Foundation Stage Statutory Framework, n.d.).

Intervention materials

For the Story Talk activity, staff identified and used suitable picture books already available in the preschool as sources of conversation centred on the pictures. For the Acting Out activity, suitable dressing up clothes and props were usually available in the preschool and staff supplied those that were not. For the Hexagon Game, the preschool was supplied with sets of photographs taken from our video-recordings of activities that took place in the local setting or on local outings, printed and mounted on hexagonal cards.

For the *Story Reading* intervention, staff again used story books already available in the preschool, similar to those used in Story Talk above.

Intervention procedure: Staff training

Staff in each intervention setting received two training sessions. The first session outlined the rationale for the study and the importance of oral language development.

A range of different staff took part in these training sessions (teachers, nursery nurses, and classroom assistants), who had received various different types of initial 'teacher' education. Our presentations and workshops were designed to be accessible to and informative and useful for staff at all these different levels. In subsequent sessions, staff were trained to carry out the tasks required for each intervention. For staff involved in the *Talking Time* intervention, implementation of the three activities was modelled with small groups of children and the staff were given opportunities to practise implementation, with feedback. Staff discussions were held about understandings of language development and particular emphasis was placed on the ways in which language models provided by adults and peers have a significant impact on a child's developing oral language skills. The importance of adult recasts of children's utterances and the drawing of appropriate contrasts between different words and different grammatical constructions while retaining the child's basic meaning was seen as central to such activities. Staff were encouraged to avoid direct questions and demands, following an inflexible script or forcing the child to repeat what was said. For the *Story Reading* intervention, interactive story telling techniques were modelled and staff were again given opportunities to practise implementation in small groups, with feedback.

Training sessions were generally well-received, with staff reporting an improvement in both their knowledge and understanding of language development and their confidence in their own ability to engage effectively in the required activities.

Staff in the *Non-intervention* preschool received training in the *Talking Time* intervention after the study was finished, when post-testing and data analysis were completed.

Results

Data on pre- and post-test measures from the ELL in each intervention group are shown in Table 2. Raw scores were the unit of analysis for the GAPS and Bus Story tests: the Bus Story does not provide standard scores; the GAPS was not standardized for ELL children and therefore raw scores were deemed more appropriate. Following the same rationale, ability scores were the unit of analysis for the BAS subtests: these are non-normative scores which take account of the relative difficulty of each item.

We had predicted that when retesting the children: (1) the *Talking Time* intervention would differentially improve children's language skills in comparison with the two other conditions; (2) the *Story Reading* intervention would also produce more improvement in language skills than the *Non-intervention* group; (3) no differential improvements were predicted in non-targeted skills: non-verbal abilities and phonology.

Data were analysed in a series of univariate ANCOVA with three levels of the between-subjects factor group (*Talking Time*, *Story Reading*, and *Non-intervention*). Levene homogeneity of variance tests indicated that variances were homogeneous across groups on each measure. Pre-test scores on the measure under analysis were entered as covariate in each ANCOVA. In analyses of language measures, non-verbal ability scores were also entered as covariates. Helmert contrasts were used in each ANCOVA to test the predictions that the *Talking Time* group would perform significantly better post-intervention than the *Story Reading* and *Non-intervention* groups, and the *Story Reading* group would perform significantly better than the *Non-intervention* group. Results of these analyses are presented below.

Table 2. Mean raw scores (and standard deviations) for the GAP and Bus Story measures and mean ability scores (and standard deviations) for the BAS measures as a function of testing time and intervention group

Measure	Talking Time		Story Reading		Non-intervention group	
	Pre	Post	Pre	Post	Pre	Post
BAS Block Building	77.15 (23.71)	109.36 (20.27)	77.85 (29.47)	108.46 (19.68)	78.20 (18.99)	105.29 (16.11)
BAS Picture Similarities	45.33 (16.96)	67.24 (12.51)	47.22 (15.89)	66.24 (11.23)	49.00 (16.91)	61.53 (14.38)
GAP Non-word Repetition	3.73 (2.14)	4.59 (1.72)	2.93 (2.52)	2.92 (2.52)	3.25 (1.80)	3.75 (2.14)
BAS Verbal Comprehension	43.72 (26.57)	80.38 (17.86)	32.45 (21.39)	73.27 (18.29)	49.05 (25.51)	72.47 (23.89)
BAS Naming Vocabulary	39.78 (13.42)	67.67 (17.13)	33.67 (12.94)	58.51 (16.85)	41.45 (20.77)	58.18 (14.75)
GAP Sentence Repetition	2.23 (2.49)	5.05 (2.49)	1.40 (2.11)	3.50 (2.43)	2.35 (2.18)	2.63 (2.47)
Bus Story Information	1.26 (1.58)	5.57 (4.75)	0.63 (0.99)	4.57 (1.92)	1.30 (1.49)	3.73 (3.65)
Bus Story mean length of sentence	0.90 (1.46)	3.47 (2.25)	0.33 (1.07)	2.16 (2.13)	1.19 (1.63)	2.67 (2.31)

Control variables: Non-verbal and phonological abilities

There were no significant between group differences on any of the non-verbal or phonological ability measures (Block Building: $F(2, 95) < 1.00$, ns; $\eta_p^2 = .02$; Picture Similarities: $F(2, 95) = 2.85$, $p = .07$, ns; $\eta_p^2 = .06$; Non-word Repetition: $F(2, 91) = 1.40$, ns; $\eta_p^2 = .03$). Pre-test scores were significant in analysis of each measure (Block Building: $F(1, 95) = 43.98$, $p < .0005$; Picture Similarities: $F(1, 95) = 17.72$, $p < .0005$; Non-word Repetition: $F(1, 91) = 8.47$, $p = .005$).

Targeted language skills

Significant differences between groups were found on three of the targeted language measures (Verbal Comprehension, $F(2, 95) = 3.32$, $p = .04$; $\eta_p^2 = .68$; Naming Vocabulary, $F(2, 95) = 5.28$, $p = .007$; $\eta_p^2 = .10$; Sentence Repetition $F(2, 91) = 7.59$, $p = .001$; $\eta_p^2 = .15$). Pre-test non-verbal ability was a significant covariate in analyses of Verbal Comprehension, $F(1, 95) = 7.72$, $p = .007$ and Naming Vocabulary, $F(1, 95) = 8.53$, $p = .004$ but not in analysis of Sentence Repetition, $F(1, 91) = 2.01$, ns. Pre-test scores were significant covariates in all three analyses (Verbal Comprehension: $F(1, 95) = 17.38$, $p < .0005$; Naming Vocabulary: $F(1, 95) = 58.07$, $p < .0005$; Sentence Repetition: $F(1, 91) = 19.81$, $p < .0005$). Helmert contrasts showed that on Verbal Comprehension and Naming Vocabulary, *Talking Time* differed significantly from the *Story Reading* and *Non-intervention* groups (Verbal Comprehension: difference estimate = 7.84, $p = .024$; Naming Vocabulary: difference estimate = 7.59, $p = .003$) but *Story Reading* did not differ from the *Non-intervention* group (Verbal Comprehension: difference estimate = 7.82, ns; Naming Vocabulary: difference estimate = 5.82, ns). On Sentence Repetition, Helmert contrasts showed that *Talking Time* differed significantly from the *Story Reading* and *Non-intervention* groups (difference estimate = 1.73, $p = .001$), and *Story Reading* differed significantly from the *Non-intervention* group (difference estimate = 1.48, $p = .025$).

There were no significant differences between groups on the two remaining targeted language measures (Bus Story information: $F(2, 91) = 1.05$, ns; Bus Story mean sentence length: $F(2, 91) = 2.11$, ns).

The results reported here provide support for the view that the *Talking Time* intervention beneficially affected some targeted aspects of the children's language skills,

Table 3. Mean percentile ranks (and standard deviations) of English monolingual and ELL children on post-test

Measure	Monolingual English	ELL	*F*, *p*
BAS Block Building	45.21 (27.37)	43.44 (25.96)	$F(1, 122) = 0.1$, ns
BAS Picture Similarities	44.18 (23.98)	45.30 (25.11)	$F(1, 122) = 0.04$, ns
GAP Non-word Repetition	57.04 (29.82)	42.39 (25.29)	$F(1, 122) = 6.65$, $p < .02$
BAS Verbal Comprehension	26.36 (18.14)	7.06 (8.53)	$F(1, 122) = 62.31$, $p < .0005$
BAS Naming Vocabulary	47.21 (30.61)	10.76 (14.34)	$F(1, 122) = 78.36$, $p < .0005$
GAP Sentence Repetition	56.25 (32.39)	19.74 (18.24)	$F(1, 122) = 58.21$, $p < .0005$
Bus Story Information[a]	8.44 (6.46)	4.88 (4.03)	$F(1, 122) = 12.17$, $p = .001$
Bus story mean length first five sentences[a]	5.17 (3.04)	2.88 (2.27)	$F(1, 122) = 18.98$, $p < .0005$

[a] Mean raw scores.

more than the alternative *Story Reading* intervention and over and above the progress that children might be expected to make during the time period of the intervention (cf. improvements in the *Non-intervention group*). However, as shown in Table 3, the intervention was not sufficient to bring the language skills of these ELL into the typical range for monolingual English-speaking children (see Discussion below).

Discussion

Advancement in early interventions requires a commitment to both interventions that are based on scientific evidence and a focus on innovating new practices in real-world contexts (Justice & Pence, 2004). An evidence-based intervention, *Talking Time*, was designed to support the oral language skills of at risk preschool children. *Talking Time* was contrasted with both the typical preschool curriculum and a contrast intervention that focused on story reading. Our predictions that the *Talking Time* intervention would improve children's language skills more than the *Story Reading* intervention or the normal curriculum followed in the *Non-intervention* group were supported in analyses of three of the language measures: Verbal Comprehension, Naming Vocabulary, and Sentence Repetition. *Talking Time* differentially positively affected children's receptive language, expressive vocabulary and sentence repetition competence in English. The impact of the *Story Reading* intervention relative to the *Non-intervention* condition was restricted to sentence repetition. As we predicted, there were no changes in the non-targeted skills.

Sentence Repetition is a long established method of evaluating children's performance with linguistic structures (Gardner *et al.*, 2006) and is a reliable and valid marker of language delay (Alloway & Gathercole, 2005; Sturner, Kunze, Funk, & Green, 1986). Sentence Repetition has also been used as a measure of implicit language knowledge in adult L2 learners (Erlam, 2006) and is considered to reflect competence in the second language (Ellis, 2001). Exposure to communicative language in the two intervention settings led to a relative improvement in the children's ability to accurately repeat sentences which varied in grammatical complexity and this improvement was greatest in the children who participated in *Talking Time*. However, it is unclear which aspect(s) of the children's language had improved. Recent studies with children have demonstrated that sentence repetition taps a range of linguistic and memorial processes (Willis & Gathercole, 2001). Sentence recall involves the integration of semantic information with structural aspects of the sentence: that is, word order and inflectional morphology. Accurate identification of which specific skills had improved would require the development of a more complex sentence repetition task which scored error patterns and latency in addition to accuracy.

The relative improvement in the children's receptive language and expressive vocabulary is an important result. For these tasks, differential improvement was only evident for children in the *Talking Time* group. Improvement in the receptive language measure, a measure which included both understanding of vocabulary items and grammatical constructions, suggests that either the children's understanding of or their attention to language had been positively supported by the activities and opportunities provided by the *Talking Time* intervention. Expressive vocabulary draws on a wider range of skills than receptive language measures including selecting the appropriate semantic representation for the target item, instantiation of a phonological representation, and use of the word in its appropriate linguistic form and context

(Dockrell & Messer, 2004). The noted improvement here supports the view that the children's vocabulary knowledge had differentially improved.

Talking Time differed to *Story Reading* on specific dimensions that we argued would support language development. Firstly, staff in the *Talking Time* condition were supported in talking with children in a range of developmentally appropriate ways (Chapman, 2000). This use of language was supported by activities which used both acting out and visual material related to the children's experiences and local settings. Previous studies have suggested that these types of materials support language learning in ELL (August & Shanahan, 2006; Gersten & Baker, 2000; Silverman & Hines, 2009). In addition, there were specifically designed opportunities for children to produce oral language, providing practice but also feedback to support lexical learning. Support for vocabulary acquisition can be provided explicitly in the form of semantic and referential contrasts or by explicit definitions (Dockrell & Messer, 2004; McKeown, Beck, Omanson, & Perfetti, 1983). These strategies were incorporated in the *Talking Time* activities. Finally, children participated in a range of activities which provided opportunities to generalize language use across contexts with sensitive adult support (Turnbull, Anthony, Justice, & Bowles, 2009). The *Story Reading* condition involved only one activity, did not target specific vocabulary items, did not involve activities which explicitly required the children to use oral language and therefore was likely to produce fewer opportunities for language support. The nature of the story reading activities are crucial (see Mol *et al.*, 2009) and the activities in this condition may not have provided the active processing of information necessary to result in increased vocabulary gains (Hindman, Connor, Jewkes, & Morrison, 2008). In addition, the staff in the *Story Reading* condition were not trained in using recasts and expansions, strategies which have been demonstrated to support language development (Chapman, 2000; Peterson *et al.*, 1999; Tsybina, Girolametto, Weitzman, & Greenberg, 2006; Vasilyeva *et al.*, 2006).

The finding of no significant between group differences on the narrative task is disappointing, as narrative skills were addressed both directly (in the Hexagon Game) and indirectly (in the Story Talk) in the *Talking Time* intervention, and indirectly through exposure to stories in the *Story Reading* intervention. It has been suggested that the demands of narrative production make it a particularly challenging linguistic task for young children (Roth & Spekman, 1986): our results indicate that young ELL require additional time and opportunities to develop these skills. Thus, the lack of differential effect on the development of narrative skills is likely explained by the very low levels of mastery of English displayed by the ELL children before the intervention began and by the limited quantity of targeted exposure that the children received (Collins, 2010).

In terms of English language levels, our explanation involves three measures: Verbal Comprehension, Naming Vocabulary, and GAP Sentence Repetition. The first requirement of ability to perform in the narrative task is that children should understand the story that is told to them: this may have been a persisting problem for the ELL and may have impacted on the efficacy of *Story Reading*. In monolingual children, delays in receptive language have been shown to contribute to delays in narrative production (Uccelli & Páez, 2007). The second requirement of ability to perform in the narrative task is the ability to retell the story (that is to produce a coherent narrative). Despite improvements in scores on expressive vocabulary and the GAP sentence repetition test, the ELL's expressive vocabulary in English and their mastery of English sentence structure were still severely limited at post-test relative to

the measured performance of their monolingual peers. Our data suggest that these subcomponents of the language system *were* differentially improved by the intervention, particularly in comparisons of the *Talking Time* group with the *Non-intervention* group, but we hypothesize that these improvements were not of sufficient magnitude to support narrative production.

Children who struggle with the development of oral language, for whatever reason, need to be carefully supported both to develop their language and to acknowledge their contributions with teachers and peers. Thus, the level of instructional quality provided to the children is critical. Levels of experience of staff impact on the ways in which oral language is supported (Justice *et al.*, 2008). The effectiveness of the *Talking Time* intervention has identified important features of implementing evidence-based practice. Programmes designed to change or enhance teacher behaviours to affect improved child learning usually require professional development. The staff in the *Talking Time* intervention were provided with specific instructional goals supported by use of specific materials. Staff required support in both *what* to do and *how* to engage the children in oral language exchanges. This involved work on both sensitive and expansive adult exchanges. When this support was not provided, as in the other nursery settings, the same level of language improvement was not evident. Nonetheless despite the significant improvement in the children's language levels their performance was still at the lower end of the distribution, indicating that continued targeted support was necessary.

Preschools vary across a range of dimensions and it is necessary to establish which key features are necessary to support oral language development in which contexts. Justice and Pence (2004) have argued that, prior to embarking on large-scale trials, interventions should be examined through a series of studies. The current study is a step in that direction. We identified a viable contrast condition and an effective control group (Pressley & Harris, 1994). This has allowed us to identify the ways in which the English oral language skills of ELL from disadvantaged backgrounds can be improved. We have demonstrated that with regular evidence-based interactions significant improvements can be made. Our aim to provide an acceptable intervention in preschool settings limits the ability to identify which aspect(s) of *Talking Time* promoted change. The impact of the intervention on the specific targeted variables and no effect on the untargeted variables permits confidence that the positive outcomes are not due to Hawthorne or other general effects. However, the failure of the intervention to support narrative skills speaks to the need to examine the efficacy of more intensive interventions with larger samples (Justice *et al.*, 2008) over longer periods of time with measures that are more sensitive to the specific linguistic changes that may be occurring.

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Appendix

Table A1. Talking Time activities: Aims, target language skills, and example

Talking Time activity	Target language skills	Aims	Example
Acting Out	Development of core vocabulary	Develop core vocabulary through play-acting around themes Data from parental questionnaires and age of acquisition norms were used to identify target vocabulary The acting out allowed introduction of verbs – an area of particular weakness for the children	Adult would tell the children what they were going to pretend that day, e.g., 'Going on Holiday' 'Do you know what we're going to do today? We're going to pretend we're going on holiday. Where shall we go for our holiday?' (Pause for suggestions, which could include reminiscences of children's own experience of holidays) 'I wonder what we'll need to take with us?' (Pause again for suggestions and comments). Children would then pretend to pack their cases, with the staff member encouraging them to say what they were doing. The discussion and acting out would continue including how they were going to travel, activities relevant to the chosen destination, and the return home. Throughout the acting out session, children were encouraged to comment on what they were doing now, and to talk about what they would like to do next
Story Talk	Ability to use language to predict and infer	Develop the children's abilities to hypothesize about objects and activities and to draw literal and inferential conclusions by structuring discussions around pictures in books	Staff would choose a book with the children. The book would be introduced. For example, for the book 'My first day at nursery', 'This is a book all about going to nursery, like we do – shall we see if they do the same things as us?'. The book would be opened at the first story page and open-ended questions asked to initiate discussion, 'What's this little girl doing?' (Pause for response). 'I wonder … if …' (Pause for response). The books served as starting-points for conversations, and there was no requirement that the whole book should be covered in any session

Table A1. (*Continued*)

Talking Time activity	Target language skills	Aims	Example
Hexagon Game	Production of narrative text	Support narrative development by using photographs of common activities in the child's environment	Staff were asked to select one of a series of topic-related pictures and ask an open-ended question related to the pictures and the links between the pictures. For example, in the 'Baking biscuits' topic series: 'What can we see in this picture?' One child might respond 'children', and this would be expanded 'Yes, the children are getting ready to do some cooking, aren't they? Can we see anything else?' When the first picture had been thoroughly explored, another picture was placed adjacent to it. What was happening in the first picture was summarized to introduce the following one: 'so what are they doing now?' After each picture had been discussed, the staff member summarized the 'story' so far, thus modelling the production of a coherent narrative for the children. Once all pictures had been discussed, and the 'story' summarised, the children were encouraged to retell the story for a doll who had missed the story
		The photographs (on hexagonal cards) of nursery activities and local area could be connected to form a series of narrative stories	