Assessing Changes in Preschoolers' Home Learning Environment Following the Early Words Together (EWT) Programme (43028)

Lessons learned and reflections on the project

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SUMMARY

The study

The 'Assessing Changes in Preschoolers' Home Learning Environment Following the Early Words Together (EWT) Programme' study was designed to explore the Home Learning Environment (HLE) in socio-economically disadvantaged homes and the extent to which it can be subject to change, using an early years parent and child engagement programme (the National Literacy Trust's Early Words Together (EWT) programme) as a catalyst for change. However, recruitment issues resulted in a much smaller achieved sample size than was estimated and the decision was made to end the research earlier than originally planned.

The intervention

Early Words Together (EWT) is an early intervention programme designed to increase children's communication, language and literacy skills by improving family engagement and facilitating change in the HLE. It consists of six one-hour one-to one or small group (e.g. 2-3 parents) sessions held weekly with parents and their children (aged 2-5 years of age) in settings. It is designed to be delivered by volunteers generally drawn from within the local community, including other parents, to facilitate peer-to-peer learning. Staff in settings receive one day of training to deliver the programme by the National Literacy Trust, are provided with the necessary materials, and offered on-going support when needed.

The design

This study was a two-armed pilot randomised controlled trial (RCT) designed to involve 12 early years settings attached to primary schools and 360 families in two geographical locations in socioeconomically disadvantaged areas. It was proposed to recruit six settings in each geographical area and randomise to three settings in the intervention group and three settings in the control group within each area. All families with children aged 3-4 in each setting were eligible to participate in the study. Programme delivery was expected to take place over five academic terms (Spring 2018-Summer 2019). Settings in the control group were asked to continue with 'practice as usual'.

The primary research question that the study aimed to answer was 'what is the impact of the EWT programme on children's language acquisition?', and as such the primary outcome measure was receptive language skills measured using the British Picture Vocabulary Scale (BPVS-III; Dunn, Dunn and NFER, 2009) administered one-to-one with children in settings. Parents were also asked to complete the Home Environment Questionnaire (HEQ; Miser and Hupp, 2012). These two measures were to be administered at pre-test and post-test six months later. For parents in the intervention group the pre-test occurred just prior to programme delivery and at a similar time point for parents in the control group.

In addition, parents were requested to complete a bespoke demographic questionnaire at the recruitment stage and the Ages & Stages Questionnaire®, Third edition (ASQ®-3) (Squires and Brickers, 2009) at post-test. Parents in the intervention group also received an additional questionnaire at the post-test stage relating to the Early Words Together Programme. Finally, a nested substudy was designed to explore any potential areas of change in the HLE in depth via

videoed observations of parents and their children interacting in the home carried out at both preand post-test time points.

Due to recruitment being imbalanced across the two geographical locations our final sample size resulted in eight early years settings in the intervention group and four in the control group. In addition, only 168 families were recruited (of a target of 360), although attrition from the study was low (as measured by the primary outcome). Because of the small achieved sample size the project was no longer considered to be able to answer the original research questions posed and the study was brought to an early close.

Lessons learned

A number of lessons have been learned from this study which we hope will benefit others carrying out trials of early years interventions with parents of similar demographic backgrounds:

- Early years settings should be clear and committed to what is involved in taking part in a RCT prior to recruitment, including random allocation to either the control or intervention groups. A considerable lead-in time may be necessary to build up the necessary relationships to ensure this.
- Information relating to the research should be provided clearly, and to all staff who will be
 involved in the trial, including teachers involved in engaging with parents and potentially
 delivering the programme to ensure to ensure buy-in at all levels. Head teacher
 commitment to supporting those staff in the research should also be ensured at recruitment
 stage. Activities by researchers to ensure this occurs should be built into the trial design
 from the beginning.
- Researchers need to dedicate time and commitment throughout the period of the study to
 prevent disengagement of settings. This is particularly important for settings in the control
 group who may be disappointed at not receiving the intervention.
- Researchers should not underestimate the difficulties of working with schools in deprived
 areas which may face staffing issues and a lack of parental engagement. Strategies need to
 be developed and built into the programme design in order to mitigate these issues and
 enable the evaluation of early years interventions.
- The suitability of the programme design should be assessed with the parents and settings in mind, for example, the use of volunteers in delivering and supporting the programme was unsuccessful in this version of EWT. Other aspects to consider could be length and timing of delivery: for example, in this trial some settings shortened the programme to fit with other staff commitments. A six week programme was also seen as lengthy and therefore a deterrent to parental participation.
- Research design should be pragmatic in terms of length of the research, frequency and timing of research activities, the measures used, and the impact of these on both the intervention and control groups. In this study the short, school-based, one-to-one administered child-based measures worked well, however the parent-based measures were too long and relying on the settings to administer them was problematic.
- Careful consideration should be made of clustered randomisation procedures. In this study late recruitment of some settings and the addition of a third local authority meant that there was an imbalance of settings in the control and intervention groups across the trial. This was

- compounded by settings being aware of their allocation after the initial recruitment period and settings in the control group subsequently demonstrating lower recruitment levels. An initial wait-list design may have encouraged continued interest in participation in the study.
- The use of a Parent and Public Advisory Committee was not successful in this case and, if
 used, care should be taken in recruitment of such committees, their composition (e.g. by
 widening their composition to other stakeholders such as teachers), and include possible
 incentives for taking part.
- Incentives in general for participation in this form of research should possibly also be considered carefully to ensure they encourage recruitment and are considered sufficient remuneration for both participation and retention.

Finally, it is important to ensure that the intervention is ready for a RCT. In particular, feasibility testing is important to ensure that the design, outcome measures, and operational procedures are suitable for the intervention being evaluated and the population for which it is intended before a RCT is carried out.

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Introduction

The 'Assessing Changes in Preschoolers' Home Learning Environment Following the Early Words Together (EWT) Programme' research was funded by the Nuffield Foundation, starting in October 2017. It was due to end in Summer 2020. However, recruitment issues resulted in a much smaller achieved sample size than was estimated which meant that the project was no longer considered able to answer the original research questions posed. Consequently, the project has been brought to an early close. The following report aims to draw on lessons learned from the study, illustrate possible future challenges to similar projects and suggest possible solutions. It does so by:

- Providing a brief overview of the overall study design;
- Detailing the recruitment of early years settings and families to the study, including sample size; and
- Assessing the impact of the research design on recruitment to the study.

Finally, we discuss and reflect on the learning points we have gained from conducting the research.

Study Design

The study aimed to explore the Home Learning Environment (HLE) in socio-economic disadvantaged homes and the extent to which it can be subject to change, using an early years parent and child engagement programme (Early Words Together (EWT)) as a catalyst for change. EWT consists of six one-hour one-to one or small group (e.g. 2-3 parents) sessions with parents and their children (aged 2-5 years of age). It is designed to be delivered by volunteers within early years settings. Volunteers are generally drawn from within the local community, including other parents to facilitate peer-to-peer learning. The programme aims to increase children's communication, language and literacy skills by improving family engagement and facilitating change in the HLE. The programme was developed by the National Literacy Trust who were co-investigators on this grant, recruited settings and provided training and support for the programme.

The primary research question of the study was:

• What is the impact of EWT on children's language acquisition?

The secondary research questions were:

- What HLE activities and behaviours are most likely to be improved and sustained following participation in a family literacy programme?
- What barriers may exist to prevent change?; and
- Are there any sub-groups or factors that encourage a positive HLE within the target population?

It was planned to answer these questions through a two-armed pilot randomised controlled trial (RCT) involving 12 early years settings and 360 families in two geographical locations in socio-economically disadvantaged areas. For pragmatic reasons settings were intended to be nursery classes attached to primary schools as opposed to private voluntary and independent (PVI)

nurseries.¹ We proposed to recruit six such settings in each geographical area and randomise within each area to three settings in the intervention group and three settings in the control group. Families would be recruited in two cohorts, the academic year 2017-2018 and the academic year 2018-2019. All parents would be asked to complete a bespoke demographic questionnaire during recruitment.

Those early years settings allocated to the intervention group would then receive training, materials and support to deliver the Early Words Together programme. Programme delivery was expected to take place over the five academic terms (Spring 2018-Summer 2019) with up to two cycles per term (i.e. once every half term). Settings in the control group were asked to continue with 'practice as usual'.

The primary outcome measure was receptive language skills measured using the British Picture Vocabulary Scale (BPVS-III; Dunn, Dunn and NFER, 2009) as the ultimate aim of the programme was to improve children's language acquisition. The BPVT-III has also proven to be highly correlated with later literacy acquisition (Dunn, Dunn and NFER, 2009). The BPVS was administered with the children, one-to-one, by trained administrators in settings. The primary parent outcome measure was the Home Environment Questionnaire (HEQ; Miser and Hupp, 2012). This is a 17-item self-report measure of the Home Learning Environment. Although to be completed by parents individually, this measure was to be administered through the setting (i.e. handed out by and returned to school staff). This measure was chosen to enable the research to answer questions about the ability of the programme to change the HLE. These two measures were to be administered at pre-test and post-test six months later (to allow for longer term follow up). For families in the intervention group the pre-test was to be carried out prior to programme delivery. Pre-tests for families in the control group were conducted at similar time periods in order to be comparable with the timing of the assessments conducted with those in the intervention group.

At the request of one of the peer-reviewers² we also introduced the Ages & Stages Questionnaire®, Third edition (ASQ®-3) (Squires and Brickers, 2009). This 30-item parent/carer-completed questionnaire measures communication, gross motor skills, fine motor skills, problem solving, and personal-social skills. This was to be completed by parents at post-test stage only and to provide a wider measure of child development than receptive vocabulary (as measured by the BPVS). Alongside this parents in the intervention group received an additional questionnaire at post-test relating to the Early Words Together Programme in order to be able assess the impact and acceptability of the programme.

A final outcome measure involved a nested substudy. This was designed to explore any potential areas of change in the HLE in depth via detailed observations of parents and their children interacting in the home. This was an additional, voluntary aspect of the study, involving a 20-minute videoed home observation of the parent and child interacting in the home, carried out at pre- and post-test.

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¹ Given that the post-test was designed to be administered six months after the pre-test some children had entered Reception classes by this point. By recruiting nursery classes attached to primary schools it was anticipated that most children would attend Reception in the associated schools and thereby reduce attrition.

² Nuffield Foundation grants are subject to peer-review during the application process.

Table 1 shows the planned data collection schedule.

Table 1: Evaluation outcomes data collection schedule

Timing	Data collection				
	Main study	Substudy			
1. Recruitment (Nov 2017 & Sept 2018)					
2. Pre-test: Start of academic	Pre-test BPVS (Child)	Pre-test HLE			
term of programme delivery	Self-report HEQ (Parent)	observation			
	Self-report ASQ (Parent)	(Parent-child)			
	Programme delivery (6 weeks)				
3. Post-test: 6 months post	Follow-up BPVS (Child)	Pre-test HLE			
baseline	Follow-up self-report HEQ (Parent)	observation			
	Follow-up self-report ASQ (Parent)	(Parent-child)			
	Follow-up Early Words Together				
	questionnaire (Intervention group				
	only)(Parent)				

Additional 'Implementation Monitoring and Volunteer Information' data was also intended to be collected from settings. This was to collect information relating to delivery of Early Words Together (including fidelity to the programme) and the volunteers recruited to deliver it.

Recruitment is discussed further below. Further details of the design, where pertinent, are given in the discussion of the evaluation.

Recruitment

We proposed to recruit from two geographical locations in England targeted for their high levels of socioeconomic deprivation. The National Literacy Trust contacted local authorities with whom they already had links to ask if they were interested in participating in the project. Where local authorities were interested, information relating to the study was cascaded to local primary schools. In the event, due to a low level of interest 13 schools were recruited across three local authorities, one of whom withdrew immediately after randomisation into the control group. The difficulties in recruitment of settings led to a delay in the recruitment of families and, most importantly, reduced the number of families able to be recruited to the study (see below).3 In addition, randomisation occurred within each local authority. We specified an even split in the number of settings in the control and intervention groups within each local authority. However, where settings were recruited late in a local authority (i.e. after initial randomisation of existing settings) it was necessary to reset the randomisation pattern to ensure blind allocation at pre-test. In addition, given the low initial recruitment in both the original local authorities and the need to add a third local authority the specified balance within local authorities was unable to occur. Consequently, our final sample size involved eight schools in the intervention group in total and four settings in the control group resulting in an imbalance between the two conditions.⁴

³ Recruitment took place between October 2017 and Spring 2018.

⁴ Randomisation was conducted in MinimPy within clusters i.e. based on geographical location. We anticipated using two geographical locations and specified six early years settings in each (three to be placed in the

Recruitment of families

All families with children aged 3-4 in each setting were eligible to participate in the study. Table 2 gives the estimated sample size included in the proposal.

Table 2: Estimated sample size

		Number of families			
	Per setting (12)	Per setting per cohort (2)	Total		
Estimated potential sample ¹	100	50	1200		
Estimated recruitment ²	40	20	480		
Estimated final sample size ³	30	15	360		

¹ Assuming a potential saple of 50 families per academic year (with the study taking place over five terms/two academic years)

The actual completed sample across all settings is provided in Table 3. This provides details of recruitment to each of the two cohorts. As can be seen, recruitment was much lower than anticipated. Whereas we had anticipated 120 families recruited per cohort in total we only recruited 80 in Cohort 1 and 86 in cohort 2, 35% of our expected total. However, retention was considerably higher than estimated for the primary child outcome (94% compared with an estimated 75%⁵).

Table 3: Completed sample size

	Family recruitment					
	Cohort 1		Cohort 2		Total	
	Target	Actual	Target	Actual	Target	Actual
		(%)		(%)		(%)
Recruited Total	240	80 (33)	240	88 (37)	480	168 (35)
Pre-test	240	80 (33)	240	86 (36)	480	166 (35)
Eligible for post-test*	240	80 (33)	240	72 (30)	480	152 (32)
Post-tested*#	180	76 (42)	180	67 (37)	360	143 (40)

^{*}For Cohort 2 those 'Eligible for post-test' and 'Post-tested' only includes participants who undertook the programme prior to half-term, Spring 2018

It is worth noting that recruitment for Cohort 1 was similar to that for Cohort 2 despite a longer delivery period for this second group (3 academic terms as opposed to one academic term), and a later start for the some schools (1 of whom did not start delivery until Cohort 2). This indicates that enthusiasm for recruitment to the study remained consistent across the two cohorts and that the longer time period of Cohort 2 did not increase capacity for participation.

² Estimated 40% recruitment of potential families

³ 75% retention rate (based on previous studies; Wood, Vardy, and Tarczynski-Bowles, 2015)

[#] Primary child outcome (BPVS)

intervention group and three in the control group in each location). The programme randomised as if this was the case and in a random pattern. Given that in the event recruitment was not evenly split across the two geographical locations, and the delay in boosting recruiting, there was a resulting imbalanced in the allocation.

⁵ Given that the trial was ended before all post-testing took place this figure is based on those participants eligible to be post-tested within the trail timeline.

Table 4 gives the breakdown of recruitment by cohort between schools in the intervention group and those in the control group.

Table 4: Recruitment by Cohort, Intervention/Control

		Number of families				
	Interven	tion	Control		Total	
	Target	Actual (%)	Target	Actual (%)	Target	Actual (%)
Cohort 1	120	38 (32)	120	42 (35)	240	80 (33)
Cohort 2	120	70 (58)	120	18 (15)	240	88 (37)

As Table 4 indicates settings in the control group were much more successful recruiting to Cohort 1, prior to being aware of their random allocation than the schools in the intervention group. During Cohort 2, however, the schools in the intervention group did better at recruiting participants to the study and recruitment by schools in the control group reduced considerably.

Observational substudy

We anticipated recruiting 50% of all participating families for the substudy (240 families), which would result in a final sample size of 180 families assuming a 75% retention rate.⁶ As Table 5 indicates overall recruitment to the substudy was low: with 28% of the original target figure recruited, and only 12% of the original target figure actually participating in the observation pre-test. Even when the low recruitment rate is taken into account only 17% of participants actually recruited to the study participated in the pre-test (29 out of a potential 168 participants).

Table 5: Recruitment to the observational substudy

	Number of families						
	Cohort 2	Cohort 1		Cohort 2		Total	
	Target	Actual	Target	Actual	Target	Actual	
		(%)		(%)		(%)	
Recruited total	240	80 (33)	240	88 (37)	480	168	
						(35)	
Recruited substudy	120	49 (41)	120	18 (15)	240	67 (28)	
Substudy total	120	19 (16)	120	10 (8)	240	29 (12)	
Eligible for post-test	120	19 (16)	120	7 (6)	240	26 (11)	
Post-tested	90	9 (10)	90	7 (8)	180	16 (9)	

The issues relating to retention to the study and the substudy will be addressed in the subsequent sections.

Early Words Together Programme delivery

Training

Preparation for delivering the programme involved one day of training provided by the National Literacy Trust to early years settings to understand and deliver the programme. Training was ideally

⁶ Figures based on Gridley, Baker-Henningham and Hutchings, 2014

to be delivered to two members of staff per setting. However, in the event this only occurred in four settings with only one teacher trained in the remaining four schools.

Comments on the training by school staff was overwhelmingly positive. However, recruitment of the settings to the evaluation occurred through the headteacher, with the programme being perceived as a vehicle to improve language skills in the preschool phase. Consequently, teacher levels of knowledge of the programme prior to attending training was varied with one teacher stating:

'I didn't know anything about it really beforehand. I was just asked to go on the day, so I was a bit unprepared. But I did get lots of information that was really useful' (Teacher telephone interview).

Programme recruitment and delivery

Normal delivery of Early Words Together in schools asks practitioners to recruit between 15 to 20 families per year although recruitment varies widely from setting to setting. As indicated in the section above recruitment to the programme was lower than expected. There were a number of key issues:

Staff issues, including staff illness and staff turnover:

'I have had to speak to our head regarding the programme due to current short staffing in the foundation Stage in school'. (Teacher email to National Literacy Trust)

Practitioners in general, reported feeling supported by their school, but circumstances did not always mean this translated into the additional time and resources necessary to deliver the programme, especially where there were competing priorities within the school. Where only one member of staff was trained this could result in a lack of engagement with the programme which subsequently impacted on practitioner development and parental recruitment and delivery. It could be posited that the research element to involvement was an additional burden that would not normally be involved in programme delivery. In addition, given that schools usually have to have a greater 'buy-in' to taking the programme (i.e. a financial commitment) it could be that the commitment for the study was less thought through by schools. Finally, the programme relied on the use of volunteers to deliver the programme and this did not occur as expected which can only have increased the burden of staff delivery.

• Lack of parental engagement:

'It's their time really, when the children are at school, that's their time. I mean sometimes it's hard to even get the children in school so they're the biggest issues.' (Teacher interview)

This is a key area of concern for many schools, particularly those located in areas of high socioeconomic deprivation. Although this was our target group, parental engagement was more of an issue than had been anticipated. Teachers reported that recruitment to the programme was hindered by parents other commitments, whether these be work-related or other childcare and that a six-week programme represented a high level of commitment to parents. For some schools parental first language being other than English and having a transient population were also factors. However school staffing factors may have also exacerbated the lack of parental

engagement (see above), as would the lack of volunteers who could have been influential in promoting the programme among parents (see below).

School staffing and parental engagement impacted on recruitment and on programme delivery. In one case parents were signed up for the programme (and the study) but the school was unable to deliver the programme due to staffing issues (see above). More often this impacted on attendance at sessions, with only 46% (21 out of 46) of participants in the intervention group for whom data was available reporting attending all six sessions. This may have been compounded by some settings adjusting delivery to take place over fewer sessions to fit with other staffing commitments. Lack of attendance over all six sessions by the majority of parents and some settings adjusting the length of programme delivery would also have had implications for programme fidelity, although this was not explored in this study. In addition, it is worth noting that those parents who responded to the survey were more likely to be engaged in the programme so attendance by other parents (who didn't respond to the survey) is likely to have been lower.

• Use of volunteers for programme delivery:

The programme was designed to be delivered by volunteers in order to support community empowerment and strengthen local awareness of literacy through the programme. A previous study of the programme (Tracey and Charles, 2016) saw 80 volunteers recruited to support 100 families in programme delivery, although this was within a housing association context. However, we estimate only between 5-9 volunteers were recruited across all settings, whereas the previous study would suggest many more were needed. In other implementations of the programme it has been reported that previous participants have subsequently gone on to become volunteers and this was the main recruitment pool for participating schools. However, in this case, low levels of recruitment of parents also limited the recruitment of volunteers. Two of the settings in the intervention group indicated that they did not recruit any volunteers to assist with programme delivery; where parents were available they were used in other capacities in schools (for example, one-to-one reading with older children). One school indicated that up-dated statutory requirements and general wariness around safeguarding issues, meant that the sign-up of volunteers was not possible. Where volunteers were recruited they were often not retained due to changing family and employment commitments leading to a lack of continuity. Volunteers were also reported as often lacking confidence to lead sessions with families, meaning that setting staff still needed to organise and deliver the programme. This lack of volunteers and the nature of the volunteers added to the burden on schools. This, alongside changes in the number and length of sessions indicated by some settings, subsequently meant that the programme was not delivered as intended and that the potential recruitment targets were not going to be reached. It may have been pertinent to have discussed the potential pool of volunteers with settings in advance of recruitment to the programme.

Despite the school and parental factors described above, schools did employ a number of strategies to recruit parents. These included, advertising with leaflets and posters, speaking to parents at parents' evening, having individual conversations with parents within early years settings and

⁷ Although the research design did not specify a target number of volunteers that would be needed to deliver the programme it is clear that the number recruited (approximately 5-9 volunteers in total) were far below the number needed to successfully deliver the programme as intended.

holding EWT taster sessions. A number of strategies were also employed by the National Literacy Trust to encourage improved recruitment to the programme. These included

- Introductory emails to schools;
- Half termly update emails to schools;
- Visiting each setting at least once;
- Observing EWT delivery where possible;
- Training and supporting the new setting in the intervention group (from early January 2019);
- Facilitating ongoing engagement with settings that were perceived to lack enthusiasm or were struggling to deliver the programme with telephone support, visits, an offer of additional training and of 'buddying up' with settings currently delivering well; and
- High levels of communication through emails, telephone and face to face visits including co-visits with the University of York where possible.

However, we are unsure which of these strategies was most effective, and overall, whilst there was a small increase in the number of participants recruited by individual schools in the intervention group (with one exception) between Cohorts 1 and 2 the recruitment period was over three academic terms for Cohort 2 compared to one and a half academic terms for Cohort 1 suggesting that there was perhaps a saturation point for recruitment, although such strategies may have helped with possible recruitment fatigue. In addition, although the study was open to all families with children aged 3-4 attending Foundation 1 classes we were particularly interested in those from lower socioeconomic backgrounds. Overall, higher proportions of families in Cohort 1 were from our desired target population compared to Cohort 2 (for example 52% of parents ended their formal education at age 16 or under in Cohort 1 compared to 40% in Cohort 2) suggesting that schools were more focused on supporting the target population at the start of the study compared to during the second academic year when perhaps they felt more under pressure to keep recruitment targets up.

Finally, despite issues relating to recruitment and delivery detailed above settings who participated were generally positive in their reports about the Early Words Together programme and at least one setting plans to continue delivering the programme this academic year (2019/2020) although in a more flexible manner than that required by the evaluation. Parents also reported enjoying and benefitting from the programme, recommended longer or more sessions in the end of programme questionnaire and reported that they would recommend Early Words Together to other parents.

Research design

As described above, the evaluation was designed as a between-setting clustered two-armed randomised controlled trial. This was designed to reduce diffusion of the programme into the control group which could occur in a between-setting design.

Recruitment and randomisation

As indicated above, recruitment was organised through the Head teacher and schools hoped that the intervention would aid with language acquisition in their early years settings. Initially those schools allocated to the control group did better overall in recruiting participants suggesting that they were either more committed to the programme or had overall higher levels of parental engagement. However, after randomisation recruitment in schools in the control group declined

considerably. It could be argued therefore, that at this point in time, the Early Words Together programme was a large incentive for schools in the control group and subsequent disappointment resulted in disengagement with the study. It was at this point that one school in the control group actually withdrew from the study overall. School staff changes between Cohorts 1 and 2 may have also been an issue.

At the same time, given that randomisation occurred after initial recruitment for Cohort 1, it was impossible to ensure that participants in Cohort 2 were blind to condition suggesting that there was a lack of interest in taking part in research *per se* without the incentive of the programme or higher levels of teacher engagement with the recruitment process. More work with potential settings prior to recruitment on the implications of being allocated to the control group with key staff members (including head teachers) may have been helpful in maintaining commitment and engagement.

Unfortunately on such a small scale randomisation does not always result in parity between group allocations. Although there were fewer settings in the control group in Cohort 1 than settings in the intervention group they recruited higher number of participants (42 participants across 4 settings in the control group compared to 38 participants across 6 settings in the intervention group). As mentioned above, the socio-economic background of those recruited to the study in Cohort 1 in settings in the control group was slightly higher than those of the settings in the intervention group. It may be that the schools in the control group had a greater proportion of parents with a slightly higher socio-economic profile to draw upon and it was these parents who had more interest in participating in the EWT programme, or that these schools just had higher levels of parental engagement in general which was not adequately balanced by randomisation. .

This may also have had an impact on parental engagement in terms of recruitment, as evident in recruitment for Cohort 1. One teacher respondent did, however, indicate that recruitment may have been boosted if the eligibility criteria were extended to include children in the younger age group, particularly those who entered Foundation 1 a term early, suggesting the eligible population was smaller than originally anticipated.

In order to help and encourage recruitment in schools allocated to both the intervention and the control groups the following strategies were employed by the University of York:

- Attendance with the National Literacy Trust at all school training sessions in to meet the teachers and build personal relationships;
- Half-termly emails to schools to encourage rolling recruitment;
- Phone calls to teachers where email contact was not acknowledged;
- Regular emails to arrange visits for collection of data and follow-up unreturned forms;
- Encouragement given to teachers disappointed by low recruitment numbers;
- Posters advertising the study sent to schools in the control group for them to display in September 2018 and January 2019.

These strategies were more successful with the schools in the intervention group rather than settings in the control group. We assume this was because they had also received training and materials and the message relating to recruitment could easily be linked into delivery of the programme. Consequently this was more problematic with settings in the control group although some schools in the control group reported advertising the project as part of their presentation at

open days and report evenings. However, many settings felt that they had recruited as many families as possible, to both the programme and the evaluation, again suggesting that there was a limited pool of participants, although in Cohort 1 some schools in the control group did meet the projected targets⁸:

'There are only nine possible children, which have been asked previously. They have either said no or due to work commitments and child care issues they are not able to join'. (Teacher email to National Literacy Trust)

Assessments

The research was designed to try to minimise burden on research participants, whilst recognising that some data collection would need to take place in order to make the evaluation meaningful. Measures were chosen that were considered suitable for the target population and relatively short to administer. The British Picture Vocabulary Scale (BPVS), which takes only ten minutes to administer, did prove easy to collect and schools were very accommodating in allowing data collectors to visit the school at times participating children were attending. We conducted repeat visits in cases where children were not in attendance e.g. due to illness at the time of the data collection visit. In some instances, where a parent was involved in the observational substudy the BPVS was administered during the home visit. As a result, we were able to administer the assessments at pre-test to the majority of children recruited to the study and had high levels of retention at post-test. Consequently, retention in the primary measure was one of the strengths of the study.

We had less success with the parental self-report measures. Originally it was proposed to only collect the demographic questionnaire at recruitment followed by the Home Environment Questionnaire (HEQ) at pre- and post- test and the Early Words Together intervention questionnaire also at post-test. However, at the peer-reviewers request we also introduced the Ages and Stages Questionnaire (ASQ) to enable us to collect a more inclusive measure of child development. The original parent-complete measures were relatively short (17-items for the HEQ). In contrast, the ASQ is considerably longer (30-items) and more time-consuming to complete. We feel that this contributed to increasing the burden on parents and subsequently we had lower than anticipated returns of the parent-report measures:

'[The parents] had difficulty with the forms, completing the forms, because it was a lot of forms for them to do'. (Teacher interview)

Whilst we had a high number of completions of BPVS returns at pre-test and follow-up, as can be seen in Table 6, only 57% of parent-report outcome measures were returned at pre-test (HEQ and ASQ) and only 66% and 64% of those returned a post-test (HEQ and ASQ, respectively).

⁸ Whilst the research team did not have data from schools on the number of eligible families within their early years setting the Memorandum of Understanding which formed part of the consent process asked schools to agree to recruit 15 families in the first academic year and 15 families in the second academic year.

<u>Table 6: Return of evaluation outcome measures</u>

	Pre-test (%)	Eligible for post-test (%)*	Post-test (%)#
BPVS	166 (100)	152 (92)	143 (94)
Demographic questionnaire	166 (100)	N/A	N/A
HEQ	94 (57)	86 (91)	57 (66)
ASQ	95 (57)	87 (92)	56 (64)
EWT survey	N/A	84 (100)	48 (57)

^{*}Only includes participants pre-tested prior to Spring half-term 2018 and therefore eligible for post-test.

Originally we had requested that evaluation forms were gathered by early years settings from participants and returned to the research team as a group. Blank envelopes were provided to parents to ensure privacy whilst encouraging returns. Following settings initially reporting that it was difficult to persuade parents to return measures sent home, we requested schools in the intervention group to hand out, and ask participants to complete, the measures at the start of delivery of the first Early Words Together programme and this worked well. Consequently, we had a 100% completion record in schools in the intervention group in the following delivery wave although in subsequent waves this began to decline again (i.e. to 70% and 60% returns at the next pre-trial waves). For schools in both the control group and in the intervention group we had to rely on teachers following up with parents which, given time and staffing difficulties, as detailed above, proved more problematic. For the post-tests we struggled with settings asking parents to complete measures and often they were handed out and not returned. Consequently, forms were sent directly to the parents' homes with a Freepost envelope. The forms were followed up with a text to remind parents to return the questionnaires and offering a second copy where the original had been misplaced. Where parents requested another copy of the questionnaires, or replied that they would return the measures, in some cases they did not do so. Parents preferred to be contacted by text rather than by direct calls, which were rarely answered or the call returned. In some cases we contacted the teacher and asked them to remind parents to return the forms. Three contacts were made to chase each set of missing data. Consequently, the majority of parent self- complete measures were returned by parents directly by post as opposed to through the setting as originally expected.

Finally, completion of the end of programme Early Words Together questionnaire was low (57% in total). We presume this may be because by this point in the programme the research team was seen as separate from the programme, the programme had finished and parents were disengaged from the research. In addition, any feedback may have been given to delivery staff directly, although in a number of cases withdrawal from the programme may have been an issue. However, we do not know which, if any, of these issues, were significant. In order to boost completion of this measure we phoned participants who had not returned the forms and requested that they complete the measures with the researcher over the phone. This was successful although was dependant on the research team having the correct address and/or phone number. Over a third (38%) of completed programme questionnaires were completed in this way.

[#]Percentage of those eligible for post-test who completed a post-test.

Observational substudy

Recruitment to the observation substudy was also lower than estimated; 40% of our total sample as opposed to an estimated 50%, which was further compounded by the low overall recruitment figures. Again, less than half of these (28 out of 67 initially recruited actually participated at pre-test (see Table 5 above). Our estimates were based on other, similar studies (cf. Bywater et al., 2018, Hutchings et al., 2015). We are unsure as to why the uptake and retention rates for the observation substudy were so low. Anecdotally teachers told us that the observational aspect of the study was deterring potential participants and we subsequently highlighted the optional nature of this aspect of the study more than previously in order to prioritise the main study which can only have served to reduce recruitment to this aspect of the evaluation. In addition, the observation was the only measure to be taken in families' homes. As a result, the data collectors may not have had sufficient time to be able to build a relationship with the parents over the course of the study and as such would have been seen as a stranger to their household. Both of these points may have led the parents to perceive the observation as a burden.

Incentives

In recognition of data collection and participation in the study we proposed a financial thank you to each setting allocated to the control group of £100 of vouchers for participation in the project per year (over the two years). It is apparent that this was not sufficient to encourage the continued participation of early years settings allocated to the control group. Subsequently we introduced a wait-list design and offered settings the Early Words Together programme and training instead of the financial incentive during the academic year 2019-2020. However, by this time, it appears that schools in the control group no longer saw the Early Words Together programme as a priority and no control group schools accepted this offer.

All parents in the control condition received a £5 voucher for each round of data collection (pre- and post-test). All parents participating in the substudy received a £5 voucher for each of the two rounds of data collection and their child received a free book at the end of the study to reflect the additional burden of home observations. We recognise that these levels are very low and consequently may not have been at a sufficient level to encourage participation.

Parent and Public Advisory Committees (PPACs)

Parent and Public Advisory Committees were designed to be established with parents in each geographical location to advise on the conduct of the research. Unfortunately, there were issues in recruiting to these committees and so only one area was recruited from within the study and another using researcher links elsewhere. Attendance was also low (only two participants per committee). Advice was received in terms of the original recruitment letters with some rewording recommended to ensure they were more user-friendly. However, whilst some changes were made, the researchers had limited scope to enact all the suggested changes given our responsibilities to meet ethical standards and Data Protection (especially GDPR) legislation. They were also useful in terms of thinking of alternative ways to contact participants e.g. through text. However, it was found that these participants were particularly interested in the programme and research and therefore may not have reflected our potential recruitment sample accurately. Again, with only a £5 voucher and travel expenses offered the incentive to participate was low and the researchers were conscious about minimising burden on PPAC members.

In order to supplement the advice received via the PPAC we also noted comments from teachers and parents during data collection and tried to adjust our approach accordingly e.g. relating to the concerns surrounding the substudy. Consequently, the PPAC did not work to the extent expected and it may have been more helpful to have parent members on a wider steering committee drawn from a wider range of stakeholders eg. teachers, although the impact of burden would also need to be considered.

The research team

The research team was divided across the National Literacy Trust, who led on the initial recruitment of early years settings and training and delivery of the Early Words Together programme and the University of York (with the later inclusion of Leeds Beckett University due to Nicole Gridley changing roles) leading on the evaluation. In the initial stages of the evaluation there was a delay in recruiting the Research Support Officer at the University of York and the programme lead at the National Literacy Trust changed three times during the evaluation (due to job change and maternity leave).

Overall, however, the teams have worked well together and settings also commented on the high levels of support they felt they received from both the National Literacy Trust and the University of York:

'There is always somebody at the end of the line to help and support me'. (Teacher interview).

Discussion

This was designed as a pilot trial and as such was not well powered (MDES of 0.3, P=0.7, rho=0.33). Consequently, the lower than expected levels of recruitment meant that the study would not be able to answer the original research questions posed and so the decision was taken to end the trial earlier than originally planned. The anonymised data will be offered for deposit to the UK Data Archive.

There have been some positive lessons to be drawn from the study. For some early years settings engagement with the programme was high and there is an intention to continue delivering the programme beyond the evaluation. Similarly, those parents who participated in the programme and completed the evaluation form tended to be positive about the experience for them and their child. Child-complete measures, administered within settings, were acceptable to parents and settings alike, relatively cost-effective and a high retention rate was obtained. Settings were positive about the support received by the evaluation team (University of York and National Literacy Trust). We also found that texting parents was more effective than phone calls in communicating with parents. Conversely, completion of measures with a researcher by phone was more effective than asking parents or settings to return self-complete measures by post.

More challenging aspects related to participant burden on already busy early years settings and on parents. Given the rise in the number of randomised controlled trials within education recruitment is an issue other researchers have also struggled with. This was an issue we which tried to build into the study, through using short measures, incentives for participation, and building good

relationships with schools. Unfortunately, there were a number of areas where these were insufficient and/or could have been improved on, as discussed below.

Whilst recruitment to this trial took a somewhat top-down approach via local authorities and head teachers some of the issues encountered could possibly have been mitigated against with a longer lead-in time involving potential delivery staff more fully involved in the decision to participate in both the study and in the programme. This should have included more awareness of the implications of being involved in the research, including the randomisation process, implications of being allocated to either condition, commitment to the research by staff (including senior members of staff over five academic terms), and parental recruitment and completion of measures. This could have mitigated against any research fatigue that may have ensued (particularly in Cohort 2).

For schools in the intervention group the burden of participating in research was added to by actual delivery of the programme in the context of staff shortages, alongside difficulties in recruiting volunteers to deliver the programme. Staff time to recruit to and deliver the programme, the role and extent of volunteer involvement (and the need for a potential pool of suitable volunteers) and commitment to delivery by schools to the programme over the five academic terms for those allocated to receive the programme could have been clearer, particularly in discussions with settings during the recruitment phase. It may be that use of volunteers, in particular volunteer parents, is not effective within early years interventions, given low recruitment, high turnover and an unwillingness to lead on programme delivery.

Implications for being involved in the control group could have also been more clearly explained as there appears to have been an element of disengagement by schools in the control group once they discovered they were not going to receive the programme resulting in lower levels of recruitment in Cohort 2. This was compounded by the design of the study which meant that by Cohort 2 settings were no longer blind to condition.

Time taken to support and encourage early years settings did show returns for the settings in the intervention group, particularly in Cohort 2, although this was time consuming and for some settings, who had already disengaged, particularly in schools in the control group, this was not enough to encourage continued active participation in the research. Earlier commitment, and ongoing engagement, particularly with schools in the control group, for example, may have been more effective than the measures taken to counter-disengagement. A further possibility would have been to run the study over a shorter time period with more schools, which may have also countered the issue of staff turnover in both conditions, although this would have had cost implications and may have prevented the programme being embedded fully in schools in the intervention group. Financial incentives to schools in the control group were insufficient to maintain interest although a shorter trial period may have made the offer of the programme at the end of the study more attractive as by the end of the second academic year the impression was that schools in the control group had moved on from wanting the Early Words Together programme.

Parental engagement, particularly of hard to reach groups including those from low socio-economic backgrounds and studies in the early years appears to be a particularly hard demographic to reach (Robinson-Smith et al, 2019; Tracey et al., 2016). Both schools in the intervention and control groups struggled to recruit parents although in Cohort 1 some schools in the control group did achieve the target number. Discussion of the potential pool of parents prior to recruitment of settings was

explained and support given in recruitment, although many settings felt that they reached saturation point prior to the targets being met. Schools in the intervention group struggled in particular with encouraging parents to commit to a six-week programme and the length and flexibility of such programmes should be considered in the light of parents other responsibilities. It may have been more pragmatic to have opened the recruitment to the study to a wider age-range i.e. to include 2-3 year olds, although this would have implications for measures and design of the programme given children's different developmental stages over such a wide age range (2-4 years of age).

A lack of parental engagement was particularly evident in terms of the low completion and return of parent self-complete measures but also had a less quantifiable impact on recruitment overall. We, as researchers, need to find ways of engaging parents in research more fully and perhaps a more hands-on approach towards parents, although costly and time-consuming, would have been beneficial for example through researchers attending information meetings with parents, and assisting with the completion of measures. Whilst measures should be kept to a minimum, incentives could, perhaps have been higher for parents and schools to better reflect the actual additional work required although in the event this was higher than anticipated given the addition of the ASQ and the low numbers of volunteers to the programme. It may be that, for some parents, study measures and programme materials could have been provided in additional languages, although again, this can be time-consuming and costly.

Some of the solutions discussed above we had hoped would be answered by the Parent and Public Advisory Committee (PPAC) although in the event, this did not work as it should and it may have been more appropriate to have parent representatives on a wider panel involving other stakeholders, rather than focusing solely on parents. However, whilst Early Words Together has been subject to a number of studies (cf. Wood, Vardy and Tarczynski, 2015) it is apparent that the programme was not ready for a pilot RCT as designed. It took time and considerable levels of support to embed the programme into a setting suggesting a longer timeframe was necessary although this would need to be balanced against the need to maintain research engagement, especially for schools in the control group. Engagement was an issue for both settings and parents and varied greatly. However, for a randomised controlled trial design it would not be possible to use early years settings where the programme was already firmly established. Moving forwards it may be more appropriate to move down the 'Steps of Evidence' (Asmussen, Brims and McBride, 2019) and consider a feasibility trial which would enable researchers to explore more fully the acceptability of the programme to key stakeholders and of the research design, particularly the research measures. However, given the recent and proposed changes to the programme (see below) it is important that these are given time to develop before any such feasibility evaluation is considered.

Future of the Early Words Together Programme

Following learning from this and other evaluations, the National Literacy Trust has made adaptions to the programme to support the wide range of practitioners in the early years sector that may deliver the programme. Where settings have found it hard to recruit volunteers to run sessions, practitioners are now advised to run sessions themselves initially until parents become more confident and empowered, and then to encourage those parents to consider volunteering themselves to support other parents. A toolkit has been developed with thorough session plans communicating key messages for parents which are a 'pick-up-and-go' resource for practitioners stretched for time or who have no other support. The National Literacy Trust has also found that

earlier engagement of parents through private, voluntary and independent (PVI) settings from the first days of settling in, and reaching children on the two year old free child care offer, has encouraged parents to stay engaged and on message as their children move on to nursery and school, and they appear to be more likely to attend sessions. The National Literacy Trust has developed Early Words Together at Two, for practitioners in PVIs, playgroups, children's centres, etc. and removed the volunteer element of the programme. The new Early Words Together at Three adds in phonological awareness activities and school readiness links, so there is now a whole suite of Early Words Together programmes to encourage engagement of families and support young children's language and literacy development.

Other developments to consider for the EWT programme as a result of this study include, the need for twice-yearly refresher trainings as staff turnover can be very high in early years settings and leaves no-one with the knowledge to run the programme, bringing staff back together for termly network meetings to share success stories and renew motivation, matching any incentives for parents to local needs, finding further ways to engage parents and build awareness of ways to support their child's language and literacy, e.g. Early Words Together activities online, through apps, settings' own platforms, social media, etc. These learnings are now incorporated into all planned EWT projects going forward, though it is important to note that the new projects have not yet been evaluated and these changes will need time to bed in before any sort of feasibility evaluation can be carried out.

Lessons Learned

A number of lessons have been learned from this study which we hope will benefit others carrying out trials of early years interventions with parents of similar demographic backgrounds:

- It is important that early years settings are completely clear and committed to what is
 involved in taking part in a randomised controlled trial prior to recruitment, including that
 they can be randomly allocated to either condition, and what each condition will involve.
 This involves relationship building by the research team prior to the start of the research and
 a considerable lead-in time may be necessary.
- 2. Related to the above, recruitment should not be top-down only. Information relating to the research should be provided clearly, and to all staff who will be involved in the research, including teachers involved in engaging with parents and potentially delivering the programme to ensure to ensure buy-in. Head teacher commitment to supporting those staff in the research should also be ensured (including new members of staff where there is staff turnover).
- 3. This time and commitment on all sides (i.e. researchers, programme developers, schools) needs to continue throughout the period of the study to prevent disengagement as reengaging settings is time-consuming and extremely difficult. This is particularly important for settings in the control group who may be disappointed at not receiving the intervention. Activities by researchers to ensure this occurs should be built into the trial design from the beginning.
- 4. Researchers should not underestimate the difficulties of working with schools in deprived areas which may face staffing issues and a lack of parental engagement. Strategies need to be developed and built into the programme design in order to mitigate these issues and enable the evaluation of early years interventions. Researchers may, for example, support

- staff in parental recruitment and engagement in early years settings by attending these settings personally and talking to parents.
- 5. The suitability of the programme design should be assessed with the parents and settings in mind, for example, the use of volunteers for programme delivery was unsuccessful in this version of the Early Words Together programme. Other aspects to consider could be length and timing of delivery: for example, in this trial some settings shortened the programme to fit with other staff commitments. A six week programme was also seen as lengthy and therefore a deterrent to parental participation.
- 6. Research design should be pragmatic in terms of length of the research, frequency and timing of research activities, the measures used, and the impact of these on both the intervention and control groups. In this study the short, school-based, one-to-one administered child-based measure was successfully administered to participants at pre-and post-test with high levels of retention. However, the parent-based measures were too long and settings found it difficult to organise their return to the research team. This resulted in sending measures directly to the parents for completion and relying on parents returning using Freepost envelopes. We would recommend a more systematic use of telephone interviews or face-to-face data collection for the completion of measures with parents, rather than postal surveys.
- 7. Careful consideration should be made of clustered randomisation procedures. In this study late recruitment of some settings and the addition of a third local authority meant that there was an imbalance of settings in the control and intervention groups across the trial. This was compounded by settings being aware of their allocation after the initial recruitment period and settings in the control group subsequently demonstrating lower recruitment levels. A future study employing this design would need to carefully manage expectations and be clear about recruitment requirements for both the intervention and control groups after randomisation. An initial wait-list design may have encouraged continued interest in participation in the study.
- 8. The use of a Parent and Public Advisory Committee was not successful in this case and, if used, care should be taken in recruitment of such committees, their composition (eg. by widening their composition to other stakeholders, such as teachers), and possible incentives for taking part.
- 9. Incentives in general for participation in this form of research should possibly also be considered carefully to ensure they encourage recruitment and are considered sufficient remuneration for both participation and retention.
- 10. Finally, where solutions to the above points are not clear, or have not been established by prior research it is important to ensure that the intervention is ready for a randomised controlled trial before embarking on the research. In particular feasibility testing is important to ensure that the design, outcome measures, and operational procedures are suitable for the intervention being evaluated and the population for which it is intended.

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