

Applying behaviour change theory and video technology to speech and language therapy for preschool children

Submission date 16/03/2020	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 30/03/2020	Overall study status Completed	<input checked="" type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 04/07/2023	Condition category Mental and Behavioural Disorders	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Speech and language therapy for preschool children with language difficulties centres around creating a language-rich environment. Parents are the providers of their children's language environment in the early years, so Speech and Language Therapists (SLTs) must train them in order to support their child. To understand more about how SLTs can best train parents, it is vital to know what exactly it is SLTs already do to support and train them. However, the techniques SLTs use are only vaguely described in practice and in research studies. There has been some work into making a clear list of all SLT techniques using the Behaviour Change Technique Taxonomy (BCTT – a list of therapeutic techniques that public health workers use), but so far, techniques used by SLTs with parents have not yet been investigated in this way. Therefore, the first aim of this study is to identify the techniques from the BCTT which SLTs use when working with parents and their preschool children.

Student SLTs have been taught successfully and with positive feedback using behaviour change principles and a remote video learning tool called Video Enhanced Observation (VEO). Applying this method to training parents may allow them to gain a more in-depth understanding of their role and the kinds of techniques they can use with their child. If effective, training parents using VEO could eventually mean decreased costs and SLT resources, since therapy could be done remotely. VEO could also provide an effective measure of how well SLTs and parents follow treatment procedures, which is an important and often neglected part of academic studies. Therefore the second aim of this study is to evaluate the effectiveness of the BCTT combined with VEO as a tool for training parents of preschool children with language difficulties.

Who can participate?

1. SLTs working in NHCT with parents of preschool children
2. Parents with a child between 12 and 36 months who has been flagged for further investigation of language by parent, health visitor, or early years professional

What does the study involve?

In Phase 1, the first aim of the study will be investigated. For this Phase, the Lead Researcher will read and analyse lots of studies which describe parent training interventions with SLTs. From the

information gathered, a survey will be created including all the techniques described in the studies. This survey will be sent out to SLTs around the world who have worked with parents of preschool children at some point in their career. Their answers will tell us more about how therapists use those techniques, and whether those studies missed out some techniques. After this, three SLTs local to the ABCPALS study base will be observed when giving training to parents, to check which techniques they use in practice.

With all the information from Phase 1, two therapy protocols for Phase 2 will be created. Three groups will be compared in Phase 2. One group will receive 'treatment as usual' from the SLT department local to the study base. The second group will receive a specially tailored intervention using behaviour change theory. The third group will receive a specially tailored intervention with behaviour change theory in addition to video feedback using VEO. Participants will be allocated to each group depending on when their child is referred to the SLT service: September to December 2019 will be treatment as usual, January to March 2020 will be behaviour change intervention only, and April-June 2020 will be VEO plus behaviour change intervention. Each parent and child will be involved for up to 4 months. They will be seen before their intervention, 6 weeks after their intervention, and 6 weeks after that. Appointments will be at their home and will be arranged to suit them.

What are the possible benefits and risks of participating?

The only risks to participating are that the children do not enjoy the assessment and intervention sessions, or that they are not suitable to be involved in the study and therefore their needed treatment is delayed. Both of these risks are minimal since the intervention and assessment sessions involve lots of toys and playing together with parents and the researcher, and the lead researcher who makes the clinical decision as to whether to include a child in the study is a trained and experienced SLT.

Where is the study run from?

Albion Road Resource Centre (UK)

When is the study starting and how long is it expected to run for?

January 2019 to March 2021 (updated 04/01/2021, previously: July 2020).

Who is funding the study?

Economic and Social Research Council (ESRC) (UK)

Who is the main contact?

Sarah Barnett

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Contact information

Type(s)

Scientific

Contact name

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Additional identifiers

Integrated Research Application System (IRAS)
236742

Central Portfolio Management System (CPMS)
42120

Study information

Scientific Title

The application of the Behaviour Change Technique Taxonomy (BCTT) to parent-led language interventions

Acronym

ABC-PALS

Study objectives

PHASE 1:

Research question 1: Which behaviour change techniques (BCTs) are used by speech and language therapists (SLTs) to implement parent training interventions for parents of young children with language difficulties?

Hypothesis: It is hypothesised that SLTs implementing parent training interventions will use a similar range of BCTs to SLTs delivering speech and language interventions to older children and adults, and that the BCTs taught to parents to use with their child will be similar to those which SLTs have been found to routinely use with younger children.

PHASE 2:

Research question 2a: Does the use of the Behaviour Change Technique Taxonomy (BCTT) increase the amount of PCI techniques parents implement with their children?

Hypothesis: It is hypothesised that parents will more easily learn and implement techniques which have been taught through explicit use of the BCTT, than the same techniques taught in 'traditional' parent training sessions.

Research question 2b: Does the Video Enhanced Observation (VEO)+BCTT intervention method increase the speed of uptake of the prescribed PCI techniques, reflecting good treatment fidelity, and support their retention in the 6 weeks after the intervention period?

Hypothesis: It is hypothesised that due to the self-reflection needed for the VEO intervention, parents will begin to implement techniques more quickly, and continue to use them for longer after the intervention, in their interactions with their children than parents who do not use VEO. The VEO will allow for a measure of treatment fidelity that is not parent-report.

Research question 2c: Is the VEO+BCTT an acceptable intervention to parents?

Hypothesis: It is hypothesised that parents may be uncomfortable with the VEO-BCTT training at first, but that they will find the intervention overall acceptable and useful, especially given the decreased time required and the technological aspects.

Research question 3: What is the impact of and difference between three different methods of PCI intervention on children's language levels?

Hypothesis: It is hypothesised that parents trained using the BCTT combined with VEO will have a greater effect on the child's speech and language development, than BCTT alone, or no BCTT, as it provides a richer learning environment and greater opportunity for reflection for the parent implementing the intervention.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 28/06/2019:

1. Health Research Authority (HRA) and Health and Care Research Wales (HCRW) (NHSBT Newcastle Blood Donor Centre, Holland Drive, Newcastle upon Tyne, NE2 4NQ, UK; +44 (0)207 972 2496; isobel.lyle@nhs.net), REC ref: 19/NE/0164
2. Newcastle University Education, Communication and Language Sciences Research Ethics Committee (King George VI Building, Newcastle University, Queen Victoria Road, Newcastle upon Tyne, NE1 7RU, UK; jalal.al-tamimi@newcastle.ac.uk)

Study design

Non-randomised; Both; Design type: Process of Care, Other, Qualitative

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Young children with language difficulties

Interventions

PHASE 1:

An observational study to assign BCTs to SLT parent interventions for young children with language difficulties; March 2019 – October 2019. Answering Research Question 1: Which BCTs are used by SLTs to implement parent training interventions for parents of young children with language difficulties?

Participants:

- Responders to a UK-wide survey
- Four SLTs delivering parent training interventions in Northumberland and Newcastle upon Tyne
- Parents attending parent training interventions

Procedures:

- A literature review of PCI interventions and BCTT research in speech and language therapy to understand the content of the intervention.
- From this, a list of BCTs that SLTs use when training parents will be created.
- This list will then inform the creation of a questionnaire about the use of techniques by SLTs in

training parents which will be sent out using platforms such as social media and the Royal College of Speech and Language Therapists, to SLTs across the UK who train parents of children with language difficulties.

- Results from this survey will be the list of techniques.
- The list will then be discussed and modified where needed by a focus group of four SLTs from NHS Trusts in the North East of England who use PCI interventions when working with parents of pre-school children with language difficulties.
- After this, these SLTs will be observed training parents by the researcher, who is already trained and experienced in assigning BCTs to observed therapy sessions. The description of each BCT found to be used in these observations will be discussed with the SLTs to ensure it matches their intent.

The final list of BCTs will be used to develop the tag set on the VEO app which will be used in Phase 2. This tagset will be discussed with two focus groups; one comprising the SLTs previously involved, and one comprising a PPI group - parents of pre-schoolers, not otherwise involved in the study. This will be to ensure that it is user-friendly, clear and understandable. Feedback from this group will be used to modify the intervention, including the BCTT descriptors and the tags on the VEO app for the next part of the study.

This phase will also involve the development of:

- a questionnaire regarding parent views on their role in their child's language development for use in the next phase.
- a treatment fidelity checklist made from the list of components of PCI interventions. (Treatment fidelity describes how well a clinician adheres to the treatment protocol).
- A report regarding the techniques SLTs use when working with parents. This will go out for publication. PPI group input will be sought for the questionnaire and checklist.

PHASE 2:

A controlled experimental evaluation of BCTT combined with VEO in parent training intervention for parents of young children with potential language difficulties; Answering Research Questions 2a, b, c and 3.

Participants:

In speaking to a group of SLTs from Northumbria Healthcare, they put forward concerns around ensuring that patients understood that their potential participation in the project and their usual care from SLT did not affect one another. They also aided in the decision making around inclusion and exclusion criteria, specifically around children who may exhibit signs of a social communication difficulty such as autism. Parent interaction training is different for parents of children with autism than for parents of children who are typically developing other than their language, and confusing one with another can be demoralising for the former parent and child. Therefore it was advised strongly by the SLTs that such children who may do better being on an autism pathway within the service would not be involved in this study. Other than these areas, the SLTs were very supportive of the whole project and very interested in what the outcomes will be. It was decided therefore that participants would be recruited through the usual method of referral and initial assessment in the service. Parents will be sent information sheets about the study alongside their usual referral letter. They will be directed to mention their interest in the study when they phone to choose an appointment with SLT.

- At least 36 parents and their pre-school children (aged 2;00-3;11 years) with potential language difficulties referred between August 2019 and March 2020 to speech and language therapy services in Northumbria Healthcare NHS Foundation Trust.
- Parents should have a good level of English to be involved in the study. Children are to have no other difficulties such as autism or Down Syndrome and are to be deemed appropriate for the study by Sarah Atkinson (lead researcher) and where needed SLTs within the Trust who are

familiar with the project. They and their child should not be receiving any input from other speech and language therapy services.

- Participants will be divided into three groups based on the time they are referred into the service:

1. Control (usual treatment)
2. Experimental use of BCTT+PCI
3. Experimental use of BCTT+VEO

Twelve participants in each group will be the minimum needed for the intended analysis.

Control group:

The control group (Group 1) will receive the usual treatment the Trust provides for preschool children with potential language difficulties; general and individualised advice given in initial appointments. Including a treatment as usual control arm ensures that clinical equipoise is present; research shows that parent training benefits parent and child, but it is unknown which service delivery type of parent training is most effective.

BCTT/PCI Group:

Parents in the experimental BCTT/PCI Group 2 will receive a PCI intervention, but including explicit instruction of the BCTs to be used with their child so that parents are confident in discussing and recognising them. This will involve intervention being individualised to each parent/child dyad. There will be 2 hours worth of training, given at home visit(s). Three targets for the child and three for the parent will be set in collaboration with parents. Following this, 6 weeks of home-based parent-child intervention will take place, making up 1 hour per week. Throughout this period participants will be asked to make a record of their interactions with their child on a weekly checklist, and reflect on these. Reflections will comprise a short checklist and comment space related to their goals, how often they used the advice given or the PCI techniques taught, and whether techniques had the desired outcome on their child's communication.

BCTT/VEO PCI Group:

Parents in the experimental BCTT/VEO Group 3 will receive 2 hours worth of training, given at home visit(s). Three targets for the child and three for the parent will be set in collaboration with parents. Like Group 2, this will include explicit BCT training, and in addition to this, parents in Group 3 will also be taught how to use VEO with the BCTT tags to label recordings of their intervention time with their children. As in Group 1 and 2, the intervention will be individualised to each parent/child dyad. Following initial training sessions, six weeks of home-based parent-child intervention will take place, making up 1 hour per week. Throughout this period, participants will upload two videos per week of themselves interacting with their children to the VEO portal on their phone/tablet, to be shared with their therapist (Project Leader) with parents' own comments on the second video as reflections.

Assessment points:

- one pre-intervention assessment point (baseline, maximum 4 weeks before the intervention begins)
- two post-intervention assessment points (outcome, within 2 weeks of finishing intervention, and follow-up, 6 weeks post-outcome assessment)

Measures:

- A questionnaire developed in Phase 1 regarding parents' understanding of their role in the language environment and intervention for their child. (baseline and outcome)
- The Focus on the Outcomes of Children Under Six (FOCUS-34), and the MacArthur Bates

Communicative Development Inventory (CDI) will measure the language skills of the children (baseline, outcome and follow-up).

- Videod play interaction between parent and child will allow three measures of parent behaviours: a type and frequency measure of BCT use with their child; the Parental Responsiveness Rating Scale (PaRRiS); and a detailed rating of parental responsiveness (baseline, outcome and follow-up), from a videotape of a five-minute interaction between the parent and their young child. This play interaction will occur in the same session as the language assessments and questionnaires parents will fill out.
- Focus groups or parent interviews will be held immediately after the outcome assessments to evaluate the acceptability of the three different interventions to parents. Interviews/focus groups will take place on Northumbria Healthcare Trust property.

To avoid researcher bias/researcher effects, the Lead Researcher will leave the room during video interaction. The analyses of the videos and scoring of parent measures will be checked for reliability by another trained individual who is not part of the project. All child measures will be parent-report, and will not be informed by the Lead Researcher.

Focus groups/interviews will be led by someone who is not part of the project, and who is trained in leading focus groups and interviews.

Treatment fidelity:

The videos and reflections (online comments or checklist), in addition to treatment fidelity analysis of the initial training session for all groups, will serve as treatment fidelity measures for the three groups. The treatment fidelity checklist made in Phase 1 will be used to check whether parents using BCTT have better fidelity than without and the impact of VEO on fidelity through analysis of 30% of each submitted video recording.

Data from the language assessments and parent responsiveness measures will be analysed using quantitative methods to determine whether the intervention was effective, and if there is a significant difference between baseline, outcome and follow-up scores for the different arms. Effect sizes will be calculated. Data from the questionnaires and focus groups will be analysed using both quantitative and qualitative methods.

Intervention Type

Behavioural

Primary outcome(s)

1. Parent responsiveness measured by the Parent Responsiveness Rating Scale (PaRRiS) (score 1-5) (ordinal) at baseline, outcome and follow-up
2. Parent responsiveness measured by a detailed measure of 4 parental responsive behaviours (interval) at baseline, outcome and follow-up
3. Parent use of behavioural techniques by coding using the behaviour change technique taxonomy (BCTT) (percentage out of the number of techniques taught, e.g. if 5 techniques, and only used 1, the score would be $1/5=20\%$) (interval) measured at baseline, outcome and follow-up

Assessment points:

- one pre-intervention assessment point (baseline: maximum 4 weeks before the intervention begins)
- two post-intervention assessment points (outcome: within 2 weeks of finishing intervention, and follow-up: 6 weeks post-outcome assessment)

Key secondary outcome(s)

1. Parent's understanding of their role in their child's language development and intervention, measured by 5-point Likert scale questionnaire at baseline and outcome
2. Children's communication development, measured by the Focus on the outcomes of children under 6 (FOCUS-34), at baseline, outcome and follow up
3. Children's language use, measured by the MacArthur-Bates Communication Development Inventory (MB-CDI) AND their Mean Length of Utterance (MLU) as taken from 10 minutes of video recording at baseline, outcome and follow-up

Assessment points:

- one pre-intervention assessment point (baseline: maximum 4 weeks before the intervention begins)
- two post-intervention assessment points (outcome: within 2 weeks of finishing intervention, and follow-up: 6 weeks post-outcome assessment)

Completion date

05/03/2021

Eligibility

Key inclusion criteria

PHASE 1:

SLTs working in NHCT with parents of preschool children

PHASE 2:

Parents with a child between 12 and 36 months who has been flagged for further investigation of language by parent, health visitor, or early years professional

All participants will be willing and able to provide written informed consent

Healthy volunteers allowed

No

Age group

Mixed

Sex

All

Total final enrolment

19

Key exclusion criteria

1. Comorbidities such as Down Syndrome and cerebral palsy
2. Likely to be on the autism spectrum disorder pathway
3. Unable to communicate in English
4. Unwilling to provide written informed consent
5. Unwilling to be video recorded

Date of first enrolment

09/09/2019

Date of final enrolment

15/11/2020

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre**Albion Road Resource Centre**

Albion Road

North Shields

United Kingdom

NE29 0HG

Sponsor information**Organisation**

Northumbria Healthcare NHS Foundation Trust

ROR

<https://ror.org/01gfeyd95>

Funder(s)**Funder type**

Research council

Funder Name

Economic and Social Research Council (ESRC); Grant Codes: ES/P000762/1

Alternative Name(s)

Social Science Research Council, ESRC, SSRC, UKRI ESRC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available upon request from Sarah Atkinson (s.atkinson2@ncl.ac.uk) from September 2022 for 3 years. This data will be anonymised raw data from FOCUS-34, MacArthur Bates CDI, demographic questionnaires and comprehension of role questionnaires. Also available will be the PaRRiS scores and detailed coding information. The videos themselves will not be available at any point to retain the anonymity of the participants. The data will be shared upon request. The datasets generated and /or analysed during the current study will be included in the subsequent results publication.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Other unpublished results	Research summary		04/07/2023	No	No
Protocol file	version V1	04/04/2019	30/03/2020	No	No
Statistical Analysis Plan			30/03/2020	No	No