**Raising Voices: Examining the role of parent-directed interventions in supporting children’s early language development**

[Version 3]

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1. **RESOURCES**

Funding: UQ School of Psychology HDR Student Support Funding

Donations: Dymocks Children’s Charities

1. **PROJECT SYNOPSIS**

Late talkers are children who exhibit a later onset and slower progression of expressive language than their peers. Although late talking is prevalent in populations of young children, many do not receive early intervention. Some parent-directed interventions have been specifically created to increase child language skills. In these language-specific interventions, like Dialogic Reading, parents are trained in targeted strategies and techniques to scaffold their children’s language development. Other parent-directed interventions, like Group Triple P, have been designed to improve family functioning, child behaviour, and child development more generally. There is great potential for Group Triple P, which takes a broad-based approach, to also scaffold language learning and improve these outcomes for late-talking toddlers, but at present, no empirical studies have tested the intervention’s effectiveness in the language domain. This trial will randomize parents of late-talking 2- to 3-year-old children to either Group Triple P or Dialogic Reading interventions lasting 8 weeks, or a waitlist control group. Primary language outcomes will be assessed at baseline, post-test, and 3-month follow up. Other outcomes include parent-reported child behaviour and parenting style. All interventions and testing will be completed online. The Group Triple P program is disseminated globally by Triple P International, based in Brisbane, Australia (Triple P-Positive Parenting Program). Should this trial demonstrate effectiveness of the program in increasing expressive language performance, this established program can be readily repurposed to meet the needs late-talking toddlers, and their families, in the community.

1. **BACKGROUND**

Late talking, or specific expressive language delay, is a phenomenon affecting 9 to 20% children at 24 months of age (Bishop, Price, Dale, & Plomin, 2003). When late-talking is identified at this early age, the problem is often transient with 50-70% of children demonstrating expressive language in the normal range by school age without formal intervention (Bishop et al., 2003; Singleton, 2020). However, only 18% of children failing expressive language screenings at 30 months of age show spontaneous improvement by age 6 (Rescorla, 2009). The unpredictability of long-term outcomes coupled with the prohibitive cost of one-on-one speech and language therapy leads some to recommend a ‘wait-and-see’ approach (Singleton, 2018). However, others argue that early intervention is critical and suggest that parent-directed interventions are a promising and cost-effective solution to the problem.

Unlike traditional approaches, where the speech and language therapist works directly with the child, parent-directed interventions minimize or eradicate this direct contact. Instead, parents, either individually or in groups, are given psychoeducation and resources, and trained in language-promoting strategies. The parent then becomes the agent of change, thus mediating the association between the interventionist and child. There are many advantages to these interventions: (1) parents are constant figures in a child’s early years and in a prime position to impact their development, (2) following from point 1, there is increased intervention “dosage”/contact hours and arguably, longevity of impact, (3) the child receives the intervention in naturalistic environments (i.e. the home and peripheral social settings), (4) parents may change the home environment – better curating or buffering experiences – because of the intervention training, (5) the interventions are more cost-effective particularly in programs involving group training. In addition, empirical evidence supports the utility of language-focused parent-directed interventions – they lead to significantly better child language outcomes than no intervention, show largely equal effectiveness as traditional practitioner-led therapy, and in some cases can be more impactful than direct speech and language therapy (Law et al., 2019; Tosh et al., 2017). Dialogic reading (DR), a language-focused parent-directed intervention, has strong empirical backing, and is used widely in research studies and the community (Roberts & Kaiser, 2011; What Works Clearinghouse, 2007). DR has no prescribed materials or delivery method, merely comprising a set of shared reading techniques, designed to reflect many of the strategies speech and language therapists use to scaffold language learning.

In this trial, we will develop and deliver an 8-week, online DR intervention to parents of late-talking 2- to 3-year-olds. Parents will be trained in the key strategies of DR – CROWD prompts and the PEER sequence. The five CROWD prompts are specific ways to elicit child responses: (1) **C**ompletion prompts leave sentences incomplete for the child to finish, (2) **R**ecall prompts ask children to remember features or events from books, (3) **O**pen-ended prompts allow child to reflect on books and help increase verbal fluency and attention to detail, (4) **W**h- prompts are parent questions that begin with what, where, when, why and how, and (5) **D**istancing prompts help children draw relationships between books and the real world and encourage verbal fluency, conversational ability, and narrative skills. The PEER sequence is a fundamental reading technique that gives structure to the interaction between parent and child – the adult **P**rompts the child to discuss the book content, **E**valuates the child’s response, **E**xpands on the child’s response, and then **R**epeats the prompt to consolidate learning. The DR intervention will cover these strategies, give opportunities for practise, and will also address peripheral topics like adapting the strategies for use with different genres of picture books and selecting books that appeal to individual children. Using a DR intervention in this study will allow us to evaluate the impact of a popular, language-focused intervention, delivered online on a population of late-talking Australian toddlers.

Parent-directed interventions are not used solely in the area of speech and language development. Many parent-directed programs place emphasis on generalized parenting behaviours and target a range of child development outcomes such as behavioural and sensory regulation, social skills, and proficiency in tasks of daily living. Triple P-Positive Parenting Program, a suite of parenting interventions of varying duration and intensity and with different target populations, was developed at the University of Queensland and consists of five core principles to encourage positive parenting: (1) safe and engaging environment, (2) positive learning environment, (3) assertive discipline, (4) realistic expectations, and (5) parental self-care (Sanders, 2008; Sanders, Kirby, Tellegen, & Day, 2014). Group Triple P, one of the more intensive iterations of the program, trains parents in groups of no more than 12, and emphasizes incidental teaching and parent-child communication (Sanders, 2008). While extensive evidence supports the program’s utility in improving a range of parenting and child outcomes, at present, there is no direct evidence of language outcomes relating to Triple P (Sanders, Turner, & Markie-Dadds, 2002). In this project, we will deliver the 8-week GTP intervention online to parents of late-talking 2- to 3-year-olds. This is an important opportunity to test the program’s effectiveness in the language domain.

In this three-armed intervention trial we will compare child language outcomes for parents receiving the two types of training (DR and GTP) against a waitlist control group (WL). Should GTP demonstrate utility as a program to training parents to support late-talkers’ language development, this may inform the recommendations of professionals and the choices of parents seeking support. The fact that GTP can be run online with fidelity would resolve some access and resource problems (e.g., COVID-19 social distancing requirements, lack of services in regional areas) and decrease issues related to the costs of traditional speech and language services.

***Aims***

**In this project, we aim to:**

1. Undertake a randomized controlled trial to test the effects the two parent-directed interventions, DR and GTP, have on outcome measures of child language, and compare against the performance of children in WL control group.
2. Establish whether GTP is a viable alternative to DR for parents wishing to encourage the development of expressive language skills in their late-talking toddlers.
3. Explore and compare the effects of GTP and DR on secondary measures (e.g., child behaviour).

***Hypotheses***

**Primary outcomes:** Compared to the WL control group, participation in DR and GTP interventions will improve child language outcomes [H1].

**Secondary outcomes:** Children in the GTP group will show greater improvements in behaviour on observational and parent-report measures than those in the DR and WL control groups [H2]. Parents in the GTP group will report greater parenting self-efficacy in self-report measures than those in DR and WL control groups [H3].

***Expected outcomes and impact***

Increasingly, evidence suggests that the wait-and-see approach to the problem of late-talking is outdated, and that children require early intervention to achieve their fullest language-learning potential, and thrive in the many areas of life predicted by strong language foundations (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004; Law, Boyle, Harris, Harkness, & Nye, 1998; Singleton, 2018; Siddiqi & Hertzman, 2007). However, various logistical, resource-based, and economic obstacles remain that prevent easy access to quality interventions for children at risk of persistent language difficulties. The results of this study will establish whether GTP is a viable alternative to language-specific interventions like DR and can address and remediate children’s expressive language delays while delivering a range of benefits in other areas of family functioning and child development. The established infrastructure of Triple P worldwide, and the ability to run GTP online, could mean that an effective and accessible option for parents of late-talking toddlers will appear for many seeking support, should GTP prove effective.

1. **PROJECT DESIGN**

A randomized controlled trial (RCT), following SPIRIT guidelines, will evaluate two interventions, DR and GTP. This study is a 3 (GTP, DR, WL) x 3 (time: baseline, post-intervention, 3-month follow up design). Ethical approval will be sought from the Human Research Ethics Committees of the University of Queensland and the trial will be supported by the institution’s Parenting and Family Support Centre (PFSC). We will experimentally test the relative impact of GTP against DR and the WL control group in improving expressive language. Families will be assessed at baseline on all variables and then randomised, by an external researcher, to one of the experimental groups, stratified by age (24-29 months old, 30-36 months old) and gender.

**Participants**

Participants will be 99 parents of late-talking children. An *a priori* power analysis has determined that 81 participants will provide 80% power to detect an effect size for expressive language (*f* = 0.16) with a two-sided alpha set at 0.05 and measurement at three time points. The effect size was generated in a yet unpublished meta-analysis conducted by this study’s researchers and based on total words produced by the child in observations. Adding 20% to account for potential attrition brings the final target for recruitment to *N* = 99.

A relatively short recruitment window is planned, commencing in late-June and running until late August 2021. Given that intervention delivery and assessments can all be online, we have an Australia-wide reach in recruitment. Flyers advertising the study will be sent to child-care centres across Australia asking directors and educators to identify families who may benefit from participation and to pass on details of the study to those families.

Participants will be directed, via the flyer or advertisement, to the study website to securely enter contact details (user identifiable data) before being directed to the eligibility survey comprising three parts (which will not require entry of any user identifiable data).



Figure 1: CONSORT trial flow

***Eligibility***

The screening process for eligible participants will include three parts: (PART A) a demographic questionnaire, (PART B) the MacArthur-Bates Communicative Inventories Short Forms (Fenson, Pethick, Renda, Cox, Dale, & Reznick, 2000) and (PART C) Ages and Stages Questionnaire-3 (24 months) Overall Questions (Squires, Bricker, & Potter, 1997).

The specific inclusion and exclusion criteria for each are presented below.

**Part A. Demographic questionnaire**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **QUESTION** | **RETAIN** | **EXCLUDE** |
| 1. | What is your child’s date of birth?  | 24-36 months old | < 24 months old; > 36 months old |
| 2. | What is your child’s gender? | Retain all.  | Exclude none. |
| 4. | Which languages do your family routinely speak at home? | English only | Languages other than English |
| 5. | Does your child experience any of the following? From FBQ: 5a. A vision or hearing impairment?5b. A severe chronic illness that results in regular hospitalization?5c. A physical disability?5d. An intellectual disability? | All answering *no*, or answering *yes* and describing non-serious, and/or non-relevant conditions (e.g. food allergies, eczema) | All answering *yes* and describing hearing/vision problems, or other relevant medical history/diagnoses (e.g. Down Syndrome, global developmental delay).  |
| 6. | Does your child have suspected or confirmed Autism Spectrum Disorder or Asperger’s Syndrome?  | *No* answers | *Yes* answers |
| 7. | Was your child born at term (37-41 weeks’ gestation)?  | *Yes* answers | *No* answers |
| 8. | Has your child (or any previous children) received speech and language therapy? | *No* answers | *Yes* answers |
| 9. | Have you previously participated in a formal parenting intervention (e.g. Triple P, )? | *No* answers | *Yes* answers |
| 10. | Would you be willing and available to attend weekly online sessions (one session per week for 8 weeks)?  | *Yes* answers | *No* answers |

**Part B. MacArthur-Bates Communicative Inventories Short Forms**

Contains a 100-word vocabulary checklist and a question about word combinations. It is typically used for 16 to 30-month-olds but test developers, Fenson and colleagues, suggest that the short forms are useful for language delayed children beyond the specified age ranges (Fenson et al., 2000). Short Form Norming Tables are available. For this study, the norming tables will be used in conjunction with the below criteria.

|  |  |
| --- | --- |
| **RETAIN** | **EXCLUDE** |
| Children < 30 months old scoring 15th percentile or lower | Children > 30 months old scoring higher than 15th percentile |
| Children > 30 months old scoring th percentile or lower | Children > 30 months old scoring higher than 30th percentile |

**Part C. ASQ-3 (24 months) Overall Questions**

1. Do you think your child hears well? If no, explain.
2. Do you think your child talks like others toddlers his/her age? If no, explain.
3. Can you understand most of what your child says? If no, explain.
4. Do you think your child walks, runs, and climbs like other toddlers his/her age? If no, explain.
5. Does either parents have a family history of childhood deafness or hearing impairment? If yes, explain.
6. Do you have any concerns about your child’s vision? If yes, explain.
7. Has your child had any medical problems in the last several months? If yes, explain.
8. Do you have any concerns about your child’s behaviour? If yes, explain.
9. Does anything about your child worry you? If yes, explain.

|  |  |  |
| --- | --- | --- |
| **ASQ-3 Question** | **RETAIN** | **EXCLUDE** |
| 1. | Any answering *yes*. If answer indicates that parent has interpreted question as a behavioural issue with listening rather than physical hearing, clarify directly.  | Any answering *no* and describing physical hearing problems or suspicions of hearing impairment (e.g. not reacting to loud noises, medical professionals indicating risk of hearing problems). |
| 2. | All. Base decision on other criteria. | None. Base decision on other criteria.  |
| 3. | Those answering *yes.* Those answering *no* but describing intelligible speech patterns typical for toddlers.  | Those answering *yes* and attributing problem to a motoric, neurological, or physical problem (e.g. cerebral palsy, severe tongue ties, cleft palate). |
| 4. | Those answering yes. Those answering *no* but describing behaviours in range of normal for age (e.g. 24 month old afraid to climb in playground).  | Those answering *no* and describing motor delays for age.  |
| 5. | Those answering *no*. Those answering *yes* but describing hearing loss caused by age or injury.  | Those answering *yes*.  |
| 6. | Those answering *no.* Those answering *yes* but have corrected vision (e.g. with glasses, seeing optometrist).  | Those answering *yes* and with unaddressed child vision concerns.  |
| 7. | Those answering *no.* Those answering *yes* but with non-serious or non-relevant medical conditions (e.g. viral/bacterial infections, physical injuries).  | Those answering *yes* and describing serious and/or relevant medical problems (e.g. persistent ear infections, hospitalization for more than 1 week).  |
| 8. | Those answering *no*. Those answering *yes* and describing problematic behaviours like defiance, tantrums, throwing things, hitting, etc.  | Those answering *yes* and describing abnormal social behaviours (e.g. not responding people in environment). |
| 9. | All answering *no*. All answering *yes* but referencing concerns about language development, behaviour, or problems not relevant to study.  | All answering *yes* and describing concerns about social behaviours, hearing and vision problems, or other relevant medical history/diagnoses (e.g. Down Syndrome, preterm birth).  |

Potential participants, passing all eligibility requirements, will be automatically directed to a page showing the Information Statement and then asked to provide consent or to decline participation. Those not eligible will be given a list of useful resources (i.e., community services, Triple P online, etc). The contact details for Lead Researcher Melinda McBryde will also be provided to answer further questions. Standard participant information and consent procedures will be followed, as outlined in the HREA.

**Research Activities**

|  |  |
| --- | --- |
| Calendar Year | 2021/2022 |
| Calendar Month | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct |
| Ethics & governance approvals |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Participant recruitment & screening |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Baseline assessment & randomisation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intervention delivery |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Assessment T2 (post-intervention) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Assessment T3 (3-months post-intervention) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wait-list group interventions delivered |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data analysis & publication |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Data Collection and Outcomes Measures**

The below table is a complete list of this study’s intended measures and timepoints of assessment. Those used in the screening process and described in detail in the Eligibility section above are listed first. The primary outcome measures of language have been highlighted in blue. All other measures are the project’s secondary outcomes and assess both child and parent variables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure name** | **Purpose of measure** | **Measure type** | **Mode of testing** | **Time of testing** |
| **T0** | **T1** | **T2** | **T3** |
| Screening Part ADemographic Survey | To gain information about child’s eligibility (e.g. age, medical history, previous interventions). | Parent report | Web-based survey | º |  |  |  |
| Screening Part BMCDI Short Form IIA | To gauge child’s expressive vocabulary compared to age-matched peers. | Parent report | fillable PDF emailed to parents | º |  |  |  |
| Screening Part CASQ-3 Overall Questions | To determine other areas of delay (besides language) that may preclude study inclusion. | Parent report | Web-based survey | º |  |  |  |
| Ages and Stages Questionnaire-3 Communication Questions (Valleley & Roane, 2010) | To obtain a baseline measure of child receptive language abilities.  | Parent report | Web-based survey |  | º |  |  |
| Home Environment and Demographic Survey  | To identify moderating variables/items not covered in Family Background Questionnaire (below). | Parent report | Web-based survey |  | º |  |  |
| Family Background Questionnaire (Sanders & Morawska, 2010) | To identify moderating variables. | Parent report | Web-based survey |  | º |  |  |
| Eyberg Child Behavior Inventory (Eyberg & Ross, 1978) | To identify frequency and severity of problematic child behaviours. | Parent report | Web-based survey |  | º | º | º |
| Parenting Scale (Arnold, O’Leary, Wolff, & Acker, 1993) | To appraise style of parenting. | Parent report | Web-based survey |  | º | º | º |
| Parenting Tasks Checklist (Sanders & Woolley, 2004) | To assess parent confidence (self-efficacy) in different settings and with various behaviours. | Parent report | Web-based survey |  | º | º | º |
| MCDI Words and Sentences (Fenson et al., 1994; Fenson et al., 2000) | To assess child’s expressive vocabulary, language complexity, emerging grammar (16 to 30 months of age).  | Parent report | Web-based survey |  | º | º | º |
| MCDI-III (Feldman et al., 2005; Fenson et al., 2007) | To provide a brief upward extension (31 to 42 months of age) of the MCDI Words and Sentences | Parent report | Web-based survey |  | º | º | º |
| FOCUS-III (Thomas-Stonnel et al., 2009) | To assess changes in child functional communication | Parent report | Web-based survey |  |  |  |  |
| Observation and Coding Part AInstructional Task ∞ | To assess various dyadic, parenting, and child factors.  | Observational | Zoom recording of parent-child interaction |  | º | º | º |
| Observation and Coding Part BReading Task ∞ | To assess various dyadic, parenting, and child factors.  | Observational | Zoom recording of parent-child interaction |  | º | º | º |
| Parent Knowledge of Early Language Survey (Suskind et al., 2018) | To gauge whether group assignment has an effect on knowledge of early language development. | Parent-report | Web-based survey |  | º | º |  |
| Client Satisfaction Questionnaire (Attkinson & Zwick, 1982) | To evaluate the acceptability of the program services received. | Self-report | Web-based survey |  |  | º |  |

T0 = screening; T1 = baseline; T2 = post-test; T3 = follow up

∞ see Primary Measures section below

**Baseline Data**

At T1, we will administer the Family Background Questionnaire (Sanders & Morawska, 2010) and some other questions pertaining to the family and home environment in the form of an online questionnaire.

**Primary Measures**

 ***Observational Measures***

At T1, T2, and T3, families will receive a mailed package from the research team containing materials for the observational assessment. At an agreed upon time, the researcher, Melinda McBryde, will commence a Zoom call with the parent-child dyad. At the beginning of each assessment session, the researcher will: (1) give brief instructions about the tasks and expected duration, (2) reiterate that the interactions will be recorded but that recordings will be kept secure and confidential, and viewed only by persons directly related to the research project, (3) address any questions or concerns, (4) ensure that the Zoom visual and auditory quality is sufficient for recording, (5) provide the dyad with a signal from the researcher when they have completed the activities. The researcher will then cease video and audio interaction with the dyad but will remain present, observing the interaction virtually.

Each observation will consist of two parts, each lasting a maximum of 5 minutes. In Part A the dyad will be presented with a book. Each book chosen (for the T1, T2, and T3 observations) has been selected to meet the ability and interest levels of the age range. The books also contain minimal text to provide structure and familiarity in the reading task but also encourage free dialogue (e.g. Shh! Little Mouse by Pamela Allen).

In Part B of the recorded observations, the dyads will open a packet containing a simple activity that requires some instruction from the parent to complete. The activities chosen (e.g. a small game where players take turns to balance cylinders on a crescent-shape until it collapses) are seated tasks and can be conducted without the dyad moving from the range of the Zoom recording. The activity materials will contain no items of undue risk (e.g. small pieces presenting choking hazards for children under 3 years of age).

After Part A and Part B tasks are complete, the researcher will clarify any parts of the recording that were muffled or inaudible and make notes for later coding. The researcher will address any questions or concerns and then cease the Zoom call/recording.

Undergraduate students (Honours) carrying out work at the PSFC will act as coders and produce data from the Zoom recordings. These coders will be blind to group assignment and trained to 80% reliability, with recording examples of non-study dyads provided. A comprehensive coding manual will aid decision-making in ambiguous instances.

Primary outcomes are the child variables highlighted in blue below, these are (1) talkativeness (total words), (2) expressive vocabulary (number of different words), and (3) complexity (mean length of utterance). Coders will also produce data for other child, parent, and dyadic variables listed in the tables below.

**Child items**

|  |  |  |
| --- | --- | --- |
| **Behavioural construct** | **Operationalization** | **Measurement** |
| Talkativeness | Total number of words | total frequency in 5-minute observation |
| Complexity | mean length of utterances | average number of words per utterance in 5-minute observation |
| Expressive vocabulary | number of different words  | number of different words in 5-minute observation |
| Echoed responses | echoed in response to adult’s initiations and therefore not formulated or spontaneous | total frequency in 5-minute observation |
| On-task behaviour | degree to which child gives attention to current task or activity; child responds promptly (within 5 seconds) and affirmatively to parent’s verbal or non-verbal cues or requests to return attention to activity  | Global rating, 0-5 |
| Positive affect | degree to which child’s non-verbal displays, i.e., facial expressions and body language, show positive emotion | Global rating, 0-5 |

**Parent Items**

|  |  |  |
| --- | --- | --- |
| **Behavioural construct** | **Operationalization** | **Measurement** |
| *Language Quality and Quantity* |
| Talkativeness | number of words per minute or total words | total frequency in 5-minute observation |
| Complexity of sentences | mean length of utterance | average number of words per utterance in 5-minute observation |
| Complexity of vocabulary | number of different words | number of different words in 5-minute observation |
| *Support Strategies* |
| Expansions | parent responds to a child’s utterance, within 5 seconds, with a statement that directly relates and expands on the child’s utterance | Percentage of child’s total utterances, in 5-minute observation, that parent responds to with expansions. |
| Recasts and imitations | parent repeats or restates (in similar words), within 5 seconds, the child’s utterance  | Percentage of child’s total utterances, in 5-minute observation, that parent responds to with recasts and/or imitations. |
| Descriptive statements including labelling of nouns/verbs | non-evaluative, declarative sentences or phrases highlighting and naming a specific noun or verb.  | Percentage of parent utterances that explicitly label nouns/verbs.  |
| Lead ins | parent offers an incomplete sentence and pauses (for at least 3 seconds), to encourage child’s response; e.g. “How many ducks are there? One, two, …” | Percentage of parent utterances that involve a lead in.  |
| On-task support | degree to which parent behaviours enable child to engage in the activity e.g. responding to child inattention, coaxing and guiding child participation, offering physical assistance only where needed | Global rating, 0-5 |
| *Responsivity* |
| Positive touch | neutral or positive touching of the child with any part of the parent’s body or with an object (e.g. brushing hair with comb)  | total frequency in 5-minute observation. |
| Negative touch | parent touches child in a manner intended to be directive, antagonistic, hurtful, or restrictive of the child’s activity | total frequency in 5-minute observation. |
| Admonitions | verbal expressions of disapproval of the child’s attributes, activities, or choices; includes sarcasm and voicing distain.  | total frequency in 5-minute observation. |
| Labelled Praise | verbal expressions providing positive evaluation of a specific behaviour, activity, or product of the child.  | total frequency in a 5-minute observation. |
| Unlabelled Praise | verbal expressions providing general positive evaluation of the child or a nonspecific activity, behaviour, or product of the child. | total frequency in 5-minute observation. |

**Dyadic items**

|  |  |  |
| --- | --- | --- |
| **Behavioural construct** | **Operationalization** | **Measurement** |
| Social engagement | degree to which dyad is positively engaged through use of affect, eye gaze, gestures, joint attention, verbal-nonverbal communication. | Global rating, 0-5 |

***Standardized Primary Measures***

The MacArthur-Bates Communicative Development Inventories (MCDI) Words and Sentences is a widely-used parent-report checklist that documents toddlers’ expressive vocabulary and early grammar abilities. This test is suitable for use with children aged 16-30 months. The MCDI III provides an upward extension and is suitable for use with children up to 42 months. Depending on which age bracket each individual child falls into at the T1, T2, and T3 assessment points, the parent will complete **one** versionof the measure at each timepoint.

The FOCUS-34 is a 34-item parent-report tool that measures real-world communicative participation changes during interventions in children under 6 years of age. Research on the FOCUS suggests that a 16 point gain (or greater) represents an important change in the child’s functional communication skills (Kwok et al., 2020). This measure will provide another standardized assessment, which can be administered online with fidelity, that will evaluate not only child language but functional communication across the duration of the project.

**Procedure**

After baseline assessment and randomization, participants in both intervention arms will commence their respective programs as soon as a group of up to 12 participants can be formed. Melinda McBryde, will act as interventionist for both the GTP and DR programs. Confidentiality will be maintained, and to ensure privacy and security of personal details, participant details will be kept securely on UQRDM. Participants will be free to withdraw from the study at any stage without penalty.

 **Group Triple P.**

|  |
| --- |
| **Group Triple P** |
| **Session #** | **Content** | **Session Duration** |
| 1 | Positive parenting | 120 mins |
| 2 | Helping children develop | 120 mins |
| 3 | Managing misbehaviour | 120 mins |
| 4 | Planning ahead | 120 mins |
| 5 | Using positive parenting strategies 1 | 15-30 mins |
| 6 | Using positive parenting strategies 2 | 15-30 mins |
| 7 | Using positive parenting strategies 3 | 15-30 mins |
| 8 | Program close | 120 mins |
|  |  | TOTAL:645 – 690 mins |

In line with the standard recommendations of GTP, participants will be in groups of no more 12. Each participant assigned to the GTP program will receive a parent workbook which contains information about the key strategies, practice tasks, and homework activities. The first four GTP sessions are group Zoom sessions. The subsequent three will involve individual Zoom calls or phone calls between the interventionist and participating parent. In the final session, the group will reassemble via a Zoom meeting to consolidate the key principles of GTP. An outline of the program is provided below. Standardised session checklist will be used to monitor adherence to the program content; all sessions will be recorded with 25% (2 sessions) coded for fidelity.

**Dialogic Reading.**

The DR program reflects the GTP intervention in terms of structure. The first four sessions will be group (of no more than 12 parents) Zoom meetings where DR principles and key techniques will be introduced and extensively practised. Participants will be provided with 2 books (mailed to their homes before the meetings) which can be used to practice strategies simultaneously in the Zoom environment. Three sessions will take the form of individual phone calls or Zoom meetings between the interventionist and parent. Parents will also be required to keep a simple log of shared reading experiences shared with their child throughout the weeks. This will be used to monitor parental adherence to the program. The final session will involve a group catch up via Zoom to discuss progress and consolidate the key components of the program. An outline of the DR program is provided below. All sessions will be recorded with 25% (2 sessions) coded for fidelity in delivering DR content.

|  |
| --- |
| **Dialogic Reading (DR)** |
| **Session #** | **Content** | **Session Duration** |
| 1 | Introduction to the program and DR | 90 mins |
| 2 | CROWD prompts and practise | 90 mins |
| 3 | PEER prompts and practise | 90 mins |
| 4 | Book 1 provided and practiseLog of independent dyad reading | 90 mins total |
| 5 | Phone session: feedback and Book 2 providedLog of independent dyad reading | 80 mins |
| 6 | Phone session: feedback.Log of independent dyad reading | 80 mins |
| 7 | Phone session: feedback and consolidationLog of independent dyad reading | 80 mins |
| 8 | Program close | 60 mins |
|  |  | TOTAL:660 mins |

***Waitlist Control Group***

Families in the WL control group will be assessed at T1, T2, and T3. Participants will be asked, at these timepoints, whether they have sought any professional support for their child’s language/behavioural issues and/or undertaken intervention while assigned to the WL. After the 3-month follow up assessment (families will be offered a choice of the two interventions if they still wish to participate.

**DATA MANAGEMENT**

As outlined in the HREA.

**DATA ANALYSIS**

Intent-to-treat analyses using repeated-measures ANOVA will compare change over time between groups on primary and secondary outcomes. Time is the main predictor and group membership is the main moderator.

**DATA LINKAGE**

None planned or anticipated.

**RESULTS, OUTCOMES, AND FUTURE PLANS**

Prior research undertaken at the PFSC has had international impacts on parenting/child health research, policy, and practice. Findings of this study will be submitted for publication in high-impact, peer-reviewed journals and presented at appropriate conferences. The outcomes of this project will directly inform evidence-based decision-making about interventions for late-talking toddlers. Should GTP demonstrate utility as a program effecting change in child expressive language outcomes, this established program could soon be repurposed to meet the needs of late-talking populations in the community. Because of the fidelity of GTP delivered online, those in urban and regional areas could benefit.

In an effort to assist with community access to research outputs, improvement of research reproducibility, and minimisation of research wastage, it is intended that metadata from this project will be made available through the University of Queensland’s online data repository at the conclusion of the study (UQ eSpace). Given that the data collected in this project are considered sensitive, de-identified data will only be made conditionally available with approval from the original research team. Thus, data collected for this project may be used by the research team or by other researchers for research that is related or unrelated to the current project. The risk of re-identification of data via triangulation will be managed by removing any sensitive variables from the data set (e.g., responses to open-ended questionnaire items where participants may respond with potentially identifying information such as names of persons or places).

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