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THIRTY MILLION WORDS HOME VISITING: A LONGITUDINAL RCT

PROTOCOL TITLE: *THIRTY MILLION WORDS HOME VISITING: A LONGITUDINAL RCT*

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STUDY SUMMARY

TITLE	<i>Thirty Million Words Home Visiting: A Longitudinal RCT</i>
SHORT TITLE	<i>TMW HV RCT</i>
PROTOCOL NUMBER	<i>#IRB14-0895</i>
METHODOLOGY	<i>Longitudinal randomized control trial</i>
STUDY DURATION	<i>5 years</i>
STUDY CENTER	<i>Single-center</i>
OBJECTIVES	<p><i>Improve low-SES parents' understanding of the importance of parent language in a child's development</i></p> <p><i>Increase low-SES parents' linguistic interaction, responsiveness, and overall engagement with their children</i></p> <p><i>Increase low-SES children's language output</i></p> <p><i>Improve low-SES children's language acquisition</i></p> <p><i>Improve low-SES children's social-emotional development</i></p> <p><i>Increase low-SES children's school readiness upon kindergarten entry</i></p>
NUMBER OF SUBJECTS	<i>412</i>
MAIN INCLUSION CRITERIA	<i>Low-SES parents with children between the ages of 13-16 months old</i>
STATISTICAL METHODOLOGY	<i>Randomized controlled trial, interrupted time series design, Poisson regression models on intent-to-treat, and treatment-on-the-treated</i>

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LIST OF ABBREVIATIONS

BMI	<i>BODY MASS INDEX</i>
FLE	<i>FAMILY LIFE EVENTS QUESTIONNAIRE</i>
LENA	<i>LANGUAGE ENVIRONMENT ANALYSIS</i>
LWL	<i>LOOKING WHILE LISTENING</i>
NORC	<i>NATIONAL OPINION RESEARCH CENTER AT THE UNIVERSITY OF CHICAGO</i>
PLS	<i>PRESCHOOL LANGUAGE SCALE</i>
PPVT	<i>PEABODY PICTURE VOCABULARY TEST</i>
RCT	<i>RANDOMIZED CONTROL TRIAL</i>
RA	<i>RESEARCH ASSISTANT</i>
SES	<i>SOCIOECONOMIC STATUS</i>
SPEAK	<i>SURVEY OF PARENTAL EXPECTATIONS AND KNOWLEDGE</i>
TMW	<i>THIRTY MILLION WORDS INITIATIVE</i>
TOPSE	<i>TOOL TO MEASURE PARENTING SELF-EFFICACY</i>
WJ	<i>WOODCOCK-JOHNSON PSYCHO-EDUCATIONAL BATTERY</i>
TOI	<i>THEORIES OF INTELLIGENCE</i>
ASQ: SE	<i>AGES AND STAGES QUESTIONNAIRE: SOCIAL-EMOTIONAL</i>

1. INTRODUCTION

A. BACKGROUND AND RATIONALE

a) *Background*

A child's early language exposure is a primary component in language development and in ultimate educational and intellectual achievement (Bruner, 1981; Chapman, 2000; Gallaway & Richards, 1994; Hart & Risley, 1995; Huttenlocher, Haight, Bryk, Selzer, & Lyons, 1991; Rowe, 2008). Betty Hart and Todd Risley (1992) conducted a landmark study that demonstrated the tremendous impact of a child's early language milieu on future learning, revealing a significant correlation between the number of words to which a child is exposed between the ages of 0-4 years and his/her ultimate IQ and academic success (Hart & Risley, 1992; 1995). Their findings were both significant and alarming, demonstrating the critical and time-sensitive role that early language exposure plays in a child's life. Their follow-up with the same children at 9-10 years of age confirmed that preschool and elementary school interventions came too late to alter these trajectories; the reverberations of early linguistic deprivation were likely to follow these children throughout their lives.

Children born into poverty experience an overwhelming inequality in their early language experience. Hart and Risley's study revealed a steep socioeconomic gradient in early exposure to language. At the end of their third year of life, children from high-socioeconomic status (SES) families heard approximately *forty-five* million words while children from low-SES backgrounds heard only approximately *thirteen* million. The tragedy for these children is not unalterable. It is neither genetics nor a lack of potential that lies at the heart of this inequality. Rather, it is inadequate parental knowledge of child language development. Rowe (2008) demonstrated that the relationship between SES and parental communication ability is mediated by parental knowledge. Other studies have corroborated this, showing that the effect of SES on a child's vocabulary was primarily dictated by maternal speech (Hoff, 2003). Encouragingly, studies have also demonstrated that a well-planned parent-directed language intervention may increase low-SES parents' use of facilitative language with their children (Oneil-Pirozzi, 2009; Suskind et al., 2013). The Thirty Million Words Initiative was founded, in part, to develop and implement such an intervention, via the TMW Curriculum.

The TMW Curriculum was developed to address the disparity in low-SES children's early language environments by increasing parent knowledge, impacting beliefs about language, and motivating behavior change. The TMW Curriculum is comprised of 1) 12 educational modules, 2) animations and videos of real parent-child interactions to teach parents about the science behind child brain development, and model strategies for improving parents' child-directed speech, 3) video modeling and collaborative goal setting, and 4) quantitative linguistic feedback from Language ENvironment Analysis (LENA) recordings.

The LENA system is a technology that provides day-long audio recordings from a digital recorder that is placed in the front pocket of specially-designed children's clothing. This 'word pedometer' records all of the child's vocalizations and everything spoken near the child continuously for 16 hours. Audio data are automatically analyzed using speech recognition technology, and reports are generated that provide daily and hourly summaries of: 1) the number of adult words spoken near the child, 2) the number of turn-taking interactions in which the child engaged with an adult, and 3) the amount of television to which the child was exposed. The

processing software also produces a report on the general audio environment, including information about the amount of time TV/electronic media was audible in the recording. This technology makes it possible to obtain an objective and representative picture of the early language experiences of infants and toddlers. Given prior research on the importance of early language exposure, the device's feedback reports can be used as an intervention tool to measure and influence parental behavior. Research on the efficacy of the LENA feedback reports, in conjunction with information about strategies for language environment enrichment, shows that the system may have a substantial effect on parent behavior, influencing them to talk and interact more with their children (Gilkerson & Richards, 2008; Suskind et al., 2013).

Although the literature suggests that the LENA technology provides useful quantitative feedback to parents, the underlying costs of the technology prevent it from being used on a wide-scale. Thus, we seek to develop an innovative mobile word counting application to incorporate into the TMW intervention. The Three T's App is built on completely free open-source speech recognition algorithms, and when completed, the mobile application will provide quantitative feedback to parents and introduces them to the TMW intervention. This application was developed by Luai Zakaria, a medical student in the Pritzker School of Medicine at the University of Chicago. The ability to provide accurate quantitative feedback has yet to be evaluated. By including this new technology into the intervention, the application can be further tested and evaluated.

b) Past research

TMW conducted a randomized, controlled feasibility trial with 23 low-SES families to evaluate whether the curriculum improved parents' knowledge of child language development and changed the way parents talk with their toddlers. The TMW Curriculum was delivered to 12 treatment families in eight weekly one-on-one home visits. Home visits included educational module review, video modeling, collaborative goal setting, and quantitative linguistic feedback from weekly LENA recordings. The control condition received a nutrition pamphlet at short weekly home visits to control for a possible attentional effect experienced by those in the treatment group.

The results of the feasibility trial suggest that the intervention has a significant impact on parent knowledge of child language development and parent-child language behavior. During the intervention period, families receiving the TMW Curriculum demonstrated a significant increase in 1) parent knowledge of child language development, 2) parent language input, 3) parent-child conversational turns, and 4) child vocalizations, as assessed through surveys, coded video interactions of parent-child natural play, and LENA recordings. Taken together, the LENA recordings and video-coding results suggest that parent-directed language enrichment interventions can change home language environments of children from low-SES backgrounds. Posttest assessments revealed a significant increase in parent utterances, word types (unique words), and word tokens (all words combined, including repetitions) as well as child word types. At a four-month follow-up assessment, intervention effects were significant for parent knowledge of child language development. For all other measures, effects were positive, but not statistically significant, possibly due to the small sample size and relatively short follow-up period. While we did see an increase in child vocalizations during the intervention period (which

were not sustained post-intervention), as well as significant gains in child word types (with a marginally significant effect post-intervention), the sample was not sufficiently large, nor was the study period sufficiently long to see the long-term effects of the intervention.

The feasibility trial represented a first step toward developing a parent-directed curriculum that has the potential to improve the language learning trajectories and subsequent academic readiness of low-SES children. The results indicate the potential to change both parent-child language interactions and child language learning trajectories during and immediately after the administration of the curriculum. Overall, the results show that the curriculum can provide parents with the tools to successfully enrich their child's early home language environment, thereby reducing academic disparities among low-SES children. A longitudinal study with a sufficiently large population is the next step in determining the effectiveness of the curriculum.

c) Rationale for conducting this research

Thirty Million Words Home Visiting: A Longitudinal RCT is a longitudinal, randomized control trial, which is required to confirm whether the parent behavior changes seen during the feasibility trial are sustainable, and, critically, whether those changes translate into positive impacts on child language outcomes, child social-emotional development, and subsequent school readiness. We will deliver the TMW Curriculum to 100 Treatment families, and we will be following the children through kindergarten in order to measure the effects and sustainability of the curriculum. We will deliver a Nutrition Curriculum to 100 Control families in order to control for the possible attentional effects experienced by those in the Treatment group. Moreover, as an ethical consideration we wish to also provide families in the Control condition with valuable education that may enhance their children's development.

d) Rationale for research design and population

The research design (i.e. a longitudinal, randomized controlled trial) is necessary to determine the efficacy and sustainability of the TMW Intervention. Incorporating knowledge gained from the feasibility trial, the following changes have been made to the intervention. First, the curriculum was increased from 8 to 12 Educational Modules in response to feedback from our participants and other community stakeholders. Additional modules incorporate concepts such as executive function and self-regulation, in response to parent requests for information about how they might use their 'talk' to shape child behavior. Second, four post-Intervention LENA Boosters (Follow ups) will supplement the curriculum. Allowing parents to continue to monitor their language behavior via the LENA language processor after the initial intervention ends could help sustain the changes in talk seen during curriculum delivery, analogous to allowing an individual in a weight-loss intervention continued access to a scale.

Participants in both the Control and the Treatment condition will receive text messages to remind them to complete their LENA recording on the day that they had previously scheduled. For the Treatment group only, a text message reminder for a specific goal will be sent as well. This will help parents be mindful of their goals at the time that they plan to achieve them by reminding parents to engage linguistically with their children. This text reminder portion of the study will piggy-back on the goal setting portions in which the parent will set specific, personalized goals. Reminders of these goals will be sent to their phones at a day and time that parents choose. Both

the Treatment and Control participants will be given the option to opt out of the text messaging if they do not wish to receive these messages.

The sample size (i.e. 100 participants in the Treatment group and 100 participants in the Control group) was determined based on a power analysis using the β -values and effect sizes of the feasibility trial results, and adjusting for attrition rates observed during the feasibility trial. The population will consist of low-SES families in order to reflect the TMW research team's intent to address the disparity in low-SES children's early language environments. Additionally, the population will consist of families with children between the ages of 13-16 months because optimal timing for delivery of the curriculum is estimated at this developmental time point as children begin to say single words sometime between 9 and 12 months (Tomasello, 2003) and reach a first language development milestone of 10 words between 13 and 15 months (Nelson, 1973; Fenson, 1993). This suggests that the emergence of children's measurable linguistic output is linked to a key developmental stage during which children's linguistic environments provide the foundation for successful language learning. The TMW intervention aims to foster parental behaviors that facilitate children's language emergence at this developmental stage, and thus will be implemented at 13-16 months of age.

B. OBJECTIVES

a) Hypothesis

We hypothesize that the primary effects of the TMW Intervention will significantly 1) improve low-SES parents' understanding of the importance of parent language in a child's development, 2) increase parents' linguistic interaction, responsiveness, and overall engagement with their children, and 3) increase children's language output, as measured through LENA (child vocalization count, conversational turn count), coded video interaction (number of types, tokens and utterances for both children and adults), and a battery of assessments targeting linguistic and cognitive development. Furthermore, we hypothesize that increased parental interaction will result in 4) an improvement in children's social-emotional development. Finally, we hypothesize that these social-emotional and linguistic gains through early development, along with sustained increased parental engagement, will be expressed in 5) increased child school readiness upon kindergarten entry as assessed by Woodcock-Johnson Psycho-Educational Battery (WJ).

2. STUDY DESIGN

a) Type of study, duration of study, and schedule of events

Thirty Million Words Home Visiting: A Longitudinal RCT is a longitudinal, randomized control trial that will take place over the course of five years. The study will consist of two groups, the Treatment group and the Control group. Timelines and measurements are consistent across both groups. (Please see [Study Procedures](#) for a more detailed explanation of each phase.) During the Recruitment Phase, a TMW research assistant (RA) will recruit participants for the study. If interested in joining the study, participants will complete the Preliminary Enrollment Consent. From this point forward, all study activities will take place in the participant's home. To follow the completion of the Preliminary Enrollment Consent, participants will be asked to complete a series of baseline measurements over a four-week time period. RAs will facilitate the collection of these measures. Following satisfactory completion of the baseline measures, participants will move on to the Enrollment Phase at which point they will complete the Enrollment Consent. Additionally, participants will complete Video 1, administered by an RA. Following the

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Enrollment Phase, participants will move on to the Intervention Phase. During the Intervention Phase, participants will first complete Assessment 1. A fully trained TMW Assessor will conduct this and all subsequent assessments. Following Assessment 1, participants will receive 12 bi-weekly home visits over a six-month period from trained TMW Home Visitors. During the home visits, Home Visitors will deliver two different curricula to the respective groups. The Treatment group will receive the TMW Curriculum. The Control group will receive the alternative Nutrition Curriculum, which provides information about the importance of healthy nutrition for child development, strategies for healthy eating, and meal preparation.

In addition to receiving the home visits, participants will also complete LENA recordings on a bi-weekly basis, alternating weeks with the home visiting schedule. Following the Intervention Phase, participants will move on to the 42-month Follow-up Phase. Throughout this phase, participants will complete Videos 2-7 with an RA, Assessments 2-7 with a TMW assessor, LENA recordings 16-24, and four follow up curricula supplementation 'Boosters,' delivered by an RA.

An 8th assessment timepoint will be conducted around the time of the child's 9th birthday to measure any sustained impacts of the intervention on the child's language, math, cognitive, and non-cognitive abilities. Participants will sign an addendum to the enrollment consent if they agree to participate in this study timepoint.

Transcription Service Feasibility Pilot Study

The purpose of this pilot study is to assess the feasibility of using a transcription service to transcribe Video Session recordings compared to using University of Chicago research personnel. Up to 10 already enrolled participants will be enrolled to participate in the pilot study. Each participant in the pilot study will receive an addendum to the study consent document and discuss the addendum with a member of the research team prior to their study Video Sessions being sent to third-party transcription services to conduct a feasibility study.

Collection of School Data from School District

The purpose of collecting administrative school data from each participant's child is to assist TMW in assessing the effectiveness of the curriculum. If a participant agrees to participate in the collection of their child's data from their child's school district, the data we will collect are:

1. Standardized test scores from all years that your child completes district or statewide tests
2. Scores and other information from kindergarten admissions tests and interviews
3. Scores from other standardized measures utilized in your school district as measures of progress or academic success.

This data will be collected starting with preschool and continuing through the end of your child's school participation. Each participant in the study will receive an addendum to the study consent document and discuss the addendum with a member of the research team prior to their child's data being requested from their school district.

b) Summary of sequence and duration of all study periods, including follow up periods (as applicable)

The Recruitment Phase will take place in a rolling manner throughout the first year of the study and will continue beyond the initial year until the full sample of $n=200$ is reached. Sequence and duration of all study periods are subject to recruitment needs and will be extended accordingly if necessary. The Preliminary Consent and Baseline Measures Phase will last *at least* a year. For each individual participant, this phase will take place over a 4-week period before the official start of the study. Because of the rolling recruitment, the Enrollment Phase will last *at least* one year. Participants will go through the Enrollment Phase 1 week before the official start of the study. The Intervention Phase marks the official start of the study and will take place at minimum between months 0-18 of the 5-year duration of the study. Each individual participant will receive the intervention for 6 months. The Follow-up Phase will take place between month 6 and at least month 54 (halfway through Year 5) and will last 42 months for an individual participant. Individual participants' schedules may vary and will be adjusted based on their availability. The Data Analysis/Publication Phase begins in Year 5 and will last indefinitely. Please see the [Phases Table](#) below for an overview.

Phases Table

Year Phase	1	2	3	4	5	(6)
Recruitment Phase						
Preliminary Consent & Baseline Measures Phase						
Enrollment Phase						
Intervention Phase						
Follow-up Phase						
Data Analysis/Publication						



Scheduled study
duration



Adjusted study
duration

c) Discuss randomization processes and use of controls

Participants (i.e. parent-child dyads) will be randomly assigned to one of two groups: 1) Treatment group (i.e. TMW Curriculum) or 2) Control group (i.e. Nutrition Curriculum).

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Participants will be randomly assigned to either the Treatment or Control condition as part of a matched pair. Pairs will be matched by 1) age of the child and 2) averaged conversational turn counts from the 3 baseline LENA recordings. Assignment to Control or Treatment of each member of a pair is decided through a coin flip. Matched pair assignment ensures equal representation in each experimental group as well as greater statistical power.

3. STUDY PROCEDURES

a) Methods and procedures

The study consists of six phases: Recruitment, Preliminary Consent & Baseline Measures (Month 0), Enrollment, Intervention (Month 1 through Month 6), Follow-up (Month 7 through Month 48), and Data Analysis/Publication (Month 48 through Month 60). A long term follow up phase will occur approximately 8 years after the initial enrollment.

1. Recruitment Phase

Recruitment

A member of Dr. Suskind's research team will speak with potential participants in person at Recruitment Sites (see [Appendix C](#): In-Person Recruitment Script) or over the phone (see [Appendix D](#): Outgoing Call Recruitment Script & [Appendix E](#): Incoming Call Recruitment Script). (For Recruitment Flyer, see [Appendix S](#)).

Additionally, recruitment advertisements will be placed on some Chicago CTA bus and train routes. (For CTA advertisement, please see [Appendix U](#)). Note: the advertisement states that we are looking for parents with children ages 9-16 months old. The inclusion age for this study does not change. Children will not be consented into the study until 13 months of age. However, as recruitment will continue throughout 2015, younger children will be screened into the study, and their spot will be held until they reach 13 months of age.

Moreover, we will be placing advertisements through the CommunityRx system. Developed by physicians at the University of Chicago Medicine, the CommunityRx system generates patient-centered e-prescriptions for community services (HealtheRx) via an interface between the electronic health records (EHR) and a comprehensive community resource database. Based on a patient's diagnoses, a HealtheRx will be printed automatically at the end of the ambulatory care visit and will provide patients with a customized map and list of places in their community that provide health and social services (e.g., Weight Watchers, Gold's Gym, Hyde Park Produce, Walgreen's pharmacy, AA, social service agencies) as well as contact information for a local community health worker who can provide limited case management support. Patients are eligible to receive a HealtheRx if they live in one of 16 zip codes on the South and West Sides of Chicago and visit one of 33 participating clinical sites. The South Side Health and Vitality Studies' CommunityRx program aims to improve the quality and delivery of community referrals for health and social services for patients from high poverty communities on Chicago's South Side.

The first HealtheRX advertisement (see [Appendix V](#)) will run for two weeks. The second HealtheRX advertisement (see [Appendix W](#)) will run indefinitely.

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Additionally, we will be using a mass mailing for recruitment purposes. Working with age and income targeted list of addresses provided by the MSG vendor that are in our target zipcodes, we will send out a mass mailing in two waves:

1. Letter on official University of Chicago Medicine letterhead, with pamphlet further explaining the study enclosed
2. Follow-up letter on official University of Chicago Medicine letterhead

Please see [Appendix BB](#) for a copy of these three documents. These letters will be signed by our Director of Research, Christy Leung, instead of the PI, as Dr. Suskind's name and our research are too easy to search on the internet. If found, our pool of applicants would be contaminated.

Screening

If potential participants are interested in participating in the study, a member of the research team will obtain verbal consent and administer the Screening Questionnaire (see [Appendix F](#)) in order to determine eligibility. If potential participants are eligible, they will move on to the Preliminary Consent and Baseline Measures Phase (for eligibility requirements, see [Subject Selection and Withdrawal](#)).

2. Preliminary Consent and Baseline Measures Phase

Preliminary Informed Consent

The participant will first complete the Preliminary Informed Consent Form (see [Appendix G](#)). This form explains the purpose of the study, potential risks and benefits, and the measures taken to ensure confidentiality.

Schedule and Demographics Questionnaire

The parent will then complete the Schedule and Demographics Questionnaire (see [Appendix I](#)). This questionnaire gathers information about the participants' race and ethnicity, the family's childcare schedule, household information (including housing stability and household makeup) and contact information. (For participants that answered that they are either married or living with their partner, we will be recontacting them with additional demographics questions. See [Appendix Y](#) for these additional questions.)

Measurements

To follow, the parent will complete measurements including the Center for Epidemiologic Studies Depression Scale (CESD-10) (see [Appendix J](#)), because severe depression may be a confounding variable. (However evidence of parental depression will not exclude participants from the study.)

LENA How-to

A member of Dr. Suskind's research team will then instruct the parent how to utilize the LENA recorder. Additionally, the participant will be given a "LENA Dos & Don'ts" (see [Appendix X](#)) sheet to reference for LENA instructions, as well as a "LENA Care Sheet" (see [Appendix Z](#)) that details the importance and care instructions for our LENA devices.

LENA Baseline Recordings

Parents will then be given LENA recorders and asked to take three, 10-hour LENA recordings within a four-week time period. An RA will collect the LENA from the participant's home and provide the parent with a new LENA device after each recording is completed. If a participant fails to complete the recordings within the designated time period, he/she will be disqualified from further participation in the study.

3. Enrollment Phase

Following successful completion of the three, 10-hour LENA Baseline recordings, participants will be randomized into either Control or Treatment group as part of a matched pair (see 2c above) and move on to the Enrollment Phase of the study. The Enrollment Phase of the study will take place in the participant's home by a member of Dr. Suskind's research team.

Enrollment Informed Consent

The parent will first complete the Enrollment Informed Consent Form (see [Appendix H](#)).

Measures

The parent will then complete the Family Life Events Questionnaire (FLE) (see [Appendix K](#)), which collects data regarding adverse events experienced by the child.

Video 1

An RA will complete Video 1 in the participant's home. The parent and child will engage in a 30-minute videotaped session consisting of Natural Play and Book Read. During Natural Play, the parent and child will engage in undirected, unstructured play. During Book Read, the parent will read a book to the child. During Video 1 and all subsequent Videos (2-7), the 30-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

4. Intervention Phase

Following enrollment, participants will move on to the Intervention Phase, which will last six months. The Intervention Phase consists of three components: Assessment 1, Home Visits, and LENA recordings.

Assessment (Survey Meeting) 1

A TMW Assessor will conduct Assessment 1 in the participant's home. Assessment 1 will take approximately 90 minutes to complete.

Assessment 1 Measures

At this assessment meeting, the parent will complete eight different measures. The parent will first complete the Preschool Language Scale (PLS-5), which is an assessment of developmental language skills that measures a child's total language, auditory comprehension, expressive communication standard scores, growth scores, percentile rankings, and language age equivalents. Next, the parent will complete the Peabody Picture Vocabulary Test (PPVT 4), which measures the parent's receptive (hearing) vocabulary for Standard American English. Then the parent will complete the Survey of Parental Expectations and Knowledge (SPEAK), which assesses parents' understanding of children's learning process. ([Appendix L](#)) Afterwards, the parent will complete the Tool to Measure Parenting Self-Efficacy (TOPSE), which addresses parents' beliefs about their efficacy as care givers. Next, the parent will complete the Body Mass Index (BMI) for the child, which is calculated based on his or her height and weight. Then the parent will complete the Theories of Intelligence (TOI), which assesses parents' theories about children's intelligence. It asks questions about what an individual thinks a child will be able to do, given how much a parent speaks to their child. Finally, the parent will complete The

MacArthur-Bates CDI I: Short Version (MacArthur I), which assesses the child's vocabulary skills through a vocabulary checklist.

Home Visits

Home Visitors will deliver the TMW Curriculum (Treatment group) or the Nutrition Curriculum (Control group) biweekly over the course of the six-month Intervention Phase, for a total of 12 Home Visits. Visits are scheduled biweekly. TMW Home Visits will last approximately 60 minutes, and Nutrition Home Visits will last approximately 20 minutes.

TMW Curriculum: The TMW Curriculum consists of 12 modules, one per home visit, and will be implemented in the following way:

- 1) The Home Visitor delivers the educational module, one per Home Visit.
- 2) The Home Visitor and the parent have a discussion to review and reinforce the parent's understanding of the concepts.
- 3) The Home Visitor does the Showtime activity (video modeling) with the parent, which demonstrates how to put concepts into practice. During modules 5 through 12 parents participate in a social network mapping activity during Showtime. During Module 5, a specific script will be used (see [Appendix T](#)).
- 4) The Home Visitor discusses LENA feedback reports with the parent. LENA feedback reports are generated based on the previous week's LENA recordings. Based on the report, the parent sets goals for the forthcoming week. In support of these goals, the Home Visitor discusses strategies for increasing word counts, increasing conversational turns, and reducing TV/electronic media.
- 5) The parent and the Home Visitor collaboratively set goals for his/her next week's recording (see [Appendix A](#)). Parents will set up a time and day that they would like to be reminded of their LENA recording day and their specific goal. This goal and recording reminder will then be sent to their phone via text message the day of their LENA recording.
- 6) The parent will then complete the Fidelity of Implementation Survey (see [Appendix P](#)) on a computer to assess whether the curriculum is being implemented as intended. The Home Visitor will log the participant into the computer, but will then explain that all of the answers will be confidential and leave the participant alone to complete the survey.

Nutrition Curriculum: The Nutrition Curriculum consists of 12 modules, one per home visit, that provide education to parents about the importance of healthy nutrition for child development, strategies for healthy eating, and meal preparation. The Nutrition Curriculum will be implemented in the following way:

- 1) The Home Visitor delivers the module, one per Home Visit.
- 2) The Home Visitor and the parent have a discussion to review and reinforce the parent's understanding of the concepts.
- 3) The parent and Home Visitor collaboratively set nutritional goals (see [Appendix B](#)).
- 4) Parents will set up a time and day that they would like to be reminded of their scheduled LENA recording day. This reminder will then be sent to their phone via text message.

At Home Visit 6, the Home Visitor will administer a Looking While Listening (LWL) task, intended to assess spoken language comprehension by infants and young children. Children will watch 2-4 minutes of video showing pictures of familiar words. Two pictures (e.g., book and bottle) are presented to the child on the screen and one of the pictures will be labeled, i.e. the child hears, e.g., “Look at the book.” Children are recorded on video while watching the videos and their eye movements will later be coded in order to establish whether children in the Treatment group are faster to fixate on the correct picture than children in the Control group. Parents will also be asked to check whether the words used in the study are known to their child. The LWL measure will be administered by the Home Visitor and a trained RA in the home before and after the scheduled Home Visit. After completing the LWL measure, the RA will complete the LWL Questionnaire and the LWL field notes.

LENA Recordings 3-15

Participants in both groups will complete 12 bi-weekly recordings over the course of the six-month intervention phase. Recordings will be 8 hours long each. Each recording will be completed during the week following a Home Visit.

5. Follow-up Phase

This is the final phase requiring participant involvement. The Follow-up Phase will last 42 months. The Follow-up Phase consists of four components: videos, Assessments, LENA recordings, and Boosters (Follow ups).

Video 2

Videos 2 will be conducted during the Follow-up Phase. An RA will complete Video 2 in the participant’s home. The parent and child will engage in a 30-minute videotaped session consisting of Natural Play and Book Read. During Natural Play, the parent and child will engage in undirected, unstructured play. During Book Read, the parent will read a book to the child. The 30-minute session will be simultaneously recorded by the new mobile phone application, the Three T’s App. The extra recording taken with the Three T’s App will be explained to the participants, detailing that “the app” functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T’s App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

Assessment (Survey Meeting) 2

A TMW Assessor will conduct Assessment 2 in the participant’s home. Assessment 2 will take approximately 75 minutes to complete.

Assessment 2 Measures

For this Assessment meeting, Parents will complete nine different measures. As in Assessment 1, the parent will complete the PLS, SPEAK, TOPSE, BMI, Nutrition Questionnaire, and TOI. Additionally, the parent will also complete the Ages & Stages Questionnaire: Social-Emotional (ASQ: SE), which is used to assess a child’s social and emotional development. After, the parent will fill out the Family Life Events Questionnaire (FLE), which collects data regarding adverse events experienced by the child. Finally, the parent will complete the Center for Epidemiologic Studies Depression Scale (CESD-10), which screens for parental depression.

LENA Recording 16

Booster (Follow up) 1

Four post-intervention Boosters will supplement the curricula. In order to provide quantitative linguistic feedback, each Booster refers to the LENA recording obtained immediately prior to the Booster visit. At Booster session 1, LENA recording 16 will be reviewed. An RA will conduct Boosters in the participant's home. Booster sessions will differ between the Treatment and Control groups. For the Treatment group, an RA will review curriculum content with the parent, discuss LENA feedback reports from the parent's preceding recording, and review strategies for increasing word and turn counts and reducing TV/electronic media. This will allow parents to continue to monitor their language behavior via LENA reports after the Intervention Phase ends. For the Control group, the RA and the parent will discuss parental knowledge regarding nutrition and healthy eating practices. The Control group will receive these Booster sessions in order to control for the possible attentional effects experienced by the Treatment group as a result of the Boosters. At Boosters 2, 3, and 4, the RA will also administer LWL to both the Treatment and Control groups. At each Booster time point, parents will complete the Booster Parent Fidelity Survey.

LENA Recording 17***Booster (Follow up) 2***

At Booster 2, LENA recording 17 will be reviewed. An RA will complete the Booster visit. At this Booster, the RA will administer LWL. After completing the LWL measure, the RA will complete the LWL Questionnaire and the LWL field notes. Additionally, the parent will complete the MacArthur CDI II: Short Version which is a vocabulary checklist that is appropriate for children 16-30 months of age.

Video 3

Videos 3 will be conducted during the Follow-up Phase. Videos will record children as they complete tasks (i.e. Gift/Bow, Snack Delay) that measure specific developmental gains (i.e. executive functioning skills, including the ability to exercise inhibition and delay gratification). Tasks will be introduced at time points that match normative child developmental gains. An RA will complete Video 3 in the participant's home. The parent and child will engage in a 45-minute videotaped session consisting of Natural Play, Book Read, Gift/Bow, and Snack Delay. The Gift/Bow task assesses a child's executive functioning skills, specifically his/her ability to delay gratification. An RA will place a colorful gift bag in front of the child. The child will be asked to wait and to not touch the bag until the RA returns with a bow. The RA will leave the room for three minutes. Upon returning, the child is allowed to open the bag. The Snack Delay task assesses a child's ability to regulate their behavior. In this task, a gummy bear is placed under a transparent plastic cup in front of the child and the child is asked to wait until the RA rings a bell before eating it. The 45-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

Assessment (Survey Meeting) 3

A TMW Assessor will conduct Assessment 3 in the participant's home. Assessment 3 will take approximately 75 minutes to complete.

Assessment 3 Measures

ID: _____

At this assessment meeting, the parent will complete six assessment measures: PLS, SPEAK, BMI, FLE, Nutrition and TOI.

LENA Recording 18

Booster (Follow up) 3

At Booster 3, LENA recording 18 will be reviewed. An RA will complete the Booster visit.

Video 4

An RA will complete Video 4 in the participant's home. The parent and child will engage in a 45-minute videotaped session consisting of Natural Play, Book Read, Gift/Bow, and Snack Delay. The 45-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

Assessment (Survey Meeting) 4

A TMW Assessor will conduct Assessment 4 in the participant's home. Assessment 4 will take approximately 50 minutes to complete.

Assessment 4 Measures

At this assessment meeting, the parent will complete six measures: PLS, BMI, FLE, TOI, Nutrition and CESD-10.

LENA Recordings 19

Booster (Follow up) 4

At Booster 4, LENA recording 19 will be reviewed. An RA will complete the Booster visit. At this Booster, the RA will administer LWL. After completing the LWL measure, the RA will complete the LWL Questionnaire and the LWL field notes.

Video 5

An RA will complete Video 5 in the participant's home. The parent and child will engage in a 45-minute videotaped session consisting of Natural Play, Book Read, Bear/Dragon, Gift/Bow, and Snack Delay.

The Bear/Dragon task assesses a child's executive functioning skills, specifically his/her ability to exercise inhibition. A child will be instructed to do as they are told by the nice bear (e.g., touch your ears), but not as they are told by the mean dragon (e.g. wink your eye). Video coders will score the task. The 45-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

Assessment (Survey Meeting) 5

A TMW Assessor will conduct Assessment 5 in the participant's home. Assessment 5 will take approximately 80 minutes to complete.

Assessment 5 Measures

At Assessment 5, the parent will complete six measures: PLS, SPEAK, ASQ: SE, BMI, FLE, Nutrition and TOI. Additionally, the child will complete the Peabody Picture Vocabulary Test-

ID: _____

Child (PPVT-Child), which measures the child's receptive (hearing) vocabulary for Standard American English

LENA Recording 20

Video 6

An RA will complete Video 6 in the participant's home. The parent and child will engage in a 45-minute videotaped session consisting of Natural Play, Book Read, Give-N Task and Bear/Dragon. The 45-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

Assessment (Survey Meeting) 6

A TMW Assessor will conduct Assessment 6 in the participant's home. Assessment 6 will take approximately 80 minutes to complete.

Assessment 6 Measures

For Assessment 6, the parent will complete eight measures: PLS, SPEAK, TOPSE, BMI, FLE, TOI, ASQ:SE, and CESD-10. Additionally, the child will complete the PPVT-Child.

LENA Recording 21

Video 7

An RA will complete Video 7 in the participant's home. The parent and child will engage in a 30-minute videotaped session consisting of Natural Play, Give-N Task, and Book Read. The 30-minute session will be simultaneously recorded by the new mobile phone application, the Three T's App. The extra recording taken with the Three T's App will be explained to the participants, detailing that "the app" functions like the LENA, except it links to a Bluetooth microphone and a mobile device, instead of the LENA recorder. The TMW staff member will set up the Three T's App recording, and the participant will not see the application itself or be told the full name of the application, as these characteristics are related to the Treatment condition.

A trained TMW assessor will complete three subscales of the Woodcock Johnson measure. The Woodcock Johnson (WJ) assesses a child's school readiness. It measures cognitive abilities, scholastic aptitude, and performance in the areas of reading, mathematics, and written language.

Assessment (Survey Meeting) 7

A TMW Assessor will conduct Assessment 7 in the participant's home. Assessment 7 will take approximately 120 minutes to complete. This marks the final stage of participant's involvement.

Assessment 7 Measures

For Assessment 7, the parent will complete seven measures: PLS, SPEAK, ASQ: SE, BMI, FLE, TOI, CESD. Finally, the child will complete the PPVT-Child and the the Head Toes Knees Shoulders Task (HTKS). Children are asked to play a game in which they are told to do the opposite of what the assessor asks them to do. For example, if the assessor says "touch your head" the child should respond by touching their toes and if the assessor says "touch your shoulders" the child should touch their knees. This activity measures inhibitory control, working memory, and attention focusing.

Assessment 8 (9-year old follow up)

Participants will complete a follow up assessment time points when the child is between 9-10 years old. There are three parts to Assessment 8: 1.) Parents or participating caregivers will complete the a battery of child assessment questionnaires including the Strengths and Difficulties Questionnaire (SDQ) P4-10, SPEAK, demographics, and the Parental Investments Survey. These will be done electronically using REDCap. 2.) Children will be asked to complete the PPVT, 5 subtests of the Woodcock Johnson, 3 subtests of the NIH toolbox, and a brief measure of grit (see section 6b for additional details about each of these measures). These assessments will be completed in the child's school. We will complete the assessments at the child's home if the parent's prefer. 3.) Finally, we will video record the participating caregiver and child interacting together for about 10-15 minutes while using age-appropriate toys.

Participants who are in the Follow Up phase (assessment 8) will be given the opportunity to complete the parent measures online if they are unable to complete their Video Session. This will only be used in extenuating circumstances and the study team will do everything in its power to complete all study activities in person. If a participant needs to use the remote data collection option for their Video Session, they will complete the activity with a trained member of the TMW research team over a Zoom video call, which the researcher will record. The parent and child will be asked to play with toys that they already have in the home that are similar to the standardized toys TMW would have brought to the session.

6. Data Analysis/Publication

Dr. Dana Suskind will serve as the PI. Dr. Suskind and her research team will publish the primary findings of the initiative. Dr. Suskind and her research team will co-author publications with select collaborators. These collaborators will include Dr. Marc Hernandez at NORC, Dr. Susan Landry at The University of Texas, Dr. Flavio Cunha at Rice University, Dr. Casey Lew-Williams at Princeton University, and Dr. Will Aldridge at the University of North Carolina at Chapel Hill.

b) Scales, Assessments & Questionnaires

The following Scales, Assessments & Questionnaires will be used throughout the course of the study:

Center for Epidemiologic Studies Depression Scale (CESD-10): The CESD-10 screens for parental depression.

Tool to Measure Parenting Self-Efficacy (TOPSE): The TOPSE assesses parent's beliefs about their efficacy as care givers.

Family Life Events Questionnaire (FLE): The FLE collects data regarding adverse events experienced by the child.

Preschool Language Scale (PLS): The PLS is an interactive assessment of developmental language skills that measures a child's total language, auditory comprehension, expressive communication standard scores, growth scores, percentile rankings, and language age equivalents.

Peabody Picture Vocabulary Test-Parent (PPVT): The PPVT measures an individual's receptive (hearing) vocabulary for Standard American English.

Survey of Parental Expectations And Knowledge (SPEAK): SPEAK is a questionnaire that assesses parents' understanding of children's learning process.

Body Mass Index (BMI): BMI is a measure of body fat based on an individual's height and weight.

Woodcock-Johnson Psycho-Educational Battery (WJ): The WJ assesses a child's school readiness. It measures cognitive abilities, scholastic aptitude, and performance in the areas of reading, mathematics, and written language.

Theories of Intelligence (TOI): The TOI assesses a parent's theories about intelligence for children. It asks questions about what an individual thinks a child will be able to do, given how much a parent speaks to their child.

Nutrition Questionnaire: The Nutrition Questionnaire assesses parents' understanding about healthy eating habits and healthy nutrition for children.

MacArthur-Bates CDI I: Short Version (MacArthur I): The MacArthur CDI I: Short Version is a vocabulary checklist that is appropriate for children 8-16 months of age.

MacArthur-Bates CDI II: Short Version (MacArthur II): The MacArthur CDI II: Short Version is a vocabulary checklist that is appropriate for children 16-30 months of age.

Child Behavior Checklist (CBCL): The CBCL is used to detect behavioral and emotional problems in children or adolescents. The version designed for ages 6-18 year old children will be used in this study.

Parental Investments Survey: Asks parents to report how often they and their child do certain activities, as well as their opinion about future educational attainment for their child.

Duckworth Grit Scale: The Grit Scale measures a child's tendency to sustain interest in and effort toward long-term goals. Grit is a trait that predicts achievement. This study will use an adaptation of the 8-item scale designed to be more easily understood by younger children.

NIH toolbox: NIH Toolbox for Assessment of Neurological and Behavioral Function, a standard set of valid, reliable and royalty-free tools for assessing cognitive, emotional, motor and sensory function. This measure is conducted in an app-based format through which the child responds to prompts on a tablet.

Ages & Stages Questionnaire: Social-Emotional (ASQ: SE): The Ages & Stages Questionnaire: Social-Emotional is a series of questions that aims to identify any social or emotional problems in a developing child.

Video Recordings:

Natural Play: The parent and child will engage in natural play.

Book Read: The parent will read a book to the child.

Bear/Dragon: The Bear/Dragon task assesses inhibition. Children will be instructed to do as they are told by the nice bear (e.g., touch your ears), but not as they are told by the mean dragon (e.g. wink your eye).

Gift/Bow: The Gift/Bow task assesses delayed gratification. An RA will place a colorful gift bag in front of the child. The child will be asked to wait and to not touch the bag until the RA comes back with a bow. The RA will leave the room for 3 minutes.

Snack Delay: The Snack Delay task assesses a child's ability to regulate their behavior. In this task, a gummy bear is placed under a transparent plastic cup in front of the child and the child is asked to wait until the RA rings a bell before eating it.

Give-N Task: This task measures a child's emerging math and counting skills. A child will be asked by the TMW assessor to put a specific number of toy fish into a plastic bowl. This task will be repeated multiple times asking for a different target number of fish each time.

Looking While Listening (LWL): LWL is a measure that assesses spoken language comprehension by infants and young children. After completing the LWL measure, the RA will complete the LWL Questionnaire and the LWL field notes.

The Three T's App Recordings: The Three T's App is an educational tool for parents participating in the Thirty Million Words Initiative. The application is being developed, tested, and evaluated by Luai Zakaria, a student of the Pritzker School of Medicine at the University of Chicago. In this study, the application will only be used by TMW researchers to take an additional recording of all families at all Video Sessions (1-7) to further evaluate and test the recording and results capacity of the application. The name of the application will not be disclosed to participants, as it directly relates to the treatment condition. Additionally, only a trained TMW staff member will be able to set up the recording device and connect it to the application, as the interface of the application contains features directly related to the treatment condition, such as a note that says "Research shows that the more words your child hears, the smarter they will be!" For all participants, the Three T's App will only be referred to as "the app" and that "the app" functions like the LENA device, but the recording is taken using a Bluetooth microphone headset that links to a mobile device instead of the LENA recorder. Only the recording and results features of the application will be used by the TMW staff to further evaluate and test the Three T's App. The other features of the application are still in development, but more information can be found in Appendix AA.

c) Contact between study visits

Participants in both the Treatment and Control group will be able to contact members of Dr. Suskind's research team between study visits in order to reschedule visits as needed. Moreover, the research team will send periodic postcards and make periodic phone calls to both the Treatment and Control Group in an effort to maintain engagement with participants, thereby reducing attrition.

d) Future contact regarding research studies

We will request permission from participants to keep their contact information on file in order to contact them about their participation in this study and to inform them about future research opportunities. At the final assessment (Assessment 7), we will get consent from participants to obtain administrative data from the child's school district at the end of kindergarten. We will seek further consent for administrative data at 3rd, 8th, and 12th grade in accordance with the University of Chicago's IRB and Chicago Public Schools' Research Review Board procedures.

4. SUBJECT SELECTION AND WITHDRAWAL

a) Number of subjects

The study will consist of 412 participants. 'Participants' refers to the parent/child dyad. Participants will be randomly assigned to the Treatment group and the Control group.

b) Gender of subjects

Participants of all genders will be accepted into the study.

c) Age of subjects

Children will be between the ages of 13-16 months old at the start of the study. Parents will be older than 18 years old.

d) Racial and Ethnic Origin

Participants of all racial and ethnic origins will be accepted into the study.

e) Inclusion Criteria

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Inclusion criteria includes 1) participants (i.e. parents and their children) who live below 200% of the federal poverty line and 2) parents with children between the ages of 13-16 months old.

f) Exclusion Criteria

Exclusion criteria is as follows: 1) participants (i.e. parents and their children) who live over 200% of the federal poverty line, 2) parents under the age of 18, 3) children younger than 13 months old or older than 16 months old (at start of study), 3) parents who do not have legal custody of their child, 4) parents whose child does not live with them, 5) parents who are not with their child at least two full days per week, 6) parents who are unable to commit to the intervention requirements, 7) foster parents, 8) children with significant cognitive or physical impairments, (specifically Autism Spectrum Disorder, Epilepsy, Cerebral Palsy, hearing impairment, Down Syndrome and blindness), 9) parents who have earned or are currently working toward a graduate or professional degree (e.g. M.A., M.S., M.B.A), and 10) parents who speak less than 80% English to their children. There will be one exception to this exclusion criteria for a single case to allow a participant to join our study who is the foster parent of the child and the child is therefore still a ward of the state. The parent has already finalized the adoption on the child's sibling and this adoption is in the process of being finalized and will be by the end of the year, but the process likely won't be complete before the child becomes too old to start our study.

g) Subject Identification & Recruitment

412 low-SES participants in the Chicago area will be recruited for the study from City of Chicago Early Head Start and early childhood learning sites, Chicago Public Schools' Prevention Initiative, Children's Home + Aid Early Head Start and early childhood learning sites, other Chicagoland early childhood learning sites, and other community sites in the Chicagoland area. Recruitment will take place 1) in person at these early learning sites with the help of a recruitment video explaining the study 2) via fliers (see [Appendix S](#)) distributed at early learning sites with the TMW phone number listed (see Incoming Call Recruitment Script), 3) via outgoing calls to potential participants (see Outgoing Call Recruitment Script), and 4) via CTA advertisements (see [Appendix U](#)).

h) Location where research is to be conducted (building, floor, clinic/suite number)

The TMW Curriculum, Booster (Follow up) sessions, video recordings and Assessments will be conducted in participants' homes or another agreed location (i.e., community sites) if family is unable to meet in their home. Data analysis will occur at the TMW office and the National Opinion Research Center (NORC).

The TMW office is located at:

University of Chicago Medical Center
5841 S. Maryland Ave, MC 1035
Lying-in Hospital, Room L161
Chicago, IL 60637

The NORC office is located at:

1155 East 60th Street 3rd Floor
Chicago, IL 60637

i) As applicable, the coordination of any interdepartmental faculty, and where necessary, the inclusion of those faculty as participants

TMW will collaborate with the following individuals and organizations:

Center for Research Informatics (CRI) at the University of Chicago: CRI will host, maintain, and support the web platform that hosts the TMW Curriculum, facilitates intervention delivery, and securely stores intervention and assessment data. The web platform has been built by One-Six Solutions, an outside vendor, and is built to industry standards for data security and HIPAA compliance.

National Opinion Research Center at the University of Chicago (NORC): NORC is the primary subcontract recipient of the grant. NORC will conduct analyses and provide consultation on study design and evaluation.

City of Chicago Department of Family & Support Services (DFSS) Early Head Start and early childhood learning sites: TMW will collaborate with DFSS Early Head Start Sites to recruit.

Children's Home + Aid (CH+A): TMW will collaborate with CH+A Early Head Start and early childhood learning sites to recruit participants.

Chicago Public Schools (CPS): TMW will collaborate with CPS Prevention Initiative early childhood programs to recruit participants and will establish a data-sharing agreement with CPS at the end of the study in order to follow children's academic progress. Accordingly, an amendment to this protocol will be submitted when this data-sharing agreement is established.

Dr. Flavio Cunha (Rice University): Dr. Cunha will receive de-identified data from TMW. Dr. Cunha will conduct data analyses and provide consultation to TMW.

Dr. Casey Lew-Williams (Princeton University): Dr. Lew-Williams will receive de-identified data from TMW. Dr. Lew-Williams will conduct data analyses and provide consultation to TMW.

Dr. Will Aldridge (University of North Carolina at Chapel Hill): Dr. Aldridge will receive de-identified data from TMW. Dr. Aldridge will conduct data analyses and provide consultation to TMW.

Jenessa Malin (University of Maryland, College Park): Jenessa Malin will watch unidentified participant videos through screen sharing with a member of the TMW team. Jenessa will conduct training on a coding scheme and provide consultation to TMW.

j) Describe plans for remuneration to subject, as applicable:

Participants in the Treatment and Control groups will be compensated equally. Participants can receive up to a total of \$1,200. If participants complete the study, they are guaranteed at least \$1,000 in cash (\$25 post-Preliminary Consent and Baseline Measures Phase, \$25 post-Assessment 1, \$50 post-Home Visit 6, \$25 post-Video Session 2, \$75 post-Assessment 2, \$75 post-Video Session 3, \$75 post-Assessment 3, \$75 post-Video Session 4, \$75 post-Assessment 4, \$50 post-Video Session 5, \$50 post-Assessment 5, \$25 post-LENA recording 20, \$75 post-Video Session 6, \$75 post-Assessment 6, \$50 post-LENA Recording 21, \$80 post-Video Session 7, and \$95 post-Assessment 7). In the last two years of the study, participants will be eligible to receive up to \$100 in 'bonus' gift cards for staying in contact with TMW staff (\$50 between Assessments 5 and 6 and \$50 between Assessments 6 and 7). Participants who consent to allow cloud based processing on their LENA recordings will be paid \$25 in gift card or cash. Participants will be paid cash for all study payments (with the exception of the 'bonus' gift cards and payment for allowing cloud based processing) when possible. For participants who are unable to meet in-person for video sessions and/or assessment meetings, gift cards will be used as back up option when hand delivery of a cash payment is not possible (i.e. during the restrictions placed by the university during the COVID-19 pandemic): Participants who need to complete remote assessment data collection due to extenuating circumstances will be paid for

completing all surveys through cash or a \$50 electronic gift-card. If circumstances change and the participant is later able to meet in person, the research team will conduct all remaining assessment measures with the parent and child in their home and the participant will receive the full cash compensation amount for the assessment meeting as outlined above. Participants who need to complete remote video session data collection due to extenuating circumstances will be paid \$50 in cash or electronic gift-card for completing the Natural Play and Book Share activities. If circumstances change and the participant is later able to meet in person, the research team will conduct all remaining video session measures with the parent and child in their home, and the participant will receive the full cash compensation amount for the video session meeting as outlined above.

At the assessment 8 timepoint: Parents will receive up to \$75 in gift cards after completing the session and the child will be able to choose a small prize (such as pencils, stickers, etc – valued at approximately \$5) for doing the study activities. Parents will receive \$25 when the child assessment is completed and participating caregivers (in the rare cases when these are individuals who are not the primary guardian) will receive \$50 when they complete the video session and assessment surveys. Transportation vouchers (\$10 gas cards) will be provided to families who express transportation needs to get to the community center for the video recording portion of the study.

k) Informed consent process

The participant will be given written consent forms and taken through the informed consent process with a member of the research team. The member of the research team will verbally review the written consent form with the participant prior to signing. Participants will be given ample time to review the consent form and ask the member of the research team any questions before they decide to participate in the study. Participants will first complete the Preliminary Informed Consent Form. If he/she continues past the Preliminary Phase to enroll in the full study, the participant will then complete the Enrollment Informed Consent Form. Both informed consents explain the purpose of the study, potential risks and benefits, and the measures taken to ensure confidentiality.

Addendum to consent to allow for cloud-based LENA processing: After the conclusion of their participation of the study, participants will be asked for additional permission to allow processing of their LENA recordings on distributed computing networks external to University of Chicago servers. Trained members of the research team will discuss the addendum to the enrollment consent, including risks and benefits, measures taken to protect their data, and the optional nature of the addendum with the participant. This may occur in person at the conclusion of their Assessment 7 meeting or over the phone at a later date. After discussing the consent document with staff, participants will be able to view the addendum to the enrollment consent on Redcap via a survey link sent to their phone or email. They will be asked to mark whether they do or do not allow for this additional processing, and type their name and the date to acknowledge their understanding and agreement to the addendum.

Addendum to Enrollment Consent for Assessment 8: An additional assessment time point is being added to our study starting in the summer of 2023. Participating children will be aged 9-10 years of age at the time of the additional assessment time point.

Communications and Outreach: Trained members of the research team will use recently updated contact information provided by participants during recent conversations (see Amendment 50) to invite them to participate in Assessment 8. If interested, they will be scheduled to meet with a home visitor to complete the new time point. The reconsent information will be sent to participants electronically for their review/records with a note that will state: "You will have an opportunity to discuss this information with our team during the visit before signing these documents. This information is for your review."

Trained member of the research team will review and discuss any questions pertaining to the consent over the phone for Assessment 8 and also screen the adults to ensure they continue to be the legal guardians of the participating child. We will obtain written re-consent from the participant once all questions have been addressed and discussed prior to commencing any of the Assessment 8 steps. Participants will receive a copy of the reconsent form for their records.

1) Method of withdrawing participants before completion (i.e., early termination)
Participants will be removed from the study at the discretion of the Principal Investigator after demonstration of repeated nonadherence to study protocol (i.e.: multiple incomplete or unsuccessful LENA recordings; multiple unsuccessfully completed Home Visits or Assessments; unable to contact after significant effort by research team). If participants choose to no longer be in the study and do not want any of their future health information to be used, participants can inform the research team in writing.

5. STATISTICAL PLAN AND CONSIDERATIONS

An interrupted time series design (i.e. regression discontinuity) will be used to analyze data from this study. The goal of the statistical analyses will be to assess the effects of the TMW Curriculum. The interrupted time series design will allow us to model children's growth as a function of time and development while modeling the independent effects of receiving the intervention.

The outcome measures (LENA, assessments, video) will be entered into a regression that includes children's demographic variables as covariates (e.g. child age in months) as well as dummy variables for each time point data was obtained. Separate analyses will be carried out for parents and children because some data will only be collected on parents and some data will only be collected on children.

Further, because some data are only collected at pre- and post-intervention, separate repeated measures ANOVAs and paired tests will be carried out on these data. The aim of these analyses will be to 1) examine within-subject change from pre to post-intervention in the Treatment and Control conditions and 2) compare change in the Treatment condition with change in the Control condition.

The new mobile phone application, the Three T's App, linguistic feedback data will be statistically compared to the manual transcription of all video recording sessions. The exact number of words and turns transcribed will be correlated with the amount estimated by the mobile phone application. An average error rate and a linear regression for the mobile

application will be calculated. This will allow us to further evaluate and develop the Three T's App.

Several scripts and functions will be invoked on a local TMW Center computer to interact with a distributed computing network and deep learning models to transform LENA audio-recordings into transcripts. No data will be transmitted to cloud based computing networks until appropriate approvals and contracts for the systems to be used are in place. To guard against session time-outs (instances in which the data being processed, uploaded, or downloaded from a remote source becomes unresponsive), each LENA audio recording will be preprocessed and segmented into discrete 15 minute chunks before being transformed. Moreover, all LENA audio recordings will be encrypted locally at rest and in transit. These segmented chunks will be randomly assigned numerical IDs to protect participant privacy paired with their experimental grouping. No TMW Center researcher or third-party collaborator will listen to the raw audio contained on the LENA devices or examine the outputted transcripts. Instead, our team will employ a customized ensemble of different machine learning models used in conjunction to transform the transcription data into quantitative values contained in a CSV file. Quantitative values generated and contained within this CSV file will include frequency counts of different parts-of-speech, types of speech, and normalized values ranging from -1 to 1 or 0 to 1. This package of ensemble models will programmatically receive data from the deep learning model as each LENA-audio recording is processed. Following the completion of this automated transcription and data analysis process, all data processed on the distributed computing network will be systematically deleted. No qualitative data will be retained and the researchers will effectively remain blind to the input source data. Participants will provide additional consent to allow their LENA audio recording to be shared with these distributed computing networks after conclusion of their participation in the study. If they do not consent to this additional processing, LENA recording data will remain on secure University of Chicago Servers and their processing will be limited to only those analytical techniques that can be completed locally. Paired t-tests will be used to analyze total speech scores before, after, and during the TMW Longitudinal Home Visiting Program. ANOVAs will be used to evaluate differences in outcomes based on SES and other variables in intervention vs. control group. Furthermore, the TMW Center will build predictive regression models by examining which aspects of a child's language environment is predictive of school readiness

6. RISKS AND BENEFITS

a) *Risks associated with study intervention and any study procedures*

Given the nature of this research, minimal risks are anticipated. All audio data on the LENA recording device is encrypted so confidentiality will not be breached even if the recorder is lost or stolen. Data remains encrypted until processed using the LENA System software. Risks include a theoretical loss of confidentiality related to recording language via the LENA recordings. However, the LENA audio data from the 21 home audio recordings will not be listened to by any member of the research staff. LENA audio data collected during the Video Session meetings may be listened to by members of the research team. Unlike the Home Audio LENA Recordings, which measure the child's home language environment, the purpose of the Video Session LENAs is to act as a duplicate safeguard to ensure that we have clearly captured all audio from the recorded video session. Because the LENAs completed during the Video Sessions will record the same language output that has also been recorded on the video camera, parents implicitly understand that the audio will be heard by members of the research team and there is no loss of privacy. It will be kept for 7 years past the end of the study for possible re-

ID: _____

analysis with improved analytical algorithms. Non-audio data will be kept indefinitely. Risks also include a theoretical loss of confidentiality related to Home Visitors, TMW assessors, and RAs entering participants' homes. To minimize these risks, all research personnel will be trained to maintain the utmost confidentiality. Moreover, data will be carefully monitored to ensure the privacy of participants is protected. Data will be kept in a locked cabinet with the participant names replaced with numerical codes. LENA Recording audio and data files will be stored on a password-protected computer in a locked office. Master lists of participant names, consent forms, and the key to the numerical codes will also be kept under lock and key.

There is a low possibility for loss of privacy when the audio recordings are transmitted from the TMW Center's servers to the distributed computing network for analysis. The research team will take all necessary precautions in order to protect the participant's confidentiality. This includes using randomly generated numerical codes for all audio segments that are transmitted to the distributed computing network so that the files cannot be tied back to an individual participant.

All of the audio data recorded by the mobile phone application will be on encrypted iPod Touches owned by the Thirty Million Words Initiative. Thus, these recordings will be handled in the exact same way as the LENA audio recordings have been handled in the past. All audio data and devices used to record the data will be stored in the aforementioned locked office.

There is one instance in which confidentiality will not be maintained. In the consent form, participants are notified of the legal responsibility of Dr. Suskind and members of her research team to report any suspicion of child abuse or neglect to DCFS. Every member of Dr. Suskind's research team who will have contact with participants will complete the DCFS Mandated Reporter online training (<https://www.dcfstraining.org/manrep/index.jsp>) prior to interaction with participants. The abuse reporting hotline (1-800-25-ABUSE) will be made readily available to the research team at all times.

b) Potential direct benefits to participant

Benefits will include increased parental knowledge regarding healthy child development. Moreover, we hope the information learned from this study will benefit other low-SES children and families in the future.

c) Describe how the benefits in this research justify the potential risks.

The benefits to both individual participants and, potentially, the broader low-SES population, outweigh the minimal risks involved in the study.

7. SAFETY AND ADVERSE EVENTS

Adverse events and safety information will be monitored and analyzed on an ongoing basis. Serious and unexpected adverse events will be immediately reported to the IRB. Given the educational nature of this study, there is a low likelihood of adverse events.

8. DATA HANDLING AND RECORD KEEPING

Data will be carefully monitored on an ongoing basis to ensure the privacy of participants is protected. Data will be kept in a locked cabinet with the participant names replaced with numerical codes. LENA Recording audio and data files will be stored on a password-protected

computer in a locked office. When these files are transmitted to distributed computing networks for deeper analysis, they are segmented and each segment is given a random numerical ID number so that the participant who completed that recording cannot be identified by the third-party server. LENA audio data from the 21 home audio recordings will not be listened to by any member of the research staff. LENA audio data collected during the Video Session meetings may be listened to by members of the research team. Unlike the Home Audio LENA Recordings, which measure the child's home language environment, the purpose of the Video Session LENAs is to act as a duplicate safeguard to ensure that we have clearly captured all audio from the recorded video session. Because the LENAs completed during the Video Sessions will record the same language output that has also been recorded on the video camera, parents implicitly understand that the audio will be heard by members of the research team and there is no loss of privacy. It will be kept for 7 years past the end of the study for possible re-analysis with improved analytical algorithms. Non-audio data will be kept indefinitely. Master lists of participant names, consent forms, and the key to the numerical codes will also be kept under lock and key. Depending on the measurement, data will be collected in both paper and electronic form. Electronic data will be entered via the TMW Web Platform, REDcap, or the NIH toolbox app. Storing data, which includes child name and birthdate, in the NIH toolbox app is necessary to conduct the measure because the stimulus is dependent on age. Data will be regularly downloaded from the NIH toolbox app, saved to BSD/CRI servers, and the child information removed from the app. Both the TMW research team and NORC will manage and have access to the data.

All audio data from the new mobile phone application will be stored with the exact same precautions as the LENA audio recordings.

Video files that are created as part of the remote video session contingency procedures will be recorded by the researcher in Zoom, saved to TMW's BSD server and any local copies will be deleted from Zoom immediately after the session.

At the end of their participation in the studies, parents may request access to their study records, including copies of the files created during the video sessions and their child's scores on the developmental measures. Parents who request the video files may choose whether they would like to receive a hard copy of the video, via flash drive or DVD, or electronic file transfer, via UChicago Box. Hard copy files will be given to the participant directly. Participants who choose to receive the files via Box will be given an individualized link to a private folder on Box, and instructed to download the video(s) to their personal device using the link. The files will be deleted from Box within 7 days of upload or once participant confirms they have downloaded it, whichever comes sooner. Results from the developmental measures may be shared by email or verbally with the participant.

9. FINANCIAL CONSIDERATIONS

a) Remuneration to subject

Participants in the Treatment and Control groups will be compensated equally. Participants can receive up to a total of \$1,200. If participants complete the study, they are guaranteed at least \$1,000 in cash (\$25 post-Preliminary Consent and Baseline Measures Phase, \$25 post-Assessment 1, \$50 post-Home Visit 6, \$25 post-Video Session 2, \$75 post-Assessment 2, \$75 post-Video Session 3, \$75 post-Assessment 3, \$75 post-Video Session 4, \$75 post-Assessment 4, \$50 post-Video Session 5, \$50 post-Assessment 5, \$25 post-LENA recording 20, \$75 post-Video

ID: _____

Session 6, \$75 post-Assessment 6, \$50 post-LENA Recording 21, \$80 post-Video Session 7 and \$95 post-Assessment 7). In the last two years of the study, participants will be eligible to receive up to \$100 in ‘bonus’ gift cards for staying in contact with TMW staff (\$50 between Assessments 5 and 6 and \$50 between Assessments 6 and 7). Participants who consent to allow cloud based processing on their LENA recordings will be paid \$25 in gift card or cash.

At the assessment 8 timepoint: Parents will receive up to \$75 in gift cards after completing the session and the child will be able to choose a small prize (such as pencils, stickers, etc – valued at approximately \$5) for doing the study activities. Parents will receive \$25 when the child assessment is completed and \$50 when they complete the video session and parent assessment survey. Transportation vouchers (\$10 gas cards) will be provided to families who express transportation needs to get to the community center for the video recording portion of the study.

Participants will be paid cash for all study payments (with the exception of the ‘bonus’ gift cards ,payment for allowing cloud based processing, and Assessment 8) when possible. For participants who are unable to meet in-person for video sessions and/or assessment meetings, gift cards will be used as back up option when hand delivery of a cash payment is not possible (i.e. during the restrictions placed by the university during the COVID-19 pandemic): Participants who need to complete remote assessment data collection due to extenuating circumstances will be paid for completing all surveys through cash or a \$50 electronic gift-card. If circumstances change and the participant is later able to meet in person, the research team will conduct all remaining assessment measures with the parent and child in their home and the participant will receive the full cash compensation amount for the assessment meeting as outlined above. Participants who need to complete remote video session data collection due to extenuating circumstances will be paid \$50 in cash or electronic gift-card for completing the Natural Play and Book Share activities. If circumstances change and the participant is later able to meet in person, the research team will conduct all remaining video session measures with the parent and child in their home, and the participant will receive the full cash compensation amount for the video session meeting as outlined above.

b) Costs to subject

There are no financial costs to participants.

10. ETHICAL CONSIDERATIONS

a) Confidentiality

Data will be carefully monitored to ensure the privacy of participants is protected. Data will be kept in a locked cabinet with the participant names replaced with numerical codes. LENA Recording audio and data files will be stored on a password-protected computer in a locked office. Master lists of participant names, consent forms, and the key to the numerical codes will also be kept under lock and key. Depending on the measurement, data will be collected in both paper and electronic form. Electronic data will be entered via the TMW Web Platform or Redap. Both the TMW research team and NORC will manage and have access to the data.

There is one instance in which confidentiality will not be maintained. In the consent form, participants are notified of the legal responsibility of Dr. Suskind and members of her research

team to report any suspicion of child abuse or neglect to DCFS. Every member of Dr. Suskind's research team who will have contact with participants will complete the DCFS Mandated Reporter online training (<https://www.dcfstraining.org/manrep/index.jsp>) prior to interaction with participants. The abuse reporting hotline (1-800-25-ABUSE) will be made readily available to the research team at all times.

11. CONFLICT OF INTEREST

There is no COI with regard to the conduct of this study.

12. PUBLICATION PLAN

Discuss the following in detail:

a) Who expects to publish results from this research?

Dr. Dana Suskind will serve as the PI. Dr. Suskind and her research team will publish the primary findings of the initiative. Dr. Suskind and her research team will co-author publications with select collaborators. These collaborators will include Dr. Marc Hernandez at NORC, Dr. Susan Landry at The University of Texas, Dr. Flavio Cunha at Rice University, Dr. Casey Lew-Williams at Princeton University, and Dr. Will Aldridge at the University of North Carolina at Chapel Hill.

b) When are results expected to be submitted for publication?

First results will be submitted for publication during or after the fifth year of the study.

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15. APPENDICES

ID: _____

A. TREATMENT GROUP GOAL SHEET



Week 1: Welcome!

GOALS	Talk More	Take Turns
	Starting point:	Starting point:
	<input type="text"/>	<input type="text"/>
	This week's goal:	This week's goal:
	<input type="text"/>	<input type="text"/>
	Book time: I will spend <input type="text"/> minutes reading with my child this week.	

STRATEGIES	I will practice my 3T^s this week during (circle one)...		
	mealtime	playtime	bath time
	getting dressed	leaving the house	other: _____
	I will use my 3T^s during this time by: _____		

OBSTACLES	Some challenges I may run into trying to meet my goals are: _____

	I will overcome these challenges by: _____

ID: _____

B. CONTROL GROUP GOAL SHEET



GOALS	Goal #1: _____
	Why are you setting this goal? _____ _____ _____
	How will you meet this goal? _____ _____ _____

STRATEGIES	I will make: snack (M T W Th F Sa Su) breakfast (M T W Th F Sa Su) lunch (M T W Th F Sa Su) dinner (M T W Th F Sa Su) supper (M T W Th F Sa Su) other: _____
	I will make these substitutions in the recipes I use already: _____ _____ _____
	I will make cooking easier by: _____ _____ _____
	I will limit these processed foods: _____ _____ _____

OBSTACLES	Some challenges I may run into trying to meet my goals are: _____ _____ _____
	I will overcome these challenges by: _____ _____ _____

ID: _____

C. SCHEDULE AND DEMOGRAPHICS QUESTIONNAIRE

Schedule and Demographics Survey

DEMOGRAPHICS

Are you Hispanic or Latino?

- ☐ No
- ☐ Yes
- ☐ Prefer not to answer

What is your race? (Choose any that apply.)

- ☐ White
- ☐ Black or African American
- ☐ Asian or Pacific Islander
- ☐ Native American or Alaska Native
- ☐ Other: _____
- ☐ Prefer not to answer

Is @CHILD Hispanic or Latino?

- ☐ No
- ☐ Yes
- ☐ Prefer not to answer

What is @CHILD's race? (Choose any that apply.)

- ☐ White
- ☐ Black or African American
- ☐ Asian or Pacific Islander
- ☐ Native American or Alaska Native
- ☐ Other: _____
- ☐ Prefer not to answer

ID: _____

CHILDCARE

Let's talk about @CHILD's schedule last week. Please tell me about last week, even if it was an unusual week. I'll ask you about your usual schedule later on.

Last week, who took care of @CHILD? (check all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> @PARENT | <input type="checkbox"/> Friend or neighbor | <input type="checkbox"/> Home or group-home daycare (e.g., providers care for groups of children in licensed home settings) |
| <input type="checkbox"/> Spouse/partner | <input type="checkbox"/> Babysitter in the home | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Child's grandparent | <input type="checkbox"/> Childcare center (e.g., Head Start, Early Learning center) | |
| <input type="checkbox"/> Child's sibling | | |
| <input type="checkbox"/> Child's uncle/aunt | | |

Who took care of @CHILD on Sunday? During what times? Who took care of @CHILD next?

	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Sun																			
Mon																			
Tue																			
Wed																			
Thu																			
Fri																			
Sat																			

Thinking about @CHILD's schedule last week, was any day's schedule the same as last Sunday?

- | | | |
|----------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Monday | <input type="checkbox"/> Wednesday | <input type="checkbox"/> Friday |
| <input type="checkbox"/> Tuesday | <input type="checkbox"/> Thursday | <input type="checkbox"/> Saturday |

Who took care of @CHILD on Monday? During what times? Who took care of @CHILD next?
[continue until week's grid is complete]

Was last week's childcare schedule for @CHILD a usual schedule for him/her?

- ☐ No
☐ Yes

IF NO:

In a **typical** week, who takes care of @CHILD? (check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> @PARENT | <input type="checkbox"/> Friend or neighbor |
| <input type="checkbox"/> Spouse/partner | <input type="checkbox"/> Babysitter in the home |
| <input type="checkbox"/> Child's grandparent | <input type="checkbox"/> Childcare center (e.g., Head Start, Early Learning center) |

ID: _____

<input type="checkbox"/>	Learning center) Home or group-home daycare (e.g.,	providers care for groups of children in licensed	<input type="checkbox"/>	home settings) Other
--------------------------	---	---	--------------------------	-------------------------

Who takes care of @CHILD on *typical* Sundays? During what times? Who takes care of @CHILD next?

	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Sun																			
Mon																			
Tue																			
Wed																			
Thu																			
Fri																			
Sat																			

Thinking about @CHILD's *typical* schedule, is any day's schedule the same as Sunday?

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday
- ☐ Friday
- ☐ Saturday

Who takes care of @CHILD on *typical* Mondays? During what times? Who takes care of @CHILD next? [continue until week's grid is complete]

Is @CHILD enrolled in Head Start or Early Head Start?

- ☐ No
- ☐ Yes

If yes, what program is @CHILD enrolled in?

What is the name of @CHILD's childcare center?

ID: _____

HOUSEHOLD INFORMATION

Do you have a permanent home?

- ☐ No
- ☐ Yes

How many times have you moved over the past 5 years? _____ times.

Do you have an eviction notice?

- ☐ No
- ☐ Yes

Are you living with friends or relatives?

- ☐ No
- ☐ Yes

Are you currently residing in a shelter?

- ☐ No
- ☐ Yes

Are you currently staying in a domestic violence shelter?

- ☐ No
- ☐ Yes

Are you currently homeless?

- ☐ No
- ☐ Yes

How many people (including you and your child) live in your home? _____

How many **adults OTHER THAN YOU** live in your home? (Anyone who is over 18 and regularly stays in your home): _____ adults

1. First adult age: _____

- ☐ Male
- ☐ Female

Relation to @CHILD:

- ☐ Parent (biological or adoptive)
- ☐ Stepparent
- ☐ Grandparent
- ☐ Foster parent
- ☐ Other relative (e.g., uncle/aunt, cousin)
- ☐ Other nonrelative

ID: _____

2. Second adult age: _____

☐ Male

☐ Female

Relation to @CHILD:

☐ Parent (biological or adoptive)

☐ Stepparent

☐ Grandparent

☐ Foster parent

☐ Other relative (e.g., uncle/aunt, cousin)

☐ Other nonrelative

3. Third adult age: _____

☐ Male

☐ Female

Relation to @CHILD:

☐ Parent (biological or adoptive)

☐ Stepparent

☐ Grandparent

☐ Foster parent

☐ Other relative (e.g., uncle/aunt, cousin)

☐ Other nonrelative

4. Fourth adult age: _____

☐ Male

☐ Female

Relation to @CHILD:

☐ Parent (biological or adoptive)

☐ Stepparent

☐ Grandparent

☐ Foster parent

☐ Other relative (e.g., uncle/aunt, cousin)

☐ Other nonrelative

5. Fifth adult age: _____

☐ Male

☐ Female

Relation to @CHILD:

☐ Parent (biological or adoptive)

☐ Stepparent

☐ Grandparent

☐ Foster parent

☐ Other relative (e.g., uncle/aunt, cousin)

☐ Other nonrelative

ID: _____

How many **children** (under age 18) live in your home, **not including** @CHILD?
_____ children

1. First child age: _____

- ☐ Male
- ☐ Female

Relation to @CHILD:

- ☐ Sibling (biological or adoptive)
- ☐ Step-sibling
- ☐ Foster sibling
- ☐ Other relative (e.g., uncle/aunt, cousin)
- ☐ Other nonrelative

2. Second child age: _____

- ☐ Male
- ☐ Female

Relation to @CHILD:

- ☐ Sibling (biological or adoptive)
- ☐ Step-sibling
- ☐ Foster sibling
- ☐ Other relative (e.g., uncle/aunt, cousin)
- ☐ Other nonrelative

3. Third child age: _____

- ☐ Male
- ☐ Female

Relation to @CHILD:

- ☐ Sibling (biological or adoptive)
- ☐ Step-sibling
- ☐ Foster sibling
- ☐ Other relative (e.g., uncle/aunt, cousin)
- ☐ Other nonrelative

4. Fourth child age: _____

- ☐ Male
- ☐ Female

Relation to @CHILD:

- ☐ Sibling (biological or adoptive)
- ☐ Step-sibling
- ☐ Foster sibling
- ☐ Other relative (e.g., uncle/aunt, cousin)
- ☐ Other nonrelative

5. Fifth child age: _____

☐ Male

☐ Female

Relation to @CHILD:

☐ Sibling (biological or adoptive)

☐ Step-sibling

☐ Foster sibling

☐ Other relative (e.g., uncle/aunt, cousin)

☐ Other nonrelative

FUTURE CONTACT INFORMATION

In case we are unable to reach you at any point in time during the duration of the study (for example you unexpectedly move or you lose your phone) we'd like the names of two individuals who are likely to know how we can get in contact with you.

Name of individual: _____

Relationship to you: _____

Phone number: _____

Email (if known): _____

Name of individual: _____

Relationship to you: _____

Phone number: _____

Email (if known): _____

Thank you. You have completed the survey.

D. CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE (CESD-10)

To follow is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way **during the past week**:

1. I was bothered by things that usually don't bother me

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

2. I had trouble keeping my mind on what I was doing

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

3. I felt depressed

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

4. I felt that everything I did was an effort

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

5. I felt hopefully about the future

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

6. I felt fearful

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

7. My sleep was restless

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

8. I was happy

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

9. I felt lonely

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

10. I could not 'get going'

0	1	2	3
Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of the time	All of the time

E. FAMILY LIFE EVENTS QUESTIONNAIRE**Family Life Events Questionnaire**

Think about what has happened in your household in the past @six months/one year. All of your information will be kept confidential.

In the past @six months/one year:

1. Did you get married or become engaged to be married?
☐ No
☐ Yes
2. Did you get divorced or separate from your partner (spouse, girl/boyfriend), even though you may be back together now?
☐ No
☐ Yes
3. Did a family member leave your house (older child moved out, child went to live with a relative)?
☐ No
☐ Yes
4. Did you gain a new family member (through birth, adoption, fostering, someone moving in)?
☐ No
☐ Yes
5. Was there a death of someone important in your child's life?
☐ No
☐ Yes
6. Was there a major change in your living conditions (moving, losing or being kicked out of your home, remodeling, deterioration of home or neighborhood)?
☐ No
☐ Yes
7. Have you or a family member been the victim of a violent crime?
☐ No
☐ Yes
8. Has your child been a witness to a violent crime, domestic violence or abuse?
☐ No
☐ Yes
9. Has your child lived with someone else other than you?
☐ No
☐ Yes
10. Have you or a family member had a serious illness?
☐ No
☐ Yes
11. Has your child had a serious illness?
☐ No
☐ Yes
12. Have you or a family member had significant depression, mental illness, or attempted suicide?
☐ No
☐ Yes

13. Have you or a family member been jailed or in prison?

- ☐ No
☐ Yes

14. Has your child changed schools or childcare?

- ☐ No
☐ Yes

[If select Yes]

Where does your child now get childcare?

Where does your child now go to school?

15. Has your child had trouble with a teacher at school or childcare?

- ☐ No
☐ Yes

16. Has your child lived with someone who had a problem with alcohol or used drugs?

- ☐ No
☐ Yes

17. Has there been a change in you or your partner's work (new job, lost job, change in location)?

- ☐ No
☐ Yes

18. Has there been a substantial change in your income (increase, decrease, went deeply into debt)?

- ☐ No
☐ Yes

19. Have circumstances this year made it extremely difficult to have enough to eat, get medical care, or keep you and your child(ren) safe?

- ☐ No
☐ Yes

20. Have there been any other events that you think have affected you or your child in the past year?

- ☐ No
☐ Yes

[If select Yes]

Please explain: _____

21. Did you enroll in a school program?

- ☐ No
☐ Yes

[If select Yes]

If YES, what program? _____

22. Did you enroll in a job training program?

- ☐ No
☐ Yes

[If select Yes]

If YES, what program? _____

**F. SURVEY OF PARENTAL EXPECTATIONS AND KNOWLEDGE (SPEAK):
The Thirty Million Words® Initiative**

☒ **SPEAK** *Survey of Parental Expectations And Knowledge*

Survey Instructions:

Today we are going to ask what you think about young children and how they learn.

We will ask about learning at different ages.

Think about infants (age 0-6 months), babies (age 6-12 months), toddlers (age 1-3 years), preschoolers (age 3-5 years), and Kindergarteners (age 5-6 years).

1. When do you think a child is ready to be exposed to things like words, reading, and math?
Choose one answer ⊗

A. When do you think a child is ready to be exposed to words?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

B. When do you think a child is ready to be exposed to reading and books?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

C. When do you think a child is ready to be exposed math?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

2. Think about 0 to 12 month old infants and babies.
 How much do you agree or disagree with each statement?
 Choose one answer ⊗

	Strongly <u>agree</u>	Somewhat <u>agree</u>	<u>Neither</u> agree nor disagree	Somewhat <u>disagree</u>	Strongly <u>disagree</u>
A. Infants learn very little about language in the first six months of their life.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B. Responding to an infant every time he or she cries will only end up spoiling him or her.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C. How smart a baby will become depends mostly on his or her genetics.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D. When babies babble, sometimes they're practicing how to have a conversation.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

3. Think about 0 to 12 month old infants and babies.
 How much do you agree or disagree with each statement?
 Choose one answer ⊗

	Strongly <u>agree</u>	Somewhat <u>agree</u>	<u>Neither</u> agree nor disagree	Somewhat <u>disagree</u>	Strongly <u>disagree</u>
A. Overhearing conversations is a great way for an infant to pick up on new words	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B. Waiting to talk to an infant until he or she can say words is harmful for learning how to talk.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C. Letting babies play with picture books is the first step in teaching them how to read..	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D. Talking to an infant in a playful or exaggerated voice will better help the infant learn how to talk.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

4. Think about 1 to 3 year old toddlers.

How much do you agree or disagree with each statement?

Choose one answer ⊗

	Strongly <u>agree</u>	Somewhat <u>agree</u>	<u>Neither</u> agree nor disagree	Somewhat <u>disagree</u>	Strongly <u>disagree</u>
A. Toddlers learn more when they are told exactly what to do instead of given choices.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B. Talking about things that have already happened (like a trip from last week) is too confusing for toddlers.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C. It's helpful when parents respond to the toddler's points and gestures just like they were spoken words.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D. When toddlers can follow directions like "Go get your shoes" this means they can also say those words out loud.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

5 Think about 1 to 3 year old toddlers.

How much do you agree or disagree with each statement?

Choose one answer ⊗

	<u>Strongly agree</u>	<u>Somewhat agree</u>	<u>Neither agree nor disagree</u>	<u>Somewhat disagree</u>	<u>Strongly disagree</u>
A If a toddler makes grammar mistakes (like saying “I eated” instead of “I ate”) it’s a sign he or she has learning problem.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B Answering only if a toddler uses words instead of just pointing better helps the toddler learn how to talk.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C Toddlers can learn more from watching educational TV than they can from being read to by their parents.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D Answering only if a toddler uses correct words for things instead of baby words (like “blanket” instead of “ba-ba”) better helps the toddler learn how to talk.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

6 Think about reading with young children 0-5years old.

How much do you agree or disagree with each statement?

Choose one answer ⊗.

	Strongly <u>agree</u>	Somewhat <u>agree</u>	<u>Neither</u> agree nor disagree	Somewhat <u>disagree</u>	Strongly <u>disagree</u>
A. Letting a toddler move around while listening to a story teaches the toddler bad listening skills.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B. Adding in descriptions and other words when reading a story helps toddlers understand the story.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C. Letting a toddler skip words and pages teaches the toddler bad reading habits.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D. Reading the same book over and over will keep toddlers from learning new words.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

7. When do you think a child is ready to be exposed to the following things?

Choose one answer ⊗

A. When do you think a child is ready to be exposed to adding and subtracting?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

B. When do you think a child is ready to be exposed to numbers and counting?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

C. When do you think a child is ready to be exposed to shapes and sizes?

- ☐₁ As an infant (0 to 6 months)
- ☐₂ As a baby (6 to 12 months)
- ☐₃ As a toddler (1 to 3 years)
- ☐₄ In preschool (3 to 5 years)
- ☐₅ In Kindergarten (5 to 6 years)
- ☐₆ In elementary school (6 years and up)

8 Think about young children age 0 to 5 years old before they go to school.

How much do you agree or disagree with each statement.

Choose one answer ⊗

	<u>Strongly agree</u>	<u>Somewhat agree</u>	<u>Neither agree nor disagree</u>	<u>Somewhat disagree</u>	<u>Strongly disagree</u>
A The things a young child learns before he or she goes to Kindergarten matter very little in the long run.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B Teaching a young child about math is as easy as talking about big and small or long and short.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C How well a young child will do in school depends mostly on the natural intelligence he or she is born with.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

9 Think about young children age 0 to 5 years old before they go to school.

How much do you agree or disagree with each statement.

Choose one answer ⊗

	<u>Strongly</u> <u>agree</u>	<u>Somewhat</u> <u>agree</u>	<u>Neither</u> <u>agree</u> nor <u>disagree</u>	<u>Somewhat</u> <u>disagree</u>	<u>Strongly</u> <u>disagree</u>
It's best for young children to start learning things like math and reading from teachers when they get to school.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Parents who have trouble reading themselves can still help their young child learn to read.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Parents who struggled with math in school might confuse their young child if they talk about math.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

1 Some young children, age 0 to 5 years old, have parents that speak more than one language.

How much do you agree or disagree with each statement?

Choose one answer ⊗

	<u>Strongly agree</u>	<u>Somewhat agree</u>	<u>Neither agree nor disagree</u>	<u>Somewhat disagree</u>	<u>Strongly disagree</u>
A Even if it's very difficult, parents should always try to talk to their young child using the language that will be spoken in school.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Young children should learn only Bone language at a time so they don't get confused.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Talking a lot with a young child C in any language will help them in school later on.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
D Young children who learn to speak more than one language will have an advantage later in life.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

1 Think about TV watching for young children age 0 to 5 years old.

How much do you agree or disagree with each statement?

Choose one answer ⊗

	<u>Strongly agree</u>	<u>Somewhat agree</u>	<u>Neither agree nor disagree</u>	<u>Somewhat disagree</u>	<u>Strongly disagree</u>
A Children 0 to 2 years old can learn just as many words from educational TV as they can from their parents.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
B Leaving the TV on in the background is a great way to give 0 to 2 year olds extra chances to learn words.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
C For preschoolers 3 to 5 years old, watching educational TV is the next best thing for learning besides learning at school.	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

G. THEORIES OF INTELLIGENCE (TOI):

H. TOI

This questionnaire has been designed to investigate ideas about intelligence. There are no right or wrong answers. We are interested in your ideas. Please indicate the extent to which you agree or disagree with each of the following statements but choosing the number that corresponds to your opinion.

1. People have a certain amount of intelligence, and they can't really do much to change it:

1	2	3	4	5
Strongly	Disagree	Neither agree	Agree	Strongly
Disagree		nor disagree		Agree

2. Someone's intelligence is something about them that they can't change very much.

1	2	3	4	5
Strongly	Disagree	Neither agree	Agree	Strongly
Disagree		nor disagree		Agree

3. To be honest, someone can't really change how intelligent they are.

1	2	3	4	5
Strongly	Disagree	Neither agree	Agree	Strongly
Disagree		nor disagree		Agree

4. A person can learn new things, but they can't really change their basic intelligence.

1	2	3	4	5
Strongly	Disagree	Neither agree	Agree	Strongly

I. NUTRITION QUESTIONNAIRE:

Nutrition Questionnaire

Please read each statement and select true or false.

The serving size on a food's nutrition label represents the amount of food you will actually eat.

_____ False

_____ True

At fast food restaurants, substituting mustard for mayo or water for soda can make a big difference in the amount of calories you are consuming.

_____ False

_____ True

Fruit juice is a perfectly good substitute for fruit as long as it is 100% fruit juice.

_____ False

_____ True

My child's teeth haven't grown in yet, so it won't affect him/her if I don't do anything about his/her oral hygiene

_____ True

_____ False

The numbers on a nutrition label are based off of (**Choose ONE answer**)

_____ An adult's daily nutritional needs

_____ A child's daily nutritional needs

_____ Both - an adult's daily nutritional needs and a child's daily nutritional needs

_____ None of the above

What are ways to **avoid** overeating? (**Check ALL that apply**).

_____ Looking at the food you plan to eat while sitting at the dinner table

_____ Turning off the TV during meals and snack time

_____ Eating when you're bored

_____ Eating when you're feeling sad

_____ Choosing a smaller plate to hold your food

Some fats are actually very good for you and your child; they give you and your child energy throughout the day and help you feel fuller longer. What are some foods that contain healthy fats? **(Check ALL that you feel apply).**

- ☐ Avocados
- ☐ Olive oil
- ☐ Lard
- ☐ Nuts
- ☐ Vegetable shortening
- ☐ Eggs

Which of the following cooking options is the *least* healthy? **(Choose ONE answer)**

- ☐ Broiled
- ☐ Fried
- ☐ Steamed
- ☐ Grilled

How much physical activity do toddlers need daily? **(Choose ONE answer)**

- ☐ 10 minutes
- ☐ 20 minutes
- ☐ 30 minutes
- ☐ 1 hour
- ☐ 2 hours

Your child's first visit to the dentist should be around **(Choose ONE answer)**

- ☐ 5 months old
- ☐ 1 year old
- ☐ 3 years old
- ☐ 5 years old
- ☐ 7 years old

Reducing which of the following can help your child's dental health? **(Choose ONE answer)**

- ☐ Added fiber
- ☐ Added vitamin A
- ☐ Added sugar
- ☐ Added vitamin D
- ☐ Added Calcium

You can tell if there is a lot of an ingredient in a food if on the nutrition label it is **(Choose ONE answer)**

- ☐ One of the first ingredients listed
☐ One of the last ingredients listed
☐ You can't tell how much of a certain ingredient there is in a food
☐ I don't know

How much do you agree or disagree with each statement? **(Circle ONE answer per statement)**

Raw eggs in foods like cookie dough are perfectly safe to eat as long as you don't have too much.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
It is important to keep an eye on your young child while he/she is eating.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
When transitioning from breastmilk or formula, you should start your child on solid foods that are softer.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
Children need energy on the go. There is no need to make them sit down while eating.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree

Do you think health experts recommend that people should be eating more or less of these foods? **(Choose ONE answer per food)**

	More	Less	Not sure
Vegetables			
Sugary foods			
Starchy foods			
Fatty foods			
High fiber foods			
Fruit			
Salty foods			

Do you think these are high or low in fat? **(Choose ONE answer per food)**

	High	Low	Not Sure
Apple sauce			
French Fries			
Bacon			
Honey			
Eggs			
Butter			

Do you think these are high or low in salt? **(Choose ONE answer per food)**

	High	Low	Not Sure
Hot Dogs			
Soy Sauce			
Apples			
Cheese			
Canned Soup			
Broccoli			

Think about your habits at the grocery store. How much do you agree or disagree with each statement? **(Choose ONE answer per statement)**

I make an effort to avoid grocery shopping when I'm hungry.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
I try to bag fruits and vegetables myself instead of buying prepackaged bags.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
I prefer to buy name brand foods instead of store brand foods.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
I make a grocery list of what I need before I go to the store.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree
At the grocery store, I look at a food's unit price to help me decide which option is cheapest.	Agree	Somewhat Agree	Neither agree nor disagree	Somewhat disagree	Disagree

J. FIDELITY PARENT SURVEY (TREATMENT ONLY)

Participant Assessment

Please answer all questions, thinking only of your **MOST RECENT** home visit.

YOUR HOME VISIT

For these questions, think about your most recent home visit and interaction with your home visitor.

1. Where did your home visit take place?
 - a. My home
 - b. Family's or friend's home
 - c. Childcare center
 - d. Community center (church, library, etc.)
 - e. TMW offices
 - f. Other
2. If other, please specify:

3. My home visitor asked me questions about my child.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

4. My home visitor asked for my ideas during the home visit.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

5. My home visitor asked me questions about the animations and videos in the module.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

6. My home visitor welcomed my questions about the module.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

7. My home visitor answered my questions in a way that made sense to me.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

8. My home visitor talked about things my child likes and dislikes during our module review.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

INSERT INDIVIDUAL MODULE QUESTIONS HERE (see below for Individual Module Questions)

YOU AND YOUR HOME VISITOR

For these questions, think about your relationship and interaction with your Home Visitor.

9. My home visitor was interested in me and my child.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

10. My home visitor wanted to help me reach my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

11. My home visitor believes that I know my child best.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

12. I felt like a partner during the home visit.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

SHOWTIME

For these questions, think about the Showtime activity, when you and your Home Visitor practiced your skills on video.

13. My home visitor explained the skills we would practice during the Showtime activity.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

14. I understood what I was supposed to learn from the Showtime activity.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

15. My home visitor pointed out how I used my new skills and the 3Ts when we reviewed the Showtime activity.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

LENA AND GOAL SETTING

For these questions, think about reviewing your LENA recording numbers and setting goals with your Home Visitor.

16. My home visitor gave me suggestions when we talked about ways to practice my skills and meet my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

17. My home visitor explained my LENA report.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

18. I understood my LENA report.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

19. My home visitor suggested ways I can use my 3Ts and new skills in daily activities to meet my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

INDIVIDUAL MODULE QUESTIONS

MODULE 1

Please check all of the topics you and your home visitor discussed:

- ☐ Hart and Risley's research (30 million word gap)
- ☐ Brain development and the Critical Language Period
- ☐ The 3Ts
- ☐ Don't just do it; talk him/her through it!

MODULE 2

Please check all of the topics you and your home visitor discussed:

- ☐ Talk More
- ☐ Talking about the Here and Now
- ☐ Talking about the Past and Future
- ☐ Talking about Thoughts and Feelings
- ☐ Taking 'it' out of your vocabulary

MODULE 3

Please check all of the topics you and your home visitor discussed:

- ☐ Tune In
- ☐ How technology distracts us from Tuning In
- ☐ Reading your child's communication clues
- ☐ Getting on your child's level
- ☐ Child-directed speech/Baby Talk

MODULE 4

Please check all of the topics you and your home visitor discussed:

- ☐ Take Turns
- ☐ Ways your child can Take Turns without using words
- ☐ How to Tune In to your child's communication clues and Take Turns

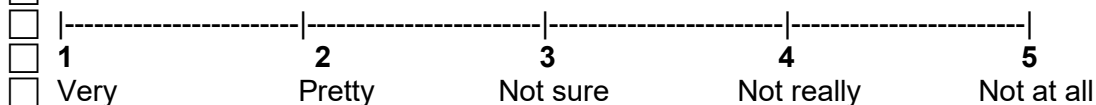
MODULE 5

Please check all of the topics you and your home visitor discussed:

- ☐ Spreading the Words
- ☐ The domino effect of Spreading the Words

SPREAD THE WORDS CONFIDENCE SURVEY

- ☐ **Question 1:** How confident do you feel about your ability to share information about TMW with others?

☐


☐
☐
☐ **Question 2:** *Will you share what you know about TMW with people you know?*

☐ |-----|-----|-----|-----|
☐ 1 2 3 4 5
☐ Definitely Probably Not sure Probably won't Definitely won't

☐
☐
☐
☐ **Question 3:** *Do you feel nervous about your ability to accurately share information about TMW with others?*

☐
☐ |-----|-----|-----|-----|
☐ 1 2 3 4 5
☐ Not at all Not really Not sure Pretty Very

MODULE 6

Please check all of the topics you and your home visitor discussed:

- ☐ Self-regulation
- ☐ Children have to learn self-regulate throughout childhood
- ☐ Children have to learn to use their “red light” to ‘stop and think’
- ☐ Giving children limited choices helps them learn to self-regulate
- ☐ Children learn to self-regulate by watching their parents do it and hearing them narrate it

MODULE 7

Please check all of the topics you and your home visitor discussed:

- ☐ Directives
- ☐ Explain to build your child’s brain
- ☐ Having consistent routines
- ☐ Using a positive tone
- ☐ Telling your child what you want him to do instead of what not to do

MODULE 8

Please check all of the topics you and your home visitor discussed:

- ☐ Encouragements
- ☐ Avoiding person-based encouragements
- ☐ Using process-based encouragements
- ☐ Catch your child being good
- ☐ Encouragements can improve self-esteem and make your child become a hard-worker

MODULE 9

Please check all of the topics you and your home visitor discussed:

- ☐ Book sharing
- ☐ Having a conversation about a book rather than reading every word

- ☐ Tuning In to your child's pace and focus during book sharing
- ☐ Using the 3Ts when book sharing

MODULE 10

Please check all of the topics you and your home visitor discussed:

- ☐ Storytelling
- ☐ Encouraging your child to participate in storytelling
- ☐ Telling stories about routine activities and your child's favorites
- ☐ Retelling stories to help your child learn
- ☐ Using storytelling to make sense of difficult situations

MODULE 11

Please check all of the topics you and your home visitor discussed:

- ☐ Math Talk
- ☐ Counting and shapes
- ☐ Addition and subtraction
- ☐ Talking about comparing and contrasting
- ☐ Math is everywhere: talking about math using songs, books, and daily activities

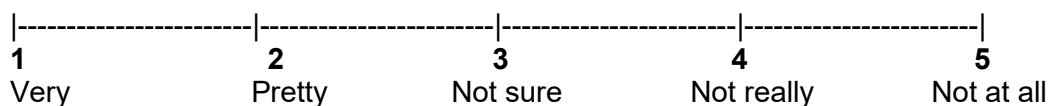
MODULE 12

Please check all of the topics you and your home visitor discussed:

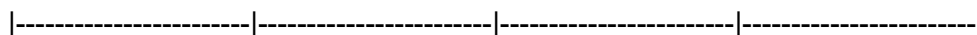
- ☐ Technology Diet
- ☐ Limiting your child's screen time
- ☐ Your child learns more from you than from educational TV
- ☐ Using the 3Ts during screen time

SPREAD THE WORDS CONFIDENCE SURVEY

Question 1: *How confident do you feel about your ability to share information about TMW with others?*



Question 2: *Will you share what you know about TMW with people you know?*



1 **2** **3** **4** **5**
Definitely Probably Not sure Probably won't Definitely won't

Question 3: *Do you feel nervous about your ability to accurately share information about TMW with others?*

|-----|-----|-----|-----|
1 **2** **3** **4** **5**
Not at all Not really Not sure Pretty Very

K. BOOSTER FIDELITY PARENT SURVEY (TREATMENT ONLY)

Participant Assessment – BOOSTER

Please answer all questions, thinking only of your MOST RECENT home visit.

YOUR HOME VISIT

For these questions, think about your most recent home visit and interaction with your home visitor.

1. Where did your home visit take place?
 - a. My home
 - b. Family's or friend's home
 - c. Childcare center
 - d. Community center (church, library, etc.)
 - e. TMW offices
 - f. Other
2. If other, please specify:

3. My home visitor asked me questions about my child.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

4. My home visitor asked for my ideas during the home visit.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

5. My home visitor asked me questions about the animations and videos in the module.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

6. My home visitor welcomed my questions about the module.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

7. My home visitor answered my questions in a way that made sense to me.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

8. My home visitor talked about things my child likes and dislikes during our module review.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

YOU AND YOUR HOME VISITOR

For these questions, think about your relationship and interaction with your Home Visitor.

9. My home visitor was interested in me and my child.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

10. My home visitor wanted to help me reach my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

11. My home visitor believes that I know my child best.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

12. I felt like a partner during the home visit.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

LENA AND GOAL SETTING

For these questions, think about reviewing your LENA recording numbers and setting goals with your Home Visitor.

13. My home visitor gave me suggestions when we talked about ways to practice my skills and meet my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

14. My home visitor explained my LENA report.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

15. I understood my LENA report.

5	4	3	2	1
Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

16. My home visitor suggested ways I can use my 3Ts and new skills in daily activities to meet my goals.

5	4	3	2	1
Always	Often	Sometimes	Rarely	Never

L. MEASUREMENT SCHEDULE**Measurement Schedule**

Event Name	Items Completed	Conducted By	Child's Age (in months)	Number of Months into the Study
Screening	Screening Questionnaire	TMW	13-16	0
Preliminary Consent	Preliminary Consent Schedule, Demographics, LENA How-To, CESD-10	TMW	13-16	0
Enrollment	Enrollment Consent, FLE	TMW	14-17	1
Video 1	Natural Play, Book Read	TMW	14-17	1
Assessment 1	PLS, PPVT-Parent, SPEAK, TOPSE, BMI, TOI, Nutrition Questionnaire, MacArthur I	TMW	14-17	1
Home Visit 1	Fidelity Parent, Fidelity Home Visitor	TMW	14-17	1
Home Visit 2	Fidelity Parent, Fidelity Home Visitor	TMW	15-18	1
Home Visit 3	Fidelity Parent, Fidelity Home Visitor	TMW	15-18	2
Home Visit 4	Fidelity Parent, Fidelity Home Visitor	TMW	16-19	2
Home Visit 5	Fidelity Parent, Fidelity Home Visitor	TMW	16-19	3


Home Visit 6	LWL Questionnaire, Fidelity Parent, Fidelity Home Visitor	TMW	17-20	3
Home Visit 7	Fidelity Parent, Fidelity Home Visitor	TMW	17-20	4
Home Visit 8	Fidelity Parent, Fidelity Home Visitor	TMW	18-21	4
Home Visit 9	Fidelity Parent, Fidelity Home Visitor	TMW	18-21	5
Home Visit 10	Fidelity Parent, Fidelity Home Visitor	TMW	19-22	5
Home Visit 11	Fidelity Parent, Fidelity Home Visitor	TMW	19-22	6
Home Visit 12	Fidelity Parent, Fidelity Home Visitor	TMW	20-23	6
Video 2	Natural Play, Book Read	TMW	20-23	6
Assessment 2	PLS, SPEAK, TOPSE, ASQ: SE, BMI, FLE, Nutrition, TOI, CESD-10	TMW	20-23	6
Booster 1	Booster Fidelity Parent, Booster Fidelity Home Visitor	TMW	21-24	7
Booster 2	Booster Fidelity Parent, Booster Fidelity Home Visitor, MacArthur II, LWL Questionnaire	TMW	25-28	11
Video 3	Natural Play, Book Read, Gift Wrapping/ Waiting for Bow,	TMW	26-29	12

	Snack Delay			
Assessment 3	PLS, SPEAK, BMI, FLE, Nutrition Questionnaire TOI	TMW	26-29	12
Booster 3	Booster Fidelity Parent, Booster Fidelity Home Visitor	TMW	31-34	17
Video 4	Natural Play, Book Read, Gift Wrapping/ Waiting for Bow, Snack Delay	TMW	32-35	18
Assessment 4	PLS, BMI, FLE, TOI, CESD-10, Nutrition Questionnaire	TMW	32-35	18
Booster 4	Booster Fidelity Parent, Booster Fidelity Home Visitor, LWL Questionnaire	TMW	37-40	23
Video 5	Natural Play, Book Read, Gift Wrapping/ Waiting for Bow, Snack Delay, Bear/Dragon	TMW	38-41	24
Assessment 5	PLS, PPVT-Child, SPEAK, ASQ: SE, BMI, FLE, Nutrition Questionnaire, TOI	TMW	38-41	24
Video 6	Natural Play, Book Read, Bear/Dragon, Give-N	TMW	50-53	36

Assessment 6	PLS, PPVT-Child, SPEAK, TOPSE, BMI, FLE, TOI, Nutrition Questionnaire, CESD-10	TMW	50-53	36
Video 7	Natural Play, Book Read, HTKS Give-N	TMW	62-65	48
Assessment 7	PLS, PPVT-Child, SPEAK, ASQ: SE, BMI, FLE, TOI, Nutrition Questionnaire, Woodcock-Johnson	TMW	62-65	48

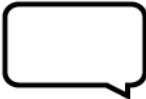
Note: The Fidelity of Implementation Surveys & Booster Fidelity of Implementation Surveys for both parents and home visitors will only be completed for participants within the Treatment group.

T: Module 5 Spread the Words Mapping worksheet



Spread the Words Network

Participant ID: _____
 Home Visitor: _____



Date: _____

Module 5: Spread the Words Interview Protocol

Module 5 – Showtime Activity

(START VIDEO AT BEGINNING OF EXERCISE)

Warm-up

1. Today we talked about Spreading the Words, what do you think about this idea?
2. Remember Jessica and Sammy from the videos? They Spread the Words to the people in their lives who talk a lot with their children and/or have young children of their own. Who in your life could you share TMW information with?
 - I. If the participant is uncomfortable or reticent, give the option of 1) completing a Spread the Words Mapping activity OR 2) continuing on to LENA Reports

Spread the Words Mapping Activity

The point of this activity is to identify the people who talk and interact most with your child, the people who can help build his/her brain using the 3Ts and other TMW strategies.

Today you'll create a diagram – we call it a map – to document these people. We will check in at future home visits to see what, if anything, you share with them about TMW.

Knowing who helps with your child and how you might share information about TMW with others will help us learn more about our program.


I. Mapping Exercise

We'll use this map to identify people who talk and interact most with [CHILD].

- There are 2 circles. Let's start by writing [CHILD]'s first name in the center circle.

Now let's fill in the outer circle with the names of people who talk and interact most with [CHILD], for example relatives, neighbors, day care workers, and friends.

We'll show how much time they spend with [CHILD] by putting their name closer or farther from [CHILD]'s name.

- Refer to mock-up of map as an example.
- Which of these people have young children of their own who could benefit?
Please  these people.

III. Sharing Information about TMW

- Who on this map would you like to talk with about TMW?
- Why would you like _____ to know about TMW?
- What would you tell _____ about TMW?

U. LENA Dos & Don'ts

LENA DOS

- ✓ **DO** complete 3 full day-long recordings using 3 different LENAs
- ✓ **DO** each LENA recording on a day when *you* will be with your child the entire time
- ✓ **DO** keep the LENA in the t-shirt pocket and on your child **the entire day**
- ✓ **DO** put the LENA in the t-shirt pocket with the elephant logo facing out
- ✓ **DO** take the LENA out of the t-shirt pocket *only* when your child is napping, bathing, or in a car seat
- ✓ **DO** keep the t-shirt and LENA on your child for **at least 8 hours**
- ✓ **DO** fill out a recording sheet for each recording day

LENA DON'Ts

- X **DON'T** turn off or pause the LENA
- X **DON'T** put the LENA in your child's jeans, sweatshirt, or other pocket
- X **DON'T** start a recording if your child will be at daycare or with a different guardian
- X **DON'T** start a recording late at night or right before your child is going to sleep
- X **DON'T** start a recording if you won't be able to keep the LENA on your child for at least 8 hours
- X **DON'T** worry too much if you need to reschedule. Just record the next day you can get it done properly!

Remember: To be eligible for Study Part 2 and receive \$25, all 3 LENA recordings must be:

- ✓ At least 8 hours long
- ✓ On your child the whole time
- ✓ When your child was with you the majority of the day (at least 6 hours)

We will ask you to redo any recordings that don't meet these criteria.

— Contact TMW at any time! Call or text: (773)-357-7468 or email us at tmw@bsd.uchicago.edu —

V. Additional Spouse/Partner Demographic Questions

If you identified as married or living with a partner, please answer the following questions about your spouse/partner.

1. What is the highest level of education your spouse/partner has ever completed?

- ☐ 8th grade or less
- ☐ 9th-12th grade, no diploma
- ☐ High school graduate
- ☐ GED completed
- ☐ Postsecondary non-degree program (e.g. nursing assistant, hairstylist programs)
- ☐ Some college credit but no degree
 - ↳ What is the name of his/her school: _____
- ☐ Associate Degree - AA, AS (e.g. dental hygienist, mechanical drafter programs)
 - ↳ What is the name of his/her school: _____
- ☐ Bachelors Degree - BA, BS
 - ↳ What is the name of his/her school: _____
- ☐ Graduate or professional degree - MA, MS, MD, JD, PhD

2. Is your spouse/partner currently a student?

☒ **NO**

☐ YES

- ↳ If yes, is he/she attending:
 - ☐ Part-time
 - ☐ Full-time
- ↳ What type of program is your spouse/partner attending?
 - ☐ High school diploma or GED
 - ☐ Postsecondary non-degree program (e.g. nursing assistant, hairstylist programs)
 - ↳ What is the name of his/her school: _____
 - ☐ Associate Degree - AA, AS (e.g. dental hygienist, mechanical drafter programs)
 - ↳ What is the name of his/her school: _____
 - ☐ Bachelors Degree - BA, BS
 - ↳ What is the name of his/her school: _____
 - ☐ Graduate or professional degree - MA, MS, MD, JD, PhD

12. Is your spouse/partner currently employed?

☐ NO

☐ YES

↳ If yes, how many jobs is he/she currently working? _____

☐ 1

↳ In your first job, is he/she working:

☐ Part-time

☐ Full-time

↳ Type of work for first job: _____

☐ 2

↳ In your second job, is he/she working:

☐ Part-time

☐ Full-time

↳ Type of work for second job: _____

☐ 3

↳

↳ In your third job, is he/she working:

☐ Part-time

☐ Full-time

↳ Type of work for third job: _____

☐ 4

↳ In your fourth job, is he/she working:

☐ Part-time

☐ Full-time

↳ Type of work for fourth job: _____

W. LENA Care Sheet

Help us take care of the LENAs!

- The LENA devices are very valuable to our study.
- We only have a limited number of LENAs.
- Please treat the LENAs like you would a cell phone.
- They cannot get wet, and are expensive to fix or replace.
- While you are borrowing these LENAs, please treat them with care.



We really appreciate your help. Thank you!

The Three T's Application Guide

The Three T's application is an educational tool for parents participating in the Thirty Million Words Initiative. The application encourages parents to learn and practice the “Three T’s” (Tune In, Talk More, and Take Turns). Shown below are three representative screen shots demonstrating the three key features of the application.



[1] Tutorial Mode and Modules: The tutorial mode simply explains that The Three T's App is a tool that works like a pedometer, but instead of counting steps it counts words. It also features a “modules mode” which directs the user to the “Three T's Module”, an important module within the TMW curriculum.

[2] Recording Sessions: The main feature of the Three T's App is the recording session mode. It allows the user to record the audio environment of a child wearing a Bluetooth Audio Microphone clipped to the child's t-shirt.

[3] Goal Setting and Results: After a recording session, the Three T's App processes the audio recording and users can view the number of adult words that were spoken to the child in the entire recording session. Users can track their adult word count (AWC) progress and set goals to improve over time.



Y.