

**Supplemental Material S2.** Details of analysis plan.

**Source:** Data are available on LDBase (<https://ldbase.org/>)

**Project Name:** A Longitudinal Assessment of Late Talking Toddlers  
(doi: 10.33009/ldbase.1722366228.775f)

**Dataset Relevant to this analysis:** Longitudinal Assessment of Late Talking Toddlers: VAULT data

**Codebook Relevant to this analysis:** VAULT Data Codebook

**Subset of Participants Included:** vault\_phase; 3

We completed our analysis using JASP software (JASP Team (2024); JASP (Version 0.19.0.0 [Computer software]. Below, we detail the specific steps we took in JASP and the parameters we specified for each type of analysis. We also provide an example of an R script that JASP creates, although we did not use R as our primary analytic method.

**Type of Analysis:** Bayesian Independent Samples *t*-test

*Used for Assessing:* Effect of treatment condition on treatment effect size

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Independent Samples T-Test	jaspTTests::TTestBayesianIndependentSamples( version = "0.19", formula = ~ `target_dscore`, group = list(types = "nominal", value = "vault_studycondition"), priorAndPosteriorPlot = TRUE)
Dependent Variable: target_dscore	
Grouping Variable: vault_studycondition	
Alternative Hypothesis Group 1 ≠ Group 2	
Bayes Factor BF10	
Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

*Used for Assessing:* Effect of treatment condition on receptive probes

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Independent Samples T-Test	jaspTTests::TTestBayesianIndependentSamples( version = "0.19", formula = ~ `Receptive Target`, group = list(types = "nominal", value = " vault_studycondition " ), priorAndPosteriorPlot = TRUE)
Dependent Variable: receptive_target (Post-Treatment)	

Grouping Variable: vault_studycondition	
Alternative Hypothesis Group 1 $\neq$ Group 2	
Bayes Factor BF10	
Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

Note: This same analysis was repeated with the dependent variable as "receptive\_control"

### Type of Analysis: Bayesian Paired Samples *t*-test

*Used for Assessing:* Comparison of target and control effect sizes

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Paired Samples t-test	<code>jasptTests::TTestBayesianPairedSamples( version = "0.19", alternative = "greater", pairs = list(list("target_dscore ", " control_dscore ")), priorAndPosteriorPlot = TRUE)</code>
Variable Pairs: target_dscore; control_dscore	
Alternative Hypothesis: Measure 1 > Measure 2	
Bayes Factor BF10	
Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

*Used for Assessing:* MCDI growth rate during treatment compared to follow up.

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Paired Samples t-test	<code>jasptTests::TTestBayesianPairedSamples( version = "0.19", pairs = list(list("rate_words_learned", " rate_posttreatment_followup_calc_e ")), priorAndPosteriorPlot = TRUE)</code>
Variable Pairs: rate_words_learned; rate_posttreatment_followup_calc_e	
Alternative Hypothesis: Measure 1 $\neq$ Measure 2	

Bayes Factor BF10	
Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

*Used for Assessing:* Receptive Probes for targets v. controls, post-treatment

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Paired Samples t-test	<code>jaspTTests::TTestBayesianPairedSamples( version = "0.19", alternative = "greater", pairs = list(list("receptive_target", "receptive_control")), priorAndPosteriorPlot = TRUE)</code>
Variable Pairs: receptive_target; receptive_control Select: Post-treatment	
Alternative Hypothesis: Measure 1 > Measure 2	
Bayes Factor BF+0	
Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

*Used for Assessing:* Receptive Probes for targets post-treatment v. follow-up

Select in JASP	R script as generated by JASP
T-Tests; Bayesian; Paired Samples t-test	<code>jaspTTests::TTestBayesianPairedSamples( version = "0.19", alternative = "greater", pairs = list(list("post_treatment_receptive_target", "post_treatment_receptive_control")), priorAndPosteriorPlot = TRUE)</code>
Variable Pairs: post_treatment_receptive_target; follow_up_receptive_target Select: Post-treatment	
Alternative Hypothesis: Measure 1 ≠ Measure 2	
Bayes Factor BF+0	

Tests: Student	
Missing Values: Exclude cases per dependent variable	
Priors: Default; Cauchy scale 0.707	
Plots: Prior and posterior	

Note: The same analysis was run for control words, substituting 'control' for 'target'.

### Type of Analysis: Bayesian repeated measure ANOVA

*Used for Assessing:* MCDI growth rates during delay v. during treatment by condition.

Select in JASP	R script as generated by JASP
ANOVA; Bayesian; Repeated Measures ANOVA	jaspAnova::AnovaRepeatedMeasuresBayesian( version = "0.19",
Repeated Measures Factors: TIME: Delay; Treatment	barPlotHorizontalAxis = list(types = list(), value = "" ), barPlotSeparatePlots = list(types = list(), value = "" ), betweenSubjectFactors = list(types = "nominal", value = "vault_studycondition"), customPriorSpecification = list(types = list("unknown", "nominal", "unknown"), value = list(list(components = "TIME", inclusionProbability = 0.5, scaleFixedEffects = 0.5), list(components = " vault_studycondition ", inclusionProbability = 0.5, scaleFixedEffects = 0.5), list(components = list("TIME", " vault_studycondition "), inclusionProbability = 0.5, scaleFixedEffects = 0.5))), descriptivePlotHorizontalAxis = list(types = list(), value = "" ), descriptivePlotSeparateLines = list(types = list(), value = "" ), descriptivePlotSeparatePlot = list(types = list(), value = "" ), effects = TRUE, modelTerms = list(types = list("unknown", "nominal", "unknown"), value = list(list(components = "TIME", isNuisance = FALSE), list(components = " vault_studycondition ", isNuisance = FALSE), list(components = list("TIME", " vault_studycondition "), isNuisance = FALSE))), rainCloudHorizontalAxis = list(types = list(), value = "" ),
Repeated Measures Cells: avg_words_week_mcdi_e; rate_words_learned	

	rainCloudSeparatePlots = list(types = list(), value = ""), repeatedMeasuresCells = list("avg_words_week_mcdi_e", " rate_words_learned"), repeatedMeasuresFactors = list(list(levels = list("Delay", "Tx"), name = "TIME")), singleModelTerms = list("TIME", " vault_studycondition ", list("TIME", " vault_studycondition ")))
Between Subjects Factor: vault_studycondition	
Bayes Factor: BF10	
Tables: Effects; Across all models	
Order: Compare to best model	
Limit No. Models Shown: Yes, show best 10	