INDIANA UNIVERSITY
BLOOMINGTON

Gierut / Learnability Project

The Learnability Project was founded in 1985 by Judith A. Gierut, Professor Emerita of Speech and Hearing Sciences, Indiana University. Through funding from the National Institutes of Health, the project served as a test site in evaluation of the efficacy of clinical treatment for preschool children with functional (nonorganic) phonological disorders. Children who enrolled contributed longitudinal descriptive phonological samples for linguistic analysis. They also received clinical treatment, designed as single-subject experiments, to establish the optimal teaching conditions to promote phonological learning. Experimental studies were based on the triangulation of theoretical models of linguistics, psycholinguistics, and speech-language pathology, with the aim of bridging theory with application and science with best practices. The Gierut / Learnability Project collections accord with the data-sharing plan of the National Institutes of Health and are intended for broad use by scientists, clinicians, and students interested in language and learning.

Content Statement

Instructions For Use

Thank you for your interest in IUScholarWorks and the collections of the Gierut / Learnability Project. This document provides instructions and provisions for scholarly use. Please read the entire document carefully as it outlines copyright permissions and disclaimers about the data.

Contents

I. Introduction to the Learnability Project

The Learnability Project was founded by Judith A. Gierut, Professor Emerita, Department of Speech and Hearing Sciences, Indiana University–Bloomington. Gierut's love of children, coupled with her interests in linguistics, speech-language pathology, and psycholinguistics, were at the core of the Learnability Project. The mission was clear: to improve the efficacy of clinical assessment and treatment for children with functional phonological disorders by integrating theory and application in the triangulation of three disciplines. With this as the backdrop, Gierut and her colleagues, Daniel A. Dinnsen and Michele L. Morrisette, developed a programmatic line of research to identify the factors that accelerate children's phonological learning and to translate those findings to clinical practice.

The Learnability Project was supported by the National Institutes of Health, National Institute on Deafness and Other Communication Disorders through the following grants awarded to Indiana University: DC00433, RR7031K, DC00076, and DC001694 (PI: Gierut). The research was conducted in compliance with the Institutional Review Board for the protection of human subjects at Indiana University; there were no real or perceived research-related conflicts of interest.

II. IUScholarWorks

IUScholarWorks is an open access repository of the Indiana University Libraries. IUScholarWorks aims to facilitate the sharing of scientific data in accord with federal regulations and to preserve the integrity of these data in perpetuity. The Gierut / Learnability Project is a subcommunity of IUScholarWorks designed to preserve descriptive and experimental clinical research data on children with functional phonological disorders. The Gierut / Learnability Project subcommunity may be accessed at

https://scholarworks.iu.edu/dspace/handle/2022/20061

III. Gierut / Learnability Project Collections

The Gierut / Learnability Project has three collections, which may be of broad interest and value to the scientific and clinical communities and the public. Each collection stands alone for independent use, but the collections may be cross-referenced to address integrated questions of inquiry.

- The **BASICS** collection provides an overview of the Learnability Project, main research findings, list of publications, description of protocols, and instructions for use.

- The **DATA** collection consists of three archives. The *Demographics Archive* provides diagnostic and case information for 280 children with phonological disorders. The *Experimental Archive* summarizes the conditions of clinical treatment and corresponding performance of 219 children who were enrolled in experimental training studies of production. The *Developmental Phonologies Archive* consists of the longitudinal records from each of 280 children in production of probe words that sampled target English singletons, onset and coda clusters. Each archive includes downloadable Excel files, ReadMe file with instructions, and reference files that are not manipulable so as to allow the user to crosscheck for accuracy and to preserve the integrity of the data in perpetuity.

- The **PUBLICATIONS** collection provides access to published work generated from Learnability Project research.

IV. Copyright

The Gierut / Learnability Project collections represent the original work of Judith A. Gierut and members of the research team, who are the owners of the copyright. The Gierut / Learnability Project collections are protected by the Creative Commons copyright license CC BY-NC-ND. The copyright license permits the user to access and share the Gierut / Learnability Project collections, with appropriate acknowledgement and credit to the creators/authors. The copyright license denies the user the right to make changes to the collections or develop the collections commercially. The terms of the copyright license deed may be found at http://creativecommons.org/licenses/by-nc-nd/4.0/ and the legal code at http://creativecommons.org/licenses/by-nc-nd/4.0/legalcode.

The following statement is to be appended to any work (published or unpublished) that utilizes or is based on the collections of the Gierut / Learnability Project:

> ***Archival data were retrieved from the Gierut / Learnability Project collection of the IUScholarWorks repository at https://scholarworks.iu.edu/dspace/handle/2022/20061 The archival data were original to the Learnability Project and supported by grants from the National Institutes of Health to Indiana University** (DC00433, RR7031K, DC00076, DC001694; PI: Gierut). **The views expressed herein do not represent those of the National Institutes of Health, Indiana University, or the Learnability Project. The author(s) assume(s) sole responsibility for any errors, modifications, misapplications, or misinterpretations that may have been introduced in extraction or use of the archival data.***

V. Disclaimers

Please read the disclaimers carefully as they impact all research to be generated from the Gierut / Learnability Project collections.

- **Downloading the DATA collection.** The DATA collection consists of Excel files that are fully downloadable and manipulable by the user. As such, there is potential for the user to introduce errors that may affect the integrity of the data. <u>The user accepts full responsibility for the introduction of errors in their use of the DATA collection</u>. To minimize the risk of error, the user should take the following precautions:

  o Phonetic transcriptions have been entered using Unicode symbols with Lucida Grande font. *It is imperative to retain Lucida Grande font.* If the font is altered in any way, this will likewise alter the intended phonetic transcription, thereby destroying the integrity of the data.

  o Phonetic transcriptions are based on narrow notation of the IPA. Any departure from the IPA is due to appearance and/or limitations in Excel. Symbol variations are described in the files and should be applied in the user's interpretation.

  o Reference files are included in PDF/A format as a resource for the user to crosscheck and correct any errors that were introduced in the download or analysis of data. <u>The user accepts full responsibility for valid extraction of the data</u>.

- **Participant identification.** Consistent with IRB guidelines, anonymity of participants was ensured herein through double de-identification. All children were assigned a four-digit random ID number that was independent of original subject number, order of enrollment, chronological age, birthdate, calendar date, publication date, or any other potentially identifiable or traceable information. Participant ID numbers are constant across the DATA collection, e.g., 1007 in the Demographics Archive is the same participant as 1007 in the Experimental Archive and so on. Where appropriate, ID numbers are suffixed to reflect the source file, e.g., 1007_EXP denotes experimental data and 1007_PHON denotes phonological data from the same child. In this way, data across archives may be integrated.

VI. Instructions: DATA Collection / Demographics Archive

Description: The Demographics Archive provides diagnostic and case information for 280 children with functional phonological disorders.

Contents: DemogArchive_Across Ss.xlsx
DemogArchive_Reference File.pdf (PDF/A, not manipulable)
ReadMe.pdf with instructions for use

File Size: 1MB

Software: Excel: Mac 2011; Adobe Acrobat XI Pro PDF/A

Status: Processed data (limited); raw data for analysis

Instructions:

- For background to the participants, descriptive, and experimental protocols of the Learnability Project, the user is referred to three working papers in the BASICS collection:

  - *Learnability Project Working Paper: Participant Eligibility and Demographics*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K8H41PB4

  - *Learnability Project Working Paper: Experimental Designs and Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K8CC0XMD

  - *Learnability Project Working Paper: Phonological Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K87P8W9V

  The user is also referred to the Publications collection for primary source material that also provides full details about participants and procedures.

- Archived demographic data were drawn from children with functional phonological disorders in accord with the general criteria for participation in the Learnability Project. Only children who contributed ample data amenable to further analysis were included, thereby eliminating those who participated in one-shot studies; their data have already been fully processed, analyzed, and published.

- All data in the Demographics Archive were checked for accuracy of data entry. An independent judge compared the original scored hard copy records to the electronic version. Any errors in data entry were corrected to the original. Data entry is thus 100% accurate.

- The file labeled DemogArchive_Across Ss.xlsx reports data for the collective group of 280 children. Figure 1, on the next page, shows the key to column headings for this file, with details to follow.

- Participant ID numbers are arbitrarily assigned random numbers to ensure complete anonymity. Participant ID numbers are constant across the DATA collections to facilitate cross-reference and integration of demographic, experimental, and phonological data.

- Chronological age corresponds to the child's age at consent, coincident with the start of entry testing.

- Chronological age at longitudinal administrations of the *Goldman-Fristoe Test of Articulation* is documented in the Developmental Phonologies Archive. Each child's probe schedule shows the exact age at testing.

- *Goldman-Fristoe Test of Articulation* norm-referenced scores of 1, 1–, and <1 percentile are uniformly coded as 1 to readily allow for statistical manipulations.

- All children passed a hearing screening using conditioned play audiometry or conventional audiometry under earphones testing at 1000, 2000, and 4000 Hz at 20 dB HL following ASHA guidelines http://www.asha.org/policy/GL1997-00199/#sec1.6. This information is not explicitly reported in the Demographics Archive.

Figure 1. Key to column headings for the file DemogArchive_Across Ss.xlsx

COLUMN HEADING	DESCRIPTION	CITATION[a]
Participant ID	Re-randomized arbitrary ID number assigned to participant to ensure anonymity	
CA (y:m)	Age at consent in years; months	
CA (months)	Age at consent in months	
Family Hx	Family history of communication disorder 1=yes; based on parental report	
Otitis Media Hx	Child history of otitis media 1=yes; based on parental report	
Age of first words	Reported in months; based on parental report	
Oral Mech Struc	Oral-motor structure score	Robbins & Klee (1987)
Oral Mech Func	Oral-motor function score (adjusted for phonological errors)	Robbins & Klee (1987)
GFTA Pre Raw	Raw score on Goldman-Fristoe Test of Articulation at pretreatment	Goldman & Fristoe (1986, 2000)
GFTA Pre %ile	Percentile score on Goldman-Fristoe Test of Articulation at pretreatment	Goldman & Fristoe (1986, 2000)
GFTA Pre SS	Standard score on Goldman-Fristoe Test of Articulation at pretreatment	Goldman & Fristoe (2000)
GFTA Post Raw	Raw score on Goldman-Fristoe Test of Articulation at immediate posttreatment	Goldman & Fristoe (1986, 2000)
GFTA Post %ile	Percentile score on Goldman-Fristoe Test of Articulation at immediate posttreatment	Goldman & Fristoe (1986, 2000)
GFTA Post SS	Standard score on Goldman-Fristoe Test of Articulation at immediate posttreatment	Goldman & Fristoe (2000)
GFTA Post II Raw	Raw score on Goldman-Fristoe Test of Articulation following 'Best' condition of treatment (ATD)	Goldman & Fristoe (1986, 2000)
GFTA Post II %ile	Percentile score on Goldman-Fristoe Test of Articulation following 'Best' condition of treatment (ATD)	Goldman & Fristoe (1986, 2000)
GFTA Post II SS	Standard score on Goldman-Fristoe Test of Articulation following 'Best' condition of treatment (ATD)	Goldman & Fristoe (2000)
GFTA 2wk Raw	Raw score on Goldman-Fristoe Test of Articulation at 2 weeks posttreatment	Goldman & Fristoe (1986, 2000)
GFTA 2wk %ile	Percentile score on Goldman-Fristoe Test of Articulation at 2 weeks posttreatment	Goldman & Fristoe (1986, 2000)
GFTA 2wk SS	Standard score on Goldman-Fristoe Test of Articulation at 2 weeks posttreatment	Goldman & Fristoe (2000)
GFTA 2mo Raw	Raw score on Goldman-Fristoe Test of Articulation at 2 months posttreatment	Goldman & Fristoe (1986, 2000)
GFTA 2mo %ile	Percentile score on Goldman-Fristoe Test of Articulation at 2 months posttreatment	Goldman & Fristoe (1986, 2000)
GFTA 2mo SS	Standard score on Goldman-Fristoe Test of Articulation at 2 months posttreatment	Goldman & Fristoe (2000)
EVT Raw	Raw score on Expressive Vocabulary Test	Williams (1997, 2007)
EVT SS	Standard score on Expressive Vocabulary Test	Williams (1997, 2007)
PPVT Raw	Raw score on Peabody Picture Vocabulary Test	Dunn & Dunn (1997, 2007)
PPVT SS	Standard score on Peabody Picture Vocabulary Test	Dunn & Dunn (1997, 2007)
CELF CoreLang SS	Standard Core Language Score on Clinical Evaluation of Language Fundamentals-Preschool	Wiig et al. (1992, 1995, 2004)
CELF Receptive SS	Standard Receptive Language Score on Clinical Evaluation of Language Fundamentals-Preschool	Wiig et al. (1992, 1995, 2004)
CELF Expressive SS	Standard Expressive Language Score on Clinical Evaluation of Language Fundamentals-Preschool	Wiig et al. (1992, 1995, 2004)
TELD Lang Q	Language Quotient on Test of Early Language Development	Hresko et al. (1981, 1991, 1999)
TOLD Spoken Q	Spoken Language Quotient on Test of Language Development	Newcomer & Hammill (1988; 1997)
TOLD Listening Q	Listening Quotient on Test of Language Development	Newcomer & Hammill (1988; 1997)
TOLD Speaking Q	Speaking Quotient on Test of Language Development	Newcomer & Hammill (1988; 1997)
Leiter IQ SS	Standard score, Full IQ, Visualization and Reasoning Battery, Leiter International Performance Scale-Revised	Levine (1986); Roid & Miller (1997)
Leiter Memory SS	Standard score, Memory Screen, Attention & Memory Battery, Leiter International Performance Scale-Revised	Roid & Miller (1997)
Leiter Cog/Soc Scaled	Scaled Score, Cognitive/Social Rating, Leiter International Performance Scale-Revised	Roid & Miller (1997)
ITPA Scaled	Scaled Score, Illinois Test of Psycholinguistic Abilities-Revised, Auditory Sequential Memory subtest (M=36, SD=6)	Kirk et al. (1968)
NWR	Total percent accuracy on nonword repetition task	Dollagahan & Campbell (1998)
SRT	Total percent accuracy on the Syllable Repetition Task	Shriberg & Lohmeier (2008)
	[a]Full reference listed in *Learnability Project Working Paper: Participants and Phonological Protocols*	

- The battery of tests administered to children accords with predetermined inclusionary and exclusionary criteria, as described in the aforementioned working papers and other citations in the Publications collection.

- Demographic data were collected over a 30-year period and consequently, the test battery was adjusted to reflect improved clinical and research standards. For this reason, test versions may vary across children and there may be empty cells coincident with changes in standards.

- Empty cells or abbreviated demographic data sets may also be associated with attrition.

VI. Instructions: DATA Collection / Experimental Archive

Description: The Experimental Archive summarizes the conditions of clinical treatment and corresponding performance for 219 children who were enrolled in experimental treatment studies of production.

Contents: ExpArchive_Across Ss.xlsx
ExpArchive_Individual Ss (folder with individual .xlsx files)
ExpArchive_Reference Files (PDF/A, not manipulable)
ReadMe.pdf with instructions

File Size: 95MB

Software: Excel: Mac 2011; Adobe Acrobat XI Pro PDF/A

Status: Processed data (limited); raw data for analysis

Instructions:

- For background to the participants, descriptive, and experimental protocols of the Learnability Project, the user is referred to three working papers in the BASICS collection:

    o *Learnability Project Working Paper: Participant Eligibility and Demographics*; first appeared, Gierut / Learnability Project Lab Manual, 1986; http://dx.doi.org/10.5967/K8H41PB4

    o *Learnability Project Working Paper: Experimental Designs and Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986; http://dx.doi.org/10.5967/K8CC0XMD

    o *Learnability Project Working Paper: Phonological Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986; http://dx.doi.org/10.5967/K87P8W9V

    The user is also referred to the Publications collection for primary source material that also provides full details about participants and procedures.

- Archived experimental data were drawn from children with functional phonological disorders in accord with the general criteria for participation in the Learnability Project. Only children who contributed ample amounts of data amenable to further analysis were included, thereby eliminating those who participated in one-shot experimental studies; their data have already been processed, analyzed, and published.

- All data in the Experimental Archive were checked for accuracy of data entry. An independent judge compared the original hard copy records to the electronic version. Any errors in data entry were corrected to the original. Data entry is thus 100% accurate.

- The file labeled ExpArchive_Across Ss.xlsx reports data for the collective group of 219 children. Figure 2 shows the key to column headings for this file, with details to follow.

Figure 2. Key to column headings for the file ExpArchive_Across Ss.xlsx

COLUMN HEADING	DESCRIPTION
Partticipant ID	Re–randomized arbitrary ID number assigned to participant to ensure anonymity
Treated Sound(s)	Treated Sound(s)
Sounds Monitored	Determined from phonological analysis; includes but not limited to phonemes excluded from inventory
Experimental Design	MBL, ATD, or MBL multiple probe
Imitation Ssns	Number of sessions in imitation phase of treatment
Spontaneous Ssns	Number of sessions in spontaneous phase of treatment
Best Ssns (ATD only)	Number of sessions in 'Best' condition of treatment (ATD)
Total Ssns	Total number of treatment sessions
Lexicality Trt Stimuli	Treated sound in real or nonwords
Minimal Pairs	Treated sound in minimal pairs

- Participant ID numbers are arbitrarily assigned random numbers to ensure complete anonymity. Participant ID numbers remain constant across the DATA Collections to facilitate cross-reference and integration of demographic, experimental, and phonological data. ID numbers are suffixed to denote experimental data from individual children, e.g., 1007_EXP denotes experimental data from Child 1007.

- Treated sound(s) were dictated by the experimental design and question of interest, with consideration of the clinical needs of the child.

- Most often, the child was taught one treated sound. If more than one treated sound is listed, those sounds were either taught concurrently or sequentially. If sounds were treated concurrently using a mixed list of stimuli, this is confirmed in the column labeled Treated Sound. Alternatively, if treated sounds were affiliated with different experimental conditions (as in the ATD), this is confirmed by referencing the column labeled Experimental Design. If sounds were treated sequentially as legs of the experimental design (as in the multiple baseline or multiple probe designs), this too is confirmed by referencing the column labeled Experimental Design.

- When treated sounds were taught in minimal pairs (or triplets), they are listed using a dash notation, e.g., l-r means target /l/ was taught in contrast to /r/ using minimal pair stimuli. This is confirmed by referencing the column labeled Minimal Pairs.

- Treated sounds were typically taught in the initial position of stimulus words, unless otherwise noted. Alternate contexts of treatment are reported immediately to the right of the treated sounds.

- Sounds monitored for generalization were specific to each child. Sounds monitored included, but were not limited to target English sounds excluded from the child's phonemic inventory. Sounds monitored were identified from descriptive phonological analyses following the protocol, methods, and operational definitions reported in the aforementioned working papers and primary source material cited in the Publications collection.

- Single-subject experimental designs were used. The primary experimental design was the multiple baseline across subjects. Other designs that were employed included the multiple baseline design within and across subjects, multiple baseline-multiple probe design, and alternating treatments design. The design format and experimental question dictated the experimental set-up, including number of treated sounds, number and type of treated stimuli, criteria for advancement, and schedule of probe administration for documenting phonological generalization. For details about implementation of these designs, the user is referred to the aforementioned working papers, primary source material cited in the Publications collection, and general texts on single-subject design.

- Generally, there were two successive steps of treatment, but this may have varied with the experimental design and question of interest.

  o The first step was imitation, where the child repeated treated stimulus words following the experimenter's model. The criteria for advancement varied by experimental design, but typically, imitation continued until the child achieved 75% accuracy of production over 2 consecutive sessions or until 7 total sessions were completed, whichever came first.

  o The second step was spontaneous production, where the child produced treated stimuli without a preceding model. The criteria for advancement varied by experimental design, but typically, the spontaneous phase continued until the child achieved 90% accuracy of production over 3 consecutive sessions or until 12 total sessions were completed, whichever came first.

- 'Best' sessions were specific to the alternating treatments design. For details about this manipulation, the user is referred to the aforementioned working papers, primary source material cited in the Publications collection, and general texts on single-subject design.

- The treatment protocol was administered to individual children, typically 3 times weekly in 1-hour sessions, but this was dictated by the experimental design. For the multiple baseline design, children received no more than 19 hours/sessions of direct intervention. Time in treatment varied with the experimental design, question of interest, and child's performance.

- Treated stimuli were specific to the experimental design and question of interest, with consideration of the clinical needs of the child.

- Lexicality of treated stimuli is coded as RW for real words, NW for nonwords or Both for studies where RW and NW were introduced concurrently within or across conditions.

- The use of minimal pairs as treated stimuli is binarily coded as yes/no.

- The Experimental Archive also includes a folder labeled ExpArchive_Individual Ss. For each of 219 children, session-by-session performance during treatment is documented. Specifically, the accuracy of production of the treated sound in treated words is reported. These data are independent of, and do not reflect generalization learning.

- Each child's file reports the step of treatment (imitation or spontaneous production) and session number, the treated target sound(s), and number of treated stimuli. The number of trials in a given session, number of correct productions relative to the total opportunities, and percent correct responding are also reported.

- Figure 3 shows a sample layout of a multiple baseline file selected from ExpArchive_Individual Ss.

Figure 3. Layout of a multiple baseline file from ExpArchive_Individual Ss

Trt Ssn	Trt Target	N Trt Stim	Trials	Corr	Opp	C/O %
Imit 1	f	8	8	25	64	39%
Imit 2	f	8	10	36	80	45%
Imit 3	f	8	8	37	64	58%
Imit 4	f	8	8	48	64	75%
Imit 5	f	8	10	66	80	83%
Spont 1	f	8	10	71	80	89%
Spont 2	f	8	8	61	64	95%
Spont 3	f	8	8	62	64	97%
Spont 4	f	8	10	79	80	99%

- The file format for individual children varies by experimental design.

  o Children enrolled in the multiple baseline-multiple probe design typically have more than one .xlsx sheet, reporting performance in sequenced phases of treatment. Four phases were typically planned, but the design requires that phases be skipped once the child evidenced learning. Consequently, the number of phases that are reported is based on a given child's progression through the experiment.

  o Children enrolled in the alternating treatments design have two .xlsx sheets, reporting performance associated with each of two treatment conditions, Condition A and Condition B. Performance in the 'best' condition specific to the alternating treatments design is also noted.

- Figure 4, on the next page, shows a sample layout of an alternating treatments file selected from ExpArchive_Individual Ss.

- The file format for individual children may also vary by treated sound. For example, children taught sounds in minimal pairs (or triplets) have performance data for each session and each contrastive sound that was taught in that session.

- Figure 5, also on the next page, provides a sample layout for treatment of /l r/ in minimal pairs selected from ExpArchive_Individual Ss. Notice that the treatment session labeled Imit 1 has two entries, one associated with production of /l/ and another with production of /r/.

- Abbreviated data sets may be associated with the child's rapid advancement through the experimental protocol or attrition.

Figure 4. Layout of an alternating treatments file from ExpArchive_Individual Ss

Condition A Ssn	Trt Target	N Trt Stim	Trials	Corr	Opp	C/O %
Imit 1	g	8	3	24	24	100%
Imit 2	g	8	3	24	24	100%
Spont 1	g	8	2	15	16	94%
Spont 2	g	8	5	40	40	100%
Spont 3	g	8	5	39	40	98%
Best 1	g	8	6	47	48	98%
Best 2	g	8	10	80	80	100%
Best 3	g	8	12	95	96	99%

Condition B Ssn	Trt Target	N Trt Stim	Trials	Corr	Opp	C/O %
Imit 1	θ	8	3	19	24	79%
Imit 2	θ	8	3	24	24	100%
Spont 1	θ	8	2	15	16	94%
Spont 2	θ	8	5	39	40	98%
Spont 3	θ	8	5	40	40	100%

Figure 5. Partial layout of a minimal pairs treatment file from ExpArchive_Individual Ss

Trt Ssn	Trt Target	N Trt Stim	Trials	Corr	Opp	C/O %
Imit 1	l	8	7	30	56	54%
Imit 1	r	8	7	12	56	21%
Imit 2	l	8	8	45	64	70%
Imit 2	r	8	8	19	64	30%
Imit 3	l	8	8	42	64	66%
Imit 3	r	8	8	36	64	56%
Imit 4	l	8	6	43	48	90%
Imit 4	r	8	6	32	48	67%

IV. Instructions: DATA Collection / Developmental Phonologies Archive

Description: The Developmental Phonologies Archive consists of the longitudinal records from each of 280 children in production of probe words that sampled target English singletons, onset and coda clusters.

Contents: PhonArchive_Individual Ss (folder with individual .xlsx files)
PhonArchive_Reference Files (PDF/A, not manipulable)
ReadMe.pdf with instructions for use

File Size: 158MB

Software: Excel: Mac 2011; Adobe Acrobat XI Pro PDF/A

Status: Processed data (phonetic transcriptions); raw data for analysis

Instructions:

- For background to the participants, descriptive, and experimental protocols of the Learnability Project, the user is referred to three working papers in the BASICS collection:

    o *Learnability Project Working Paper: Participant Eligibility and Demographics*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K8H41PB4

    o *Learnability Project Working Paper: Experimental Designs and Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K8CC0XMD

    o *Learnability Project Working Paper: Phonological Protocols*; first appeared, Gierut / Learnability Project Lab Manual, 1986**;** http://dx.doi.org/10.5967/K87P8W9V

    The user is also referred to the Publications collection for primary source material that also provides full details about participants and procedures.

- Archived data were drawn from children with functional phonological disorders in accord with the general criteria for participation. Only children who contributed ample amounts of data amenable to further analysis were included, thereby eliminating those who participated in one-shot experimental studies; their data have already been processed, analyzed, and published.

- Participant ID numbers were arbitrarily assigned random numbers to ensure complete anonymity. Participant ID numbers remain constant across the DATA collection to facilitate cross-reference and integration of demographic, experimental, and phonological data. ID numbers are suffixed to denote phonological data from individual children, e.g., 1007_PHON denotes phonological data from Child 1007.

- The Developmental Phonologies Archive is comprised of individual .xlsx files for each of 280 children. Within a given child's file, there are multiple .xlsx sheets. Each sheet corresponds to the kind of phonological data obtained. The nature of the data varies by child based on the experimental design and question of interest.

- Phonological data reflect the child's spontaneous productions of words, unless noted otherwise. If the child produced multiple renditions of a given word, these are included in the sample.

- Phonological data from a given child minimally includes

    o Phonetic transcriptions of the *Goldman-Fristoe Test of Articulation* administered prior to and following experimental treatment.

    o Phonetic transcriptions of the *Phonological Knowledge Protocol* (PKP). Characteristics of the PKP and methods of elicitation are described in the aforementioned working papers and in citations of the Publications collection. Briefly, the PKP is a structured probe that samples all target English singleton consonants in words as a measure of phonological generalization. For the most part, PKP words have been held constant over the 30-year duration of the Learnability Project to facilitate direct comparisons within and

across children. With some exceptions, words were added or modified to enrich the utility of the PKP.

- Phonetic transcriptions employ conventional IPA symbols, with the following additions:
  - o [ ] following a transcription denotes that the word was elicited in delayed or direct imitation
  - o NR denotes 'no response'
  - o ˆprecedes a raised segment
  - o ˪ when used after a consonant denotes lateralization
  - o When variations from standard IPA were introduced, these are entered as a note on the probe schedule for the individual child.

- Reliability of phonetic transcriptions was established for 10% of the phonological data obtained from each child. Reliability was established point-to-point for consonant agreement by two trained independent listeners. Reliability of phonetic transcriptions was 93% consonant agreement for the Developmental Phonologies Archive.

- Phonological data were collected at critical points in an experiment: typically, at baseline, phase shift from imitation to spontaneous treatment, immediate upon completion of treatment, 2-weeks and 2-months following withdrawal from treatment. Samples are labeled accordingly as Pre, PS, Post, 2wk, and 2mo.

- A given child may have additional (or fewer) samples depending on the experimental design, question of interest, and progress in treatment. Other sampling variations are associated with practicalities of scheduling and/or attrition. For example, if a family was unable to attend a session planned for 2 weeks following withdrawal from treatment, then phonological data might have been collected at 3 weeks following withdrawal. The number of phonological samples varies across children.

- The key to the .xlsx sheets is described below.

  - o The .xlsx sheet labeled **Probe Schedule** reports the timing of the probe samples relative to the child's chronological age. Age at each sampling is reported in years; months; days.

  - o The .xlsx sheet labeled **PKP** reports the sounds and words that were sampled on the PKP, along with the child's spontaneous outputs. Data are documented longitudinally following the probe schedule.

    The PKP .xlsx sheet may include additional columns for inventory baselines, labeled **INV BL**. Inventory baselines are repeated samples obtained prior to treatment that document the child's production of only those sounds monitored for generalization. Subsets of the PKP were used for this purpose. Sounds monitored for a given child are reported in the Experimental Archive. The number of inventory baseline samples was dictated by the experimental design.

  - o The .xlsx sheet labeled **OCP** reports the onset clusters and words sampled, along with the child's spontaneous outputs. Data are documented longitudinally following the probe

schedule. Characteristics of the OCP and methods of elicitation are described in the aforementioned working papers and in citations of the Publications collection.

- The .xlsx sheet labeled **CCP** reports the coda clusters and words sampled, along with the child's spontaneous output. Data are documented longitudinally following the probe schedule. Characteristics of the CCP and methods of elicitation are described in the aforementioned working papers and in other citations of the Publications collection.

- The .xlsx sheet labeled **TP** reports treatment probe data. Treatment probes were obtained during the course of intervention and generally followed a variable schedule of administration. Treatment probes measured production of only those sounds that were monitored for phonological generalization as cited in the Experimental Archive.

  For the alternating treatments design, there are two TP .xlsx sheets corresponding to each of two experimental conditions. These TP sheets are differentially labeled in the header as **Condition A** and **Condition B**.

  Further, some studies required that children receive different versions of the TP to avoid stimulus-bound responses. These TP sheets are differentially labeled in the header as **Version A** and **Version B**.

- The .xlsx sheet labeled **SP** corresponds to supplemental probe data that might have been collected specific to the experimental design and question. For example, supplemental probes might have been designed to ensure an ample sample size of words based on normative age-of-word-acquisition. Data are documented longitudinally following the probe schedule.

- Two additional .xlsx sheets document assimilatory processes, when noted. These are labeled **MAP** for the manner assimilation probe and **PAP** for the place assimilation probe. Data are documented longitudinally following the probe schedule. Characteristics of the MAP and PAP and methods of elicitation are described in the aforementioned working papers and in citations of the Publications collection.

- The .xlsx sheet labeled **GFTA** reports the sounds and words sampled on the *Goldman-Fristoe Test of Articulation*, along with the child's spontaneous outputs. Data are documented longitudinally following the probe schedule.

- Reliability of data entry was established for 100% of all longitudinal GFTA data, PKP pre, PKP post, and TP data in the Developmental Phonologies Archive. Transcriptions were checked for accuracy of data entry. An independent judge compared the original hard copy records against the electronic version. Any errors in data entry were corrected to the original transcription. Data entry is thus 100% accurate.

Thank you for your interest in the collections of the Gierut / Learnability Project. We look forward to new research strides to benefit children with phonological disorders and the efficacy of phonological treatment.

For more information, visit the Gierut / Learnability Project at IUScholarWorks.