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Language Sample Training Practices for Speech-Language Pathology Students

by

Annie Greenwood

A thesis

submitted in the partial fulfillment

of the requirements for the degree of

Master of Science in Speech Language Pathology

in the department of Communication Sciences and Disorders

Idaho State University

Spring 2018

To the Graduate Faculty:

       The members of the committee appointed to examine the thesis of ANNIE

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RE: regarding study number IRB-FY2018-163: Practices for Training Speech-Language
Pathology Students

Dear Ms. Greenwood:

I agree that this study qualifies as exempt from review under the following guideline: Category
2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement),
survey procedures, interview procedures or observation of public behavior, unless: (i)
information obtained is recorded in such a manner that human subjects can be identified, directly
or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects'
responses outside the research could reasonably place the subjects at risk of criminal or civil
liability or be damaging to the subjects' financial standing, employability, or reputation.
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Some changes may be approved by expedited review; others require full board review. Contact
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questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

ASHA   American Speech Language Hearing Association

CLD   Culturally and Linguistically Diverse

CSD   Communication Sciences and Disorders

DHH   Deaf or Hard of Hearing

MLU   Mean Length of Utterance

SALT   Systematic Analysis of Language Transcripts

SLI   Specific Language Impairment

SLP   Speech Language Pathologist

LANGUAGE SAMPLE TRAINING PRACTICES FOR SPEECH-LANGUAGE PATHOLOGY

STUDENTS

Thesis Abstract – Idaho State University (2018)

Despite the inherent value of language sampling, clinicians have decreased their use of them in the last twenty years (Pavelko, Owens, Ireland, & Hahs-Vaughn, 2016). Clinicians report time, lack of computer resources, lack of training and expertise, and financial constraints as barriers for collecting and analyzing language samples on a consistent basis (Kemp & Klee, 1997; Pavelko, Owens, Ireland, & Hahs-Vaughn, 2016). Up to now, very little research has been done examining the state of language sampling training practices at the university level.

The purpose of this study is to examine current training practices for language sample collection, transcription, and analysis in programs for speech-language pathology students from the perspective of both clinical and academic faculty. A better understanding of the type and amount of training that graduate students are provided with could be useful in creating better training in clinic and coursework that may carry over to professional practices.

Key Words: language sample, language sample training, language sample analysis

Background

Language sampling is widely accepted as a gold standard of clinical practice for speech language pathologists (SLPs; Heilmann, Nockerts, & Miller, 2010; Miller, Andriocchi, & Nockerts, 2016). The American Speech-Language-Hearing Association (ASHA) 2014 Standards and Implementation Procedures for the Certificate of Clinical Competence in Speech-Language Pathology states, under standard V-B, that an applicant must be able to interpret and analyze data from various assessments to make suitable recommendations for therapy. SLPs must also be able to administer standardized and non-standardized assessments (ASHA, 2016). Language sampling is an example of non-standardized assessment, and is therefore not only a necessary clinical skill for SLPs, but is also "an invaluable part of a thorough assessment" (Kroecker et al., 2010, p. 5).

Despite the fact that SLPs use standardized tests more frequently than language sampling to assess and diagnose language disorders in their practices (Costanza-Smith, 2010; Blaiser & Shannahan, in press) most clinicians agree that language sampling is an essential part of the non-standardized assessment process (Kemp & Klee, 1997). One reason language samples may not be used is a lack of training in obtaining and analyzing language samples (Kemp & Klee, 1997; Pavelko, Owens, Ireland, & Hahs-Vaughn, 2016).

One survey of 239 school-based SLPs (Hux, Morris-Friehe, & Sanger, 1993) found that two-thirds of respondents reported obtaining training for language sample analysis in college and 52% sought additional training beyond college. However, this study concluded that the training was not sufficient in part because "the effectiveness and comprehensiveness of this training remain[ed] unclear" (Hux, Morris-Friehe, & Sanger, 1993, p. 89). Likewise, Kemp and Klee (1997) surveyed 253 SLPs in preschool settings and found that many respondents reported a lack

of training, but no further questions were asked at the time to clarify the language sample

training respondents had or had not received.

Training on obtaining language samples has been shown to improve the quality of

children's samples. In 2010, Kroecker et al. examined the effects of training on children's

language samples. A training was provided for 21 SLP undergraduate students at one university

and the students were asked to collect samples pre- and post-training. The first language samples

were collected with minimal training, and the second samples were collected after a small

amount of training regarding techniques for collecting language samples and engaging in role-

playing with fellow students for about 10 minutes. The samples taken post-training showed that

students with the training saw a significant increase ($t_{(42)} = -3.05$, $p < 0.01$) in the child's mean

length of utterance (MLU), a significant decrease in child's one-word responses ($t_{(42)} = 3.46$, $p <$

0.001), and students asked significantly fewer yes/no questions during the language sample

elicitation ($t_{(42)} = 4.35$, $p < 0.001$). Based on the results, the authors of this study suggested that

even a small amount of training may be beneficial to students, clinicians, and clients.

Further research is needed to explore current training practices for students in

Communication Sciences and Disorders (CSD). A clearer uderstanding of current language

sample training practices could inform and improve undergraduate and graduate student-training

programs and may lead to increased use of language sampling as a professional practice.

Language Samples as Best Practice

Obtaining

While there is no definitive sample size required for language sample analysis, the

literature has suggested collecting 50-utterance language samples to reliably determine total

number of words or number of different words (Miller, 1981, as cited in Guo & Eisenberg,

2015). Several other studies have discussed the commonly recommended 50-utterance language

sample as well (Evans & Craig, 1992; Guo & Eisenberg, 2015; Heilmann, Nockerts, & Miller,

2010). Some of these same studies have had promising results with shorter samples (Heilmann,

DeBrock, & Riley-Tillman, 2013; Heilmann et al., 2010). The results of these studies will be

discussed in a later section.

Analysis

Language samples are also used to analyze many features of a client's language that

cannot necessarily be determined using a standardized test. Some of these features include: (a)

lexical diversity; (b) MLU; (c) mazes; (d) pauses. Number of different word roots (NDWR) is

an important measure that tells SLPs about lexical diversity, and can give more information

about change over time. MLU is typically used to measure early morphological development,

and can be useful in doing so, especially for younger children (Costanza-Smith, 2010). Mazes

and pauses can tell an SLP more about the way a child formulates utterances (Damico, 1985;

MacLachlan & Chapman, 1988; Silliman & Leslie, 1983 as cited in Costanza-Smith, 2010). For

older children, narrative story retells may be a more appropriate task because it is a higher-level

skill that can provide information about how a child organizes language. A child must be able to

organize a story with a beginning, middle, and end, and provide specific information about the

characters, problems, and resolution (Miller et al., 2016).

Analysis of language samples also provides more information to help SLPs determine

goals for their clients (Blau, Lahey, & Oleksiuk-Velez, 1984; Costanza-Smith, 2010; Price,

Hendricks, & Cook, 2010). This is partially because language samples offer a more naturalistic

context for a child's language that cannot necessarily be replicated in a standardized assessment

(Finestack, Payesteh, Rentmeester Disher, & Julien, 2014; Pavelko et al., 2016). Evans and

Craig (1992) thought similarly that, "the spontaneous language sample…provides a means of assessing syntactic, semantic, and discourse regulation skills of children, whereas a highly structured context…not only constrains the child's linguistic production, but precludes the evaluation of the child's conversational skills" (p. 343).

Use

Language samples are best practice for SLPs partially because they provide more sensitivity and ecological validity than norm-referenced assessments (Pavelko, Owens, Ireland, & Hahs-Vaughn, 2016). This means that the information gained from language samples can provide more functional information for therapy. In their survey of 1399 school-based SLPs, Pavelko et al. (2016) found that most respondents used language sampling for initial evaluation, reevaluating, measuring progress in therapy, and screening. Most often (87% of respondents) language samples are used for initial evaluation of a child suspected of having a language disability.

Language samples also provide more valid information for culturally and linguistically diverse (CLD) populations, which can be a limitation of norm-referenced tests (De Lamo White & Jin, 2011 as cited in Danahy-Ebert & Scott, 2014). Laing and Kamhi (2003) discussed in-depth some of the most common issues with norm-referenced tests for CLD populations. These included: (a) content bias; (b) linguistic bias; (c) disproportionate representation. Content bias is an issue that arises when assessments assume that all children have the same exposure to concepts, vocabulary, and/or life experiences as the children on which the test was normed. This is often not the case for CLD populations, as mentioned above; they are under-represented in norming samples. Linguistic bias refers to "a disparity between (1) the language or dialect used by the examiner, (2) the language or dialect used by the child, and (3) the language or dialect that

is expected in the child's responses" (p. 45). For these reasons, alternative assessment

procedures such as language samples are often used to supplement other assessment measures.

Moreover, language samples can be used to more accurately identify Specific Language

Impairment (SLI) and differential diagnosis than standardized assessments. A study by Dunn,

Flax, Sliwinski, and Aram (1996) regarding differential diagnosis of preschool children revealed

that "error analyses of a spontaneous language sample may be more sensitive than standardized

language tests to deficits that are common to a variety of types of language impairment" (p. 651).

Anderson and Blaiser (2014) examined the Clinical Evaluation of Language

Fundamentals- Preschool Second Edition (CELF-P-2; Wiig, Secord, & 2004) to determine if it

was sensitive enough to identify specific language deficits in children who are Deaf or Hard of

Hearing (DHH). Their findings noted that key language markers were missing that had not been

identified using a standardized assessment. Blaiser & Shannahan's (in press) study surveyed 168

professionals who specialize in working with children who are DHH who use listening and

spoken language. The study revealed that, for children who are DHH, respondents believed that

norm-referenced assessments were not as sensitive as language samples when describing a

child's language development. In general, researchers and clinicians have found that language

sampling is a useful tool for a variety of reasons, and often provides more complete information

about a client than a standardized assessment alone.

Limited Use of Language Samples

Despite the inherent value of language sampling, clinicians have actually decreased their

use of them in the last twenty years (Pavelko et al., 2016). In 1997, Kemp and Klee found that

approximately 15% of respondents (*n*=38) did not use language sampling in their practices.

Lack of time (86%), lack of computer resources (40%), lack of training (16%) and expertise

(16%), and financial constraints (15%) were the most reported reasons why an SLP chose not to use language sampling.

This survey was replicated by Pavelko, Owens, Ireland & Hahs-Vaughn (2016), in which the authors modified the survey and electronically distributed it to school-based SLPs. Of the 1399 respondents, 33% (n =435) of SLPs reported that they did not use language sampling during a one-year period. Like the first study, SLPs found that time (78%) and training/expertise (15-25%), regardless of years in the field, were the most cited barriers to obtaining and using language samples as part of their clinical practice.

Time

For both surveys the most reported reason clinicians do not use language sampling is that it can take too much time (Kemp & Klee, 1997; Pavelko et al., 2016). Pavelko et al. (2016) postulated that caseload size may affect SLPs' use of language samples, but found that the number of samples analyzed was similar for respondents regardless of caseload size. SLPs with caseloads ranging from fewer than 20 students to more than 100 cited a lack of time as the foremost reason for not completing language samples, with reports of a lack of time ranging from 67%-89%. Thus, we can deduce that time restrictions related to caseload size are not the exclusive reason but may be a perceived reason that SLPs are choosing not to use language sampling.

One time saving practice could be collecting shorter language samples. Fortunately, there has been an increasing number of studies that support the idea that language samples may be effective with a shorter sample. (Heilmann, DeBrock, & Riley-Tillman, 2013; Heilmann et al., 2010). Heilmann, DeBrock, and Riley-Tillman (2013) conducted a study in which two 10-minute interviews were given to 20 kindergarteners. They chose to measure these eight language

features: (a) number of total C-units (NTC-U); (b) number of total words (NTW); (c) words per

minute (WPM); (d) mean length of C-unit (MLC-M); (e) number of different words (NDW); (f)

mazes; (g) mean turn length (MTL); (h) pauses. Most of these measures were found to have

strong reliability coefficients between the two samples taken for each child. The general

conclusions were that shorter interviews could yield reliable results for a child, and that a

"blanket" recommendation of sample length is not necessarily appropriate to prescribe to SLPs.

Similar results were found from an earlier study by Heilmann, Nockerts, and Miller (2010).

The study required SLPs to collect both narrative and conversational language samples from 231

typically developing children between the ages of 2;8 and 13;3. The samples were recorded and

transcribed with Systematic Analysis of Language Transcripts (SALT; SALT Software, LLC,

2012). The authors used 11, 7, 3, and 1-minute portions of the samples to determine if language

measures were reliable from shorter samples. The findings showed that the measures of

language were fairly consistent across the varying lengths of the samples. They also provided an

outline for eliciting the shorter samples. Knowing that a significantly shorter sample could be a

reliable measure may make language sampling more accessible and feasible for SLPs who report

a lack of time (Heilmann, Nockerts, & Miller, 2010).

Additionally, a 2011 study by Casby further supports the idea of collecting shorter samples.

The study compared the MLU of 10 language samples from the Child Language Data Exchange

System (CHILDES, n.d.). All 10 children fit the appropriate criteria to be classified with a

developmental language disorder. The author examined the entire 100 to 150 utterance samples,

the first 10 and 20 utterances, the middle 10 and 20 utterances, and the last 10 and 20 utterances.

The results revealed that, across all the sample lengths and sections, the MLU remained

relatively consistent. In fact, "the mean MLUs calculated on the smaller language sample sizes

were within .47 morphemes or less of the MLU calculated for the larger sample condition"
(Casby, 2011). These results suggest that an accurate MLU can be determined from considerably
shorter samples than previously believed. Regrettably, there is no research or evidence to
suggest that SLPs are trained in how to take and analyze these shorter samples. However, an
outline for eliciting shorter samples may provide an important basis on which to train SLPs.

     Another way SLPs can save time with language sample analysis is by using computer
programs such as SALT. SALT was designed specifically for SLPs and automatizes some of the
more common measures that SLPs typically had to do by hand. The program offers databases so
that SLPs can compare a child to age- or grade-matched peers. These databases include
monolingual English, Spanish, and bilingual speakers as well. It can also be used to compare a
later sample with an earlier sample to measure a child's change over time (Price, Hendricks, &
Cook, 2010).

     SALT has been shown to decrease the time required for collecting and analyzing language
samples (Miller et al., 2016). For example, Price, Hendricks, & Cook (2010) conducted a case
study of obtaining, analyzing, and utilizing language sample data for therapy using SALT. They
found that SALT made language samples more feasible for SLPs partially because they no
longer had to take time to tally language features, but could instead analyze them for therapeutic
use. Furthermore, computer programs used for comparing language samples have been found to
analyze samples faster and without compromising accuracy (Long, 2000). One study compared
samples done by hand and those done using computer software. The findings revealed that the
samples analyzed using computer software were completed faster and with equal or higher
precision for many phonological and grammatical features including: vowel inventory,
percentage consonants correct (PCC), number of syntactic types (NST), and MLU.

To save additional time, there are also some transcription services available for SALT that either use speech language pathology assistants (SLPAs) or other transcription staff. According to SALT transcription lab reports, when SALT transcription services are utilized clinicians collected substantially more language samples and "a dedicated transcriber can reduce costs and free up the clinicians' time for analysis, interpretation, and therapy" (Miller et al., 2016 p. 100). One study examined the effectiveness of SLPAs in language sample transcription (Overton & Wren, 2014). In the study, one SLPA was trained and given the job of transcribing two samples, one at the beginning of intervention and one at the end. SLPs also provided transcripts to determine inter-rater agreement on several features of the language samples including: utterance segmentation, words and morphemes within and outside of mazes, and placement of mazes. While there was some disagreement between the SLPA and the SLPs' samples (5-11%), the overall suggestion of the study was that SLPAs could be trained to take on the job of transcribing language samples, thus saving SLPs valuable time. For these reasons, SALT offers an effective solution to the issue of time reported by many SLPs across different settings.

Technology

The second most reported reason for not using language sampling was a lack of access to technology or computer resources. For example, Kemp and Klee (1997) found 40% of the SLPs surveyed did not having access to technology. However, current research has shown that technology is more widely available to SLPs, and lack of access is likely not as much of a concern as it was almost 20 years ago. Reportedly, 97% of teachers had access to computers in their classrooms in 2009 (Gray, Thomas, & Lewis, 2010 as cited in Pavelko et al., 2016). This suggests that a lack of technology no longer contibutes as greatly to SLPs' inconsistent use of language sampling in their practices.

Current Practices for Language Samples

It is typical for clinicians to collect language samples that are 50-100 utterances (Guo &

Eisenberg, 2015; Heilmann, Nockerts, & Miller, 2010). Longer samples are suggested by some

studies, but these are not as clinically feasible (Cole et al., 1989; Gavin & Giles, 1996 as cited in

Heilmann, Nockerts, & Miller, 2010). Current practices have been surveyed in detail by Pavelko

et al. (2016), who found that many SLPs did not necessarily use evidence-based practices for

completing the samples that were collected. The same study found that many SLPs were using

samples that were over 100 utterances, which is not supported as best practice by the current

research. For example, Heilmann et al., (2010) reported relatively consistent measures of lexical

diversity and MLU with samples that were only 3 minutes and 7 minutes in length. Pavelko et

al. (2016) also found that, in practice, clinicians tend to use conversation as the elicitation

protocol despite the age of the child, and most do so in real time. The article references Nippold

et al. (2008, 2014, 2015) and states, "in light of robust research supporting the use of narrative

and expository discourse with older children…it is concerning that the percentage of SLPs using

both of these tasks does not change markedly with the increased maturity of students" (p. 254).

Additionally, transcribing what a child says in real time may not be best practice (Evans &

Miller, 1999; Heilmann, 2010 as cited in Pavelko et al., 2016).

These same concerns about best practice are voiced in other studies that state that

"thorough and empirically tested methods of collecting language samples are not consistently

used by many practicing SLPs" (Kemp & Klee, 1997 as cited in Heilmann, Nockerts, & Miller,

2010, p. 398). This could be because there is not truly an agreed upon, standardized method for

collecting, transcribing, and analyzing language samples. Furthermore, there is not a

standardized training protocol for SLPs to use best practices when they collect and analyze language samples.

Finestack, Payesteh, Rentmeester Disher, and Julien (2014) realized this deficit and set out to propose a more standardized method of reporting language sample procedures in research. Their thorough literature review revealed that 25% of all child-focused studies used language samples as some form of measurement. However, there were many discrepancies between the reporting of different language sample procedures. The study proposed a standard checklist in order to achieve a more consistent reporting procedure for future studies. The checklist included standardizing reporting for sample length and context, transcription procedures and reliability, and coding procedures and reliability (Finestack, Payesteh, Rentmeester Disher, & Julien, 2014).

Studies such as this one are important because they offer concrete steps toward increasing the validity of studies that use language sampling as a measure. Greater validity is essential for our practice and its commitment to using evidence-based practices like language sampling. More consistent reporting may lead to better understanding and better training for eliciting, transcribing, and analyzing language samples.

Current Training for Language Samples

The literature for current training practices for students for language sampling is minimal, with only two studies examining the effects of training or past training that SLPs report receiving. Kroecker et al. (2010) looked at the effects of training on client outcomes and the results suggested that even a small amount of training is beneficial to the outcome of certain language sample elements (as discussed earlier in this paper). Hux, Morris-Friehe, and Sanger (1993) asked respondents to report whether they had received training in the past. However,

neither of these looked at the current training being provided by clinical and academic staff for CSD students.

Available previous research has concluded that the training in schools and through continuing education is not enough to fill the needs of school based SLPs (Hux, Morris-Friehe, & Sanger, 1993). While they are not necessarily being provided, these services are wanted. When asked, "If training or support were to be provided with regard to the theories and principles of language sample analysis, would you be willing to participate?" 71% of respondents said *yes* (Pavelko et al., 2016, p. 253). Clinicians understand the importance of language sampling and are responding positively to the idea of training. Based on these findings, there is still a need for more training or more practical application for SLPs. Clearly, there is a void in the research regarding language sampling that needs to be addressed.

A study by Blaiser et al. (2016) regarding student clinician confidence with language samples revealed that, on average, student clinician confidence increased over time as they collected more samples. However, confidence fluctuated for each student, which suggested that language sampling should be an ongoing, dynamic process with between students and their supervisors. Feedback and discussion are important for students to gain confidence with this important skill, and may be integral to the utilization of language samples as an assessment and progress monitoring tool professionally.

More research is needed to examine the current training of students in SLP programs in relation to language sampling practices (Kemp & Klee, 1997). Knowledge of training practices, and an understanding of the barriers that clinical and academic faculty face when implementing language sample training for CSD students is generally unknown. For these reasons, more research is needed to assess the current training practices.

Purpose of Current Study

The purpose of this study is to examine current training practices for language sample collection, transcription, and analysis in CSD programs for SLP students. A more complete understanding of the type and amount of training that graduate students are provided with could be useful in creating better training in clinic and coursework that may carry over to professional practices. This study seeks to identify current training practices for SLP students from the perspective of both clinical and academic faculty. To do this, CSD faculty was surveyed regarding the training practices they provide for language sampling. Specifically, to what extent language samples are required in class and/or clinic and what factors affect the extent to which they are required. In addition, the questionnaire attempted to determine the degree to which these factors affect decisions related to students using language samples. The type of training was also addressed, including the specific aspects of training that are included for students. These aspects were further broken down to analyze each in more detail. Finally, the questionnaire contained rating scale questions related to respondents' agreement or disagreement with various statements related to language samples. These statements related to the efficacy of samples, sufficiency of training, and personal attitudes toward the value of language samples. The proposed questionnaire was distributed electronically through email and consisted of write-in, multiple choice, select all that apply, and rating-scale questions.

It is assumed that CSD faculty already provide some training for language sampling. However, the basis and extent of that training is unknown. The specific research questions we wanted to address in this study are as follows:

- What are the language sampling training practices in academic and clinical settings in SLP programs (e.g., frequency, length, type, transcription methods and tools, and training protocols)?

- What is the relationship between class (or supervisee) size and language sample analysis methods for graduate and undergraduate students?

- What factors contribute to academic and/or clinical supervisors' decisions related to students using language samples?

- Do academic and/or clinical supervisors think that the training they provide regarding language sampling is sufficient for students as they go into the professional field?

Method

Questionnaire

An electronic questionnaire was created that comprised of a maximum of 49 questions regarding demographics for both clinical and academic faculty, barriers to language sample training, current training practices, and rating-scale questions. Using skip and display logic, only the questions relevant to the respondent were displayed. No personally identifiable information was collected in the questionnaire and, prior to dissemination, the questionnaire and study received approval from the Idaho State University Institutional Review Board.

The questionnaire was developed by a graduate student and faculty member using Qualtrics Survey Software following guidelines for web questionnaires and implementation procedures provided by Dillman, Smyth, & Christian (2009). A pilot questionnaire was sent to graduate students in the CSD Department at Idaho State University prior to the official questionnaire to identify any potential issues with survey flow. Minor edits to questions, grammar, and display logic were made after receiving feedback from these students. The official questionnaire was

sent via email to clinical directors, department chairs, and/or administrative assistants within the

schools' Master's programs. They were asked to disseminate the email to all clinical and

academic faculty.

Participant recruitment

Electronic questionnaires were distributed to 266 universities in the United States with

Master's level programs in speech-language pathology. The appropriate programs were

determined using ASHA's EdFind search with the necessary criteria (Degree Type: Master's,

Area of Study: SLP). One university could not be contacted to complete the questionnaire

because necessary contact information was not included on their website. The initial email was

distributed in January 2018. Two weeks later, following Dillman, Smyth, & Christian (2009)

procedure for web survey implementation, a follow-up email was sent to respondents as a thank

you to those who had taken the questionnaire and a reminder for others to complete it.

Respondents had access to the survey from January 22 through March 1.

Data analysis

Responses were analyzed to determine clinical and academic training practices related to

language samples with students. A biostatistician participated in data analysis to ensure

accuracy. Rating scale questions were used to determine the agreement or disagreement

regarding language sample efficacy. Descriptive statistics were used to summarize data

regarding specific training practices, barriers to collecting and analyzing language samples, and

whether the training was believed to be sufficient for students as they go into the profession

field. A chi square analysis was used to determine if there was a significant association between

the class or supervisee size and the analysis methods taught to students. Also, to determine which

factors contributed to decisions related to students using language samples

Results

In total, 169 respondents started the survey and 138 of those were completed. For this study, incomplete surveys were included in analysis. Responses from 30 states were collected after 265 universities were contacted via email and asked to distribute the survey to their faculty. Estimating that there are approximately ten faculty members per program, a total of 2650 responses were possible. This is a response rate of about 6.38%, a relatively low response rate if all the emails were distributed as requested. However, given the number of respondents in previous literature regarding language sample practices, this does seem to be an adequate sample for analysis (Hux et al., 1993; Kemp & Klee, 1997). Also, this represents a conservative estimate of the response rate because it is difficult to estimate how many administrators sent the emails out to their colleagues as requested. Of the respondents, 22.75% (n=38) were solely members of academic faculty, 30.54% (n=51) were solely members of clinical faculty, 41.32% (n=69) were both, and 5.39% (n=9) were neither. Respondents that chose neither were automatically directed to the end of the questionnaire since the focus of this study was to determine current training practices for clinical and academic faculty only. The majority, about 94.62% (n=123) of respondents, had worked outside of academia in the past. The years of certification were varied, 8.46% (n=11) had been certified for 0-5 years, 13.08% (n=17) had been certified for 5-10 years, 75.38% (n=98) had been certified for more than 10 years, and 3.08% (n=4) were not certified SLPs. Those that worked outside of academia were then asked to select which population(s) they served. The majority worked with the elementary age population (83.61%, n=102) or preschool (81.97%, n=100), 52.02% (n=72) worked with adults, and 9.84% (n=12) selected "other."

Course requirements

As seen in Figures 1 and 2, approximately 60.64% (n=57) of academic faculty required

some combination of collection and/or analysis of language samples in graduate courses and

59.25% (n=48) of academic faculty required some combination in undergraduate courses. Figure

3 illustrates that most respondents who had clinic assignments (86.36%, n=95), required either

collection or collection and analysis for students. Of that percentage, most clinical faculty

74.28% (n=78) required each student to collect 1-2 language samples per client. For all faculty

in this sample, clinical and academic, that required some form of language sample collection

and/or analysis, most (undergraduate: 79.17%, n=38; graduate: 83.33%, n=45; clinic: 74.28%,

n=78) required only 1-2 samples per client or student (see Table 1). Academic faculty were

asked to write in the specific courses for which they required language sampling. See Tables 2

and 3 for a complete list of graduate and undergraduate courses, respectively.

Using these lists, graduate and undergraduate courses were grouped according to topics.

Approximately 40.00% (n=26) of graduate courses that required language samples were for

courses focused on pediatrics, 16.92% (n=11) were for both general language and clinically

focused courses, and 6.15% (n=4) were for evaluation focused courses. For undergraduate

courses, the majority that required language samples were also for pediatric courses (60.34%,

n=35). See Figures 4 and 5 for an itemization of the courses with required language samples in

graduate and undergraduate courses, respectively.

Sample length. The largest percentage of respondents (46.59%, n=41) chose fifty

utterances when asked how many utterances they suggest students to collect for a language

sample. If a certain number of utterances was selected, respondents were then asked to select

which factors impacted their rationale. Current research was chosen as the number one reason

that strongly impacted their rationale (48.89%, n=44). See Figure 6 for a description of the

rationale for suggested utterance length for language samples. Faculty members were asked a

similar question regarding the time in minutes they suggest students to spend collecting a

language sample. For this, that majority, 58.62% (n=51), selected that they did not require a

certain amount of time. If they did select a certain number of minutes, they were then asked to

select which factors impacted their rationale. Current research and personal experience were

both selected by 38.30% (n=18) of respondents as the factor that most strongly impacted their

rationale. See Figure 7 for a description of the rationale for suggested amount of time to collect

language samples.

Feedback

Most faculty members did provide some form of feedback for students (89.63%, n=121).

This was given mostly in the form of individual, written feedback for each student (84.03%,

n=100). Second most was informally reviewing the sample and/or discussion with the student

(38.66%, n=46), then individual, spoken feedback (35.29%, n=42), a key for students to check

their own sample (16.81%, n=20), peer review (10.92%, n=13), "other" (10.92%, n=13), and a

grade with no additional feedback (0.84%, n=1). "Other" consisted of a combination of rubrics,

completing projects in groups, feedback during class time or clinic, and revising and

resubmitting for additional feedback. This question was also examined in the context of whether

respondents selected that they were clinical faculty, academic faculty, or both. Individual,

written feedback was still the most common form of feedback for respondents who were only

part of the academic faculty (52.08%, n=25), only part of the clinical faculty (37.93%, n=33), or

part of both (42.00%, n=42). Additionally, 74.46% (n=102) of respondents did grade language

samples that they assigned. See Table 4 for a complete breakdown of the types of feedback given

to students on language sample assignments from clinical and academic faculty.

Training

The majority of faculty members did provide training for students (74.07%, n=100). The types of training provided are listed in order of most to least: lecture (84.85%, n=84), handouts (81.82%, n=81), video examples (45.45%, n=45), observation of clinician (21.21%, n=21), role-play with other students (18.18%, n=18), and observation of other students and "other" (each 13.13%, n=13). "Other" included variations of readings, SALT tutorials, discussion, modeling, and practice examples/case studies. The aspects that were included in training included the method of transcribing (85.86%, n=85), length of samples (88.89%, n=88), method of collecting a language sample (89.90%, n=89), elicitation techniques (87.88%, n=87), elicitation contexts (85.86% n=85), specific aspects to include in the analysis of a language sample (90.91%, n=90), and "other" (7.07%, n=7). "Other" included a write in option, but none were provided.

Transcription methods and tools. Faculty members were asked to select all the methods of transcribing they required for students. Most faculty members required that students transcribed language samples by hand (60.00%, n=51). Other options were using a Word document (57.65%, n=49), SALT (41.18%, n=35), and "other" (17.65%, n=15). "Other" included the Sampling Utterances and Grammatical Analysis Revised protocol (SUGAR; Pavelko & Owens, 2017), Child Language Analysis program (CLAN; MacWhinney, 2000), Language Sampling, Analysis and Training (LSAT; Tyack & Gottsleben, 1974), Developmental Sentence Scoring (DSS; Lee, Miskiel, Carney, Johnson, & Carney, 1994), Black English Sentence Scoring (BESS; Nelson, 1983), Excel, or students were free to choose a method. Faculty members were also asked which method they suggested students use when collecting a language sample. Video recorders were recommended the most with 42.53% (n=37) of respondents selecting that choice. Then voice recorder (33.33%, n=29), "other" (13.79%, n=12),

and live (10.34%, n=9). "Other" consisted of several variations of using video recording with a

voice recording with a back-up voice recording. Respondents also said that their suggestion

depended on the assignment, they sometimes suggested all the options, and one respondent used

the Clinical Observation Recording System (CORS; CVi, 2017).

      Analysis. The aspects of analysis that were included in training are presented in order

from most to least. Respondents were asked to select all that applied. Approximately 95.45%

(n=84) of respondents reported that they included MLU in analysis, 86.36% (n=76) included

morphology, 77.27% (n=68) included syntactic complexity, 75.00% (n=66) included pragmatic

intentions, 72.73% (n=64) included both NDW and NTW, 64.77% (n=57) included

intelligibility, 63.64% (n=56) included number of utterances or T-units, 59.09% (n=52) included

type-token ratio, 47.73% (n=42) included mazes and pauses, 21.59% (n=19) included words per

minute, and 11.36% (n=10) selected "other." "Other" included discourse analysis, looking at the

conversational partners' utterances for models and prompting, semantic analysis, narrative macro

and micro structures, words per T-unit, and words per sentence.

      Elicitation techniques and contexts. Respondents were asked to select all elicitation

contexts that they included in training. The results are as follows: conversation 96.39% (n=80),

free play 91.57% (n=76), narrative retell (78.31%, n=65), expository (57.83%, n=48), interview

(48.19%, n=40), and other (4.82%, n=4). "Other" included wordless picture books and

persuasive techniques. The elicitation techniques that were included in training were open-ended

questions (94.12%, n=80), expectant waiting (80.00%, n=68), extension (49.41%, n=42), recast

(51.76%, n=44), follow the child's lead (92.94%, n=79), sabotage (57.65%, n=49), information

talk (32.94%, n=28), acoustic highlighting (15.29%, n=13), other (8.24%, n=7). "Other"

included pausing, modeling, and turnabouts and process questions.

Class and supervisee size

The questionnaire attempted to determine if there was a relationship between number of students per class and whether training was provided regarding language samples. However, in general, respondents chose the option "more than 20" students (undergraduate: 87.65%, n=71; graduate: 73.40%, n=69), so this study was not able to capture that relationship. Overall, there was no statistically significant relationship between undergraduate or graduate class size or clinical supervisee size and whether training was provided (undergraduate: χ^2 (4) =7.67, p=0.10; graduate: χ^2 (4) =2.01, p=0.73), if students were required to collect language samples (undergraduate: χ^2 (12) =7.20, p=0.84; graduate: χ^2 (12) =12.76, p=0.39) or if feedback was provided to students (undergraduate: χ^2 (4) =4.79, p=0.31; graduate: χ^2 (4) =1.87, p=0.76).

Perceptions of language samples

Approximately 59.54% (n=78) of respondents either agreed or strongly agreed with the statement, "In general, I believe students have adequate training to collect and analyze language samples." Most respondents responded affirmatively (65.89%, n=85) that they were provided language sample training in undergraduate courses. The remaining percentage of respondents choose the options either "no" or "don't recall" when asked if they were provided with training regarding language samples in undergraduate courses. When asked about training provided in graduate school, approximately 78.25% 9 (n=101) responded affirmatively. The remaining percentage of respondents choose the options either "no" or "don't recall."

Influencing factors. In all cases, except "other," more respondents chose "does not contribute at all" for all factors given as choices. Depending on the factor, this percentage ranged from 29.41% (n=10) to 67.38% (n=95). See Table 5 for a list of the factors that influence language samples as assignments. Time, technology, finding participants, cost of language

sample analysis software, and "other" were the influencing factors selected for this study and are reported in order from most to least influential.

Results revealed that approximately 35.46% (n=50) responded that limited time in courses moderately or strongly contributed to their decision to use language samples in class and/or clinic. Of the respondents, 98.28% (n=115) agreed or strongly agreed that language samples are worth the time they take to grade. Of the 98 respondents who graded language samples, it took most faculty (28.47%, n=39) 20 to 40 minutes to grade one student's language sample. Approximately 5.84% (n=8) took less than 10 minutes to grade samples, 21.17% (n=29) took 10-20 minutes, 13.14% (n=18) took 40-60 minutes, 5.84% 9 (n=8) took more than 60 minutes, and 25.55% (n=35) selected that they did not grade language samples. There was no statistically significant relationship between the reported time it took to grade one language sample and how much that time influenced faculty members' decisions to use them in class or clinic (χ^2 (15) =12.79, p=0.62). Refer to Figure 8 to see the time it takes to grade a language sample as a contributing factor of their use in class or clinic.

About 22.99% (n=31) responded that access to technology moderately or strongly contributed to their decision to use language samples in class and/or clinic. Approximately 21.28% (n=30) responded that finding participants moderately or strongly contributed to their decision to use language samples in class and/or clinic. Approximately 15.60% (n=22) of respondents chose "other" as a factor that moderately or strongly contributed to their decision to use language samples in class and/or clinic. A write-in space was available for the "other" option, but there were no written responses. For this reason, the "other" reasons are unknown. About 14.89% (n=21) responded that cost of analysis software moderately or strongly contributed to their decision to use language samples in class and/or clinic.

STUDENT TRAINING PRACTICES **Value of language sampling.** Faculty members largely responded that they either agreed or strongly agreed that language samples are a valuable tool for assessment (99.24%, n=130), that students get a lot out of language sampling (96.95%, n=127), and that student's confidence with language sampling increases with experience (100%, n=131). The majority (90.84%, n=119) either agreed or strongly agreed with the statement, "I wish students did more language samples." Results were more mixed when asked if they would have students collect more language samples if they were shorter. Approximately 15.69% (n=16) strongly agreed that they would, 37.25% (n=38) agreed that they would, 41.18% (n=42) disagreed with the statement, and 5.8% (n=6) strongly disagreed. There was no statistically significant relationship between the answers for this statement and the amount of time it took to grade language samples (χ^2 (15) =21.12, p=0.13), the number of utterances required (χ^2 (15) =15.72, p=0.40), or the minutes required for language samples by faculty members (χ^2 (18) =12.94, p=0.79).

Discussion

The aim of this study was to examine training practices by clinical and academic faculty for language sample collection, transcription, and analysis in programs for SLP students as a way to better understand the limited use of language samples clinically (Kemp & Klee, 1997; Pavelko et al., 2016).

Over half of faculty members who taught both undergraduate and graduate courses reported that students were required to collect and/or analyze language samples. The majority of the courses are focused on pediatric language or language in general, with no specified age range. While academic courses are offering this at a rate of approximately 60%, the clinical rate is notable higher at around 90%. This may be due to the more hands-on experiences of assessment and/or progress monitoring in clinic settings. It's possible that academic courses do

not require language samples as consistently because they believe students will get that

experience in clinic with clients. The percentage of faculty that provided feedback to students

was promising. Nearly 90% of reported providing feedback to students. Most of this was

individual, written feedback with the second most being informally reviewing the sample. More

information regarding the nature of the informal review could be beneficial in fully

understanding the training practices for CSD students. The forms of feedback were examined

between respondents who were only part of their clinical faculty, only part of their academic

faculty, and those who were part of both. Individual, written feedback was the most common for

all faculty in this sample regardless of if they were part of their academic faculty (52.08%,

n=25), clinical faculty (37.93%, n=33) or both (42.00%, n=42). Unsurprisingly, individual,

spoken feedback was the second most frequent form of feedback for clinical faculty (33.33%,

n=29). However, this form of feedback was much less common for academic courses (4.17%,

n=2). It appears that the forms of feedback vary between settings, which may indicate that

training between academic and clinical faculty cannot be a one-size-fits-all approach.

As discussed in the review of the literature, a time-saving practice could be collecting

shorter language samples. Current research was listed as the number one reason faculty required

a certain number of utterances, with most requiring fifty. However, research has supported the

idea that shorter samples may be just as effective (Heilmann et al., 2013, 2010). Casby's (2011)

study proposed that an accurate MLU could be determined from sizably shorter samples than

previously believed. Knowing this, an outline for eliciting shorter samples may be beneficial for

faculty to be able require more, and more frequent language sample assignments from students

as a part of training.

The transcription methods ranged from completing samples by hand to using language sample analysis software. While doing samples by hand was the most frequently used, there were a variety of methods that students are being taught in CSD courses. Fortunately, for whichever method of transcribing, most faculty recommended using a video recordings to collect the samples rather than collecting them in real time, which research has shown that real time transcription may not be best practice (Evans & Miller, 1999; Heilmann, 2010 as cited in Pavelko et al., 2016). Very few respondents to this questionnaire suggested collecting in real-time or live, which contrasts with what Pavelko et al. (2016) found in their study of school-based SLPs.

In terms of analysis, most faculty reported training students to include MLU, which can be used measure early morphological development in younger children (Costanza-Smith, 2010). They also focused heavily on morphology, syntactic complexity, pragmatic intentions, number of total words (NTW), and number of different words (NDW). NDW is typically used as a measure of lexical diversity, while NTW is typically used as a measure of lexical productivity. It was interesting that very few (less than 25%) included words per minute, which is also used as a measure of productivity. It may be possible that faculty members do not see the need to include two measures that reflect productivity. Overall, when language sample analysis is required, academic and clinical faculty are necessitating a wide range of measurements for students that cover different aspects of language productivity, diversity, and complexity for language samples.

Overwhelmingly, when asked about elicitation, faculty members chose conversation and free play as the two contexts they included in their training. Pavelko et al. (2016) found that clinicians tended to use conversation as the elicitation context as well, regardless the age of the child they were working with. This questionnaire did not attempt to determine which elicitation

techniques were used for different age groups so we do not have the data to determine if the

elicitation contexts being taught are suitable for the age ranges being addressed in the language

sample. While there was some information about which clinical populations the respondent

served outside of academia, in future studies it would be interesting to see how population or age

influences type of language sample training students receive (elicitation context, elicitation

techniques, sample size).

Unfortunately, this study was not able to describe the relationship between the number of

students per class and whether language sample training was provided due to the itemization of

the multiple-choice responses to the questions regarding undergraduate and graduate class size.

As a whole, respondents chose the option "more than 20" students so this study was not able to

determine differences between classes that may have had more than 20 students in smaller, more

precise increments.

In general, when answering questions regarding factors that influenced decisions related

to students using language samples, most factors were rated as not contributing at all. It is

important to note; however, that the question was worded in a way that it could have been

interpreted to show if there was a positive or negative impact. Unsurprisingly, less than 25% of

faculty members responded that access to technology moderately or strongly contributed to their

decision to use language samples in class and/or clinic. This is consistent with the findings

discussed in the literature review, and may support the idea that a lack of access to technology

does not appear to be a major contributing factor for using language samples in class or clinic.

Conversely, a lack of time was rated as the most significant influence on faculty member's

decisions to use language samples in class and/or clinic. This is similar to what is reported in

clinical populations. Lack of time is consistently the number one reported reason language

samples are not used regularly in practice (Kemp & Klee, 1997; Pavelko et al. 2016) or in courses, as revealed in this study. However, the other contributing factors are not well fleshed out.

Most academic and clinical faculty wished that students did more language samples, and agreed that that students get a lot out of language sampling. Furthermore, all of the academic and clinical faculty for this sample believed that student's confidence with language sampling increases with experience. This is consistent with findings from Blaiser et al.'s (2016) study discussed in the literature review. The authors found that confidence increases over time as students collected more language samples. However, a dynamic process of feedback and discussion was an important aspect of language sampling as well (Blaiser et al., 2016). This all may indicate that faculty realizes the importance of language sampling as a clinical tool students need as they enter the professional field. However, there is a discrepancy between the perceived importance of language samples and what is being taught. Programs that just require one sample, or only require samples sparsely, may be why we aren't seeing them used more in practice.

Fortunately, the majority of faculty members are providing training for students that consist of a variety of techniques, feedback, and contexts. Specifically, the data revealed that 65.89% of respondents provided training for undergraduate students, and 78.25% of respondents did so in graduate school. The latter is a slight increase from the two-thirds of respondents that reported receiving training for language sample analysis in Hux, Morris-Friehe, and Sanger's (1993) study surveying school-based SLPs. This may suggest that training for language sampling has increased slightly in the last 25 years. However, it is worth noting that Hux, Morris-Friehe, and Sanger's (1993) study surveyed practicing clinicians' memory of their college training, while this study surveyed academic and clinical populations' requirements for

training. Additionally, approximately 25% of faculty members did not provide training for language sampling. Moreover, nearly 40% of graduate and undergraduate faculty did not require students to collect or analyze a language sample as part of one of their courses.

Given that language samples are best practice, this warrants more discussion at the training level as well as the professional level. This is particularly important because language samples are useful tools to use with clients who are culturally and linguistically diverse, specifically for differential diagnosis of language disorders, such as SLI and for clients who are DHH (Anderson & Blaiser, 2014; De Lamo White & Jin, 2011 as cited in Danahy-Ebert & Scott, 2014; Dunn, Flax, Sliwinski, & Aram, 1996; & Blaiser & Shannahan, in press).

A limitation of this study is the small sample size due to low response rate. A more direct way to contact professors may have provided a better response rate. Another limitation is the self-selection nature of the study, that is, that individuals who responded to the survey were more likely to have interest in language sampling practices. This may mean that the responses are inflated, or best case scenario, in terms of language sample practices and training.

Future research should delve deeper into the factors that influence faculty member's decisions to use language samples in class and/or clinic, and attempt to determine why language sample training is not a more consistent practice for all CSD programs. Also, asking about coordination between academic and clinical faculty in language sample training may be beneficial in understanding the full spectrum of language sample training practices. Additionally, a more detailed itemization of class size options would be beneficial to try to capture the relationship between class size and whether language sample training was provided. While this study did not endeavor to determine which elicitation techniques were used for specific ages of clients, future research should focus on describing this specific relationship to better understand

the appropriateness of the language sample training that CSD students are getting across age spans.

Conclusion

In summary, the data from this study suggests that there may be an inconsistency between the amount and type of language sample training that is being provided, and what faculty believe is adequate for students as they move to the professional field. In general, faculty members believed that language samples were valuable tools for assessment and that students gain confidence using language samples with experience.

Based on the responses from this study, training is being addressed to some extent in clinic and academic courses. However, faculty members should aim to include more language sample collection and analysis, particularly in academic courses where requirements are lacking. Knowing that language samples are best practice, it is important for students to be trained in how to use them efficiently and effectively as they enter the professional field.

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APPENDIX A: Training Practices for Speech-Language Pathology Students Questionnaire

Are you part of your program's academic or clinical faculty?

○ Academic

○ Clinical

○ Both

○ Neither

Do you teach graduate level classes?

○ Yes

○ No

Do you teach undergraduate level classes?

○ Yes

○ No

On average, how many students are in a graduate class? Please include all sections of the course you teach.

○ 1-5

○ 6-10

○ 11-15

○ 16-20

○ More than 20

Do you require students to collect and analyze language samples as a part of one of your graduate classes?

○ Collect only

○ Analyze only

○ Both collect and analyze

○ Neither

For which graduate class(es) do you require language sampling? Please list all.

_____

How many language samples do you require each student to analyze in one graduate class?

○ 1

○ 2

○ 3

○ 4

○ 5

○ More than 5

○ 0

On average, how many students are in an undergraduate class? Please include all sections of the course you teach.

○ 1-5

○ 6-10

○ 11-15

○ 16-20

○ More than 20

Do you require students to collect and analyze language samples as part of one of your undergraduate classes?

○ Collect only

○ Analyze only

○ Both collect and analyze

○ Neither

For which undergraduate class(es) do you require language sampling? Please list all.

_____

How many language samples do you require each student to collect and analyze in one undergraduate class?

○ 1

○ 2

○ 3

○ 4

○ 5

○ More than 5

○ 0

- -

On average, how many students do you supervise in clinic during a semester?

○ 1-3

○ 4-6

○ 7-9

○ 10 or more

- -

Do you require students to collect and analyze language samples in clinic?

○ Collect only

○ Analyze only

○ Both collect and analyze

○ Neither

In clinic, how many language samples do you require each student to collect and analyze per client per semester?

○ 1

○ 2

○ 3

○ 4

○ 5

○ More than 5

○ 0

What factors influence your decisions related to students using language samples?

	Does not contribute at all	Slightly contributes	Moderately contributes	Strongly contributes
Limited time in courses	○	○	○	○
Access to technology (ex: SALT for students)	○	○	○	○
Cost of SALT or other analysis software	○	○	○	○
Finding participants for language samples	○	○	○	○
Other	○	○	○	○

How long does it typically take to grade one student's language sample?

○ Less than 10 minutes

○ 10-20 minutes

○ 20-40 minutes

○ 40-60 minutes

○ More than 60 minutes

○ I do not grade language samples

How much does the time it takes to grade language samples contribute to your decision to use them in class and/or clinic?

	Does not contribute at all	Slightly contributes	Moderately contributes	Strongly contributes
Time to grade	○	○	○	○

Do you provide feedback to students regarding their language sample assignments?

○ Yes

○ No

What type of feedback do you provide for students regarding their language sample assignments? Please check all that apply.

☐ Individual, written feedback

☐ Individual, spoken feedback

☐ Peer review

☐ Key with which students can check their own sample

☐ Informally review and/or discuss with student

☐ Grade, with no additional feedback

☐ Other _____

Do you provide any training for students in regard to language sampling?

○ Yes

○ No

What type of training do you provide for students to prepare them for language sampling? Please check all that apply.

☐ Lecture

☐ Handouts

☐ Role-play with other students

☐ Video examples

☐ Observation of other students

☐ Observation of clinician

☐ Other _____

Which aspects do you include in the training? Please check all that apply.

☐ Method of transcribing (ex: SALT, by hand)

☐ Length of samples

☐ Method of collecting a language sample (ex: video, voice recorder)

☐ Elicitation techniques

☐ Elicitation contexts (ex: free play, conversation, narrative)

☐ Aspects to include in analysis (ex: NDW, MLU, intelligibility, etc.)

☐ Other _____

Which method(s) of transcribing do you require for students? Please check all that apply.

☐ SALT

☐ Word document

☐ By hand

☐ Other _____

How many utterances do you suggest students to collect for a language sample?

○ I do not require a certain number of utterances

○ Less than 50

○ 50

○ 75

○ 100

○ More than 100

If you require a certain number of utterances, what impacts your rationale for this number?

	Does not impact at all	Slightly impacts	Moderately impacts	Strongly impacts
Current research	○	○	○	○
Personal experience	○	○	○	○
Workplace standards	○	○	○	○
Age of client	○	○	○	○
Other	○	○	○	○

How many minutes do you suggest to students to collect a language sample?

○ I do not require a certain amount of time for a language sample

○ Less than 5 minutes

○ 5 minutes

○ 10 minutes

○ 15 minutes

○ 30 minutes

○ 60 minutes or more

If you require a certain amount of time to collect a language sample, what impacts your rationale for this number?

	Does not impact at all	Slightly impacts	Moderately impacts	Strongly impacts
Current research	○	○	○	○
Personal experience	○	○	○	○
Workplace standards	○	○	○	○
Age of client	○	○	○	○
Other	○	○	○	○

What aspects of analysis do you include in training? Please check all that apply.

☐ Mean length of utterance

☐ Number of utterances or T-units

☐ Number of total words

☐ Number of different words

☐ Words per minute

☐ Type-token ratio

☐ Morphology

☐ Pragmatic intentions

☐ Syntactic Complexity

☐ Mazes and pauses

☐ Intelligibility

☐ Other _____

Which method of collecting a language sample do you suggest for students?

○ Voice recorder

○ Video recorder

○ Live

○ Other _____

Which elicitation techniques do you include in training? Please check all that apply.

☐ Open-ended questions

☐ Expectant waiting

☐ Extension

☐ Recast

☐ Follow the child's lead

☐ Sabotage

☐ Information talk

☐ Acoustic Highlighting

☐ Other _____

Which elicitation contexts do you include in training? Please check all that apply.

☐ Free play

☐ Conversation

☐ Narrative retell

☐ Interview

☐ Expository (explaining a task)

☐ Other _____

Which age range do you primarily focus on in courses and/or clinic? Please check all that apply.

☐ Infant - Toddler

☐ Preschool

☐ School age

☐ Adolescent

☐ Adult

☐ Other _____

Language samples take time to grade, but they are worth it.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

○ N/A, I do not grade language samples

Language samples are a valuable tool for assessment.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly disagree

Students get a lot out of language sampling.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

I wish students did more language samples.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

I would have students collect more language samples if they were shorter (<50 utterances).

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

○ N/A

I believe that students' confidence with language sampling increases with experience.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

In general, I believe students have adequate training to collect and analyze language samples.

○ Strongly Agree

○ Agree

○ Disagree

○ Strongly Disagree

How many graduate classes do you teach per year?

_____

How many undergraduate classes do you teach per year?

_____

How many years have you been a clinical supervisor?

_____

In which state do you practice/teach?

_____

How many years have you been a certified SLP?

○ 0-5

○ 5-10

○ More than 10

○ Not certified

Have you worked outside of academia in the past?

○ Yes

○ No

Which population(s) did you serve outside of academia? Please check all that apply.

☐ Preschool

☐ Elementary

☐ Adult

☐ Other _____

Did you receive training in language sampling in your undergraduate courses?

○ Yes

○ No

○ Don't recall

Did you receive training in language sampling in your graduate courses?

○ Yes

○ No

○ Don't recall

Table 1. Number of Language Samples Required by Faculty

Number of Samples	Graduate	Undergraduate	Clinical
1	51.85%, n=28	60.42%, n=29	33.33%, n=35
2	31.48%, n=17	18.75%, n=9	40.95%, n=43
3	11.11%, n=6	10.42%, n=5	10.48%, n=11
4	1.85%, n=1	4.17%, n=2	1.90%, n=2
5	0.00%, n=0	0.00%, n=0	2.86%, n=3
More than 5	3.70%, n=2	4.17%, n=2	4.76%, n=5
0	0.00%, n=0	2.08%, n=1	5.71%, n=6

Table 2. Graduate Courses for which Language Sampling is Required

Adult Language Disorders
Advanced Clinical Practicum
Advanced Language Diagnostics
Advanced Language Diagnostics
Advanced Language Disorders in Children
Beyond Standardized Language Testing
Child Language Assessment and Treatment
Child Language Disorders: School-Age through Adolescence
Clinic
Clinic Practice
Clinical and Diagnostic Practices
Clinical Assessment
Clinical Courses
Clinical Practicum
Clinical Practicum
Clinical Practicum
Clinical Practicum, year 1
Developmental Language Disorders
Developmental Language Disorders in Young Children
Diagnostic Class
Diagnostic Methods
Diagnostics
Diagnostics Class for Spoken and Written Language Disorders
Early Childhood Language
Early Language Development and Disorders
Evaluation and Service Delivery
Fluency Disorders
Fluency Disorders
Foundations and Assessment
Foundations of Speech and Language Disorders
Intro to Clinic
Language & Cognitive Disorders in Adults
Language Acquisition and Development Across the Lifespan
Language Acquisition and Preschool Language Disorders
Language and Literacy for Young Children
Language and Literacy in School-Age and Adolescence
Language Assessment
Language Classes
Language Disorder
Language Disorders
Language Disorders
Language Disorders
Language Disorders

Language Disorders
Language Disorders
Language Disorders Birth-4
Language Disorders in Children
Language Disorders in Children
Language Disorders in Infants and Preschoolers
Language Disorders in School-Age and Adolescence
Language Disorders in School-Age and Adolescence
Language Disorders in School-Age Children and Adolescents
Language Disorders School Age
Language Disorders Toddlers/Preschoolers
Language Therapy in Children
Models of Language
Pediatric disorders
Pediatric Language Disorders
Preschool Class
Reading & Writing Strategies for the School-Based SLP
School Age Language and Literacy
Seminar in Child and Adolescent Language
Seminar in Child Language Disorders
Speech and Language Development for Children who are Deaf or Hard of Hearing
Speech Disorder
516

Table 3. Undergraduate Courses for which Language Sampling is Required

Adolescent Language Development & Disorders
Applied Linguistics in Speech, Language, Hearing Sciences
Bilingual/Multicultural Child
Capstone in CSD
Child Language Development
Child Language Development
Clinic
Clinical Processes
Communicative Competence and Disorders
Developmental Language Disorders
Diagnostic Procedures
Diagnostics
Independent Study- Research Project
Intro to Communication Disorders
Introduction to Language Science
Language Acquisition
Language Acquisition
Language Acquisition
Language Acquisition
Language Acquisition
Language Acquisition
Language Classes
Language Development
Language Development
Language Development
Language Development
Language Development
Language Development
Language Development
Language Development
Language Development
Language Development Lab
Language Disorders
Language Disorders
Language Disorders
Language Disorders
Language Disorders
Language Disorders Across the Lifespan
Language Disorders in Children
Language Disorders in Children
Language Sampling
Language Science
Normal Language Development

Normal Language Development
Normal Language Development
Normal Language Development
Normal Speech and Language Development
Online Language Acquisition
Phonetics
Phonetics
Preschool Language Disorders
Preschool Language Disorders
Service Delivery in CDIS
Speech and Language Development
Speech and Language Development
Speech and Language Development
Speech Disorders
Spoken and Written Language Analysis
CSD 5380 and CSD 4400

Table 4. Feedback on Language Sample Assignments for Clinical and Academic Faculty

Types of Feedback	Only Academic	Only Clinical	Both
Individual, written feedback	52.08%, n=25	37.93%, n=33	42.00%, n=42
Informally review and/or discuss with student	8.33%, n=4	24.14%, n=21	21.00%, n=21
Individual, spoken feedback	4.17%, n=2	33.33%, n=29	11.00%, n=11
Key with which students can check their own sample	12.50%, n=6	2.30%, n=2	12.00%, n=12
Peer review	8.33%, n=4	1.15%, n=1	8.00%, n=8
Other	14.58%, n=7	1.15%, n=1	5.00%, n=5
Grade, with no additional feedback	0.00%, n=0	0.00%, n=0	1.00%, n=1
Column Totals	**48**	**87**	**100**

Table 5. Factors Influencing Decisions Related to Students Using Language Samples

Field	Does not contribute at all	Slightly contributes	Moderately contributes	Strongly contributes	Total
Limited time in courses	39.72%, n=56	24.82%, n=35	24.11%, n=34	11.35%, n=16	141
Access to technology (ex: SALT for students)	58.16%, n=82	19.86%, n=28	9.93%, n=14	12.06%, n=17	141
Cost of SALT or other analysis software	67.38%, n=95	17.73%, n=25	8.51%, n=12	6.38% n=9	141
Finding participants for language samples	62.12%, n=89	15.60%, n=22	12.77%, n=18	8.51%, n=12	141
Other	29.41%, n=10	5.88%, n=2	11.76%, n=4	52.94%, n=18	34

Figure 1. Language Sample Requirements in Graduate Courses
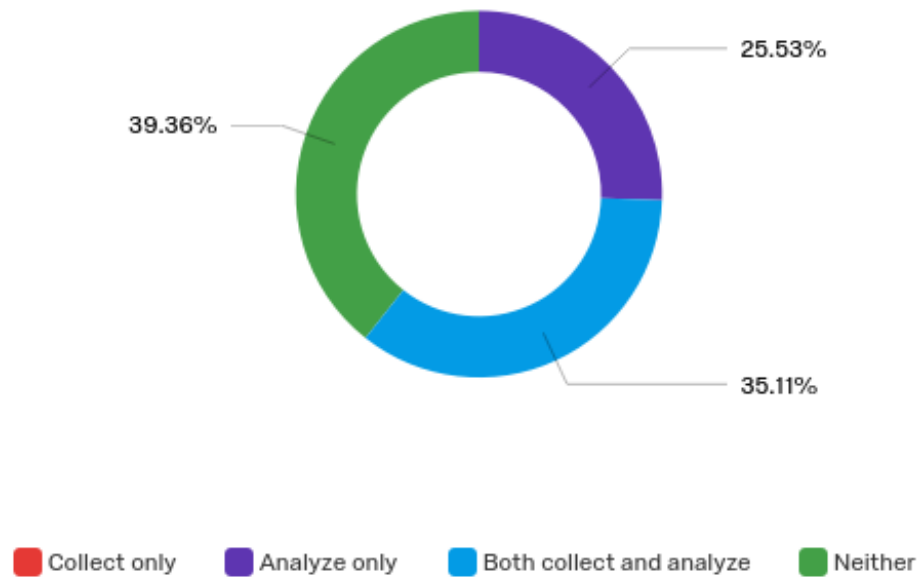
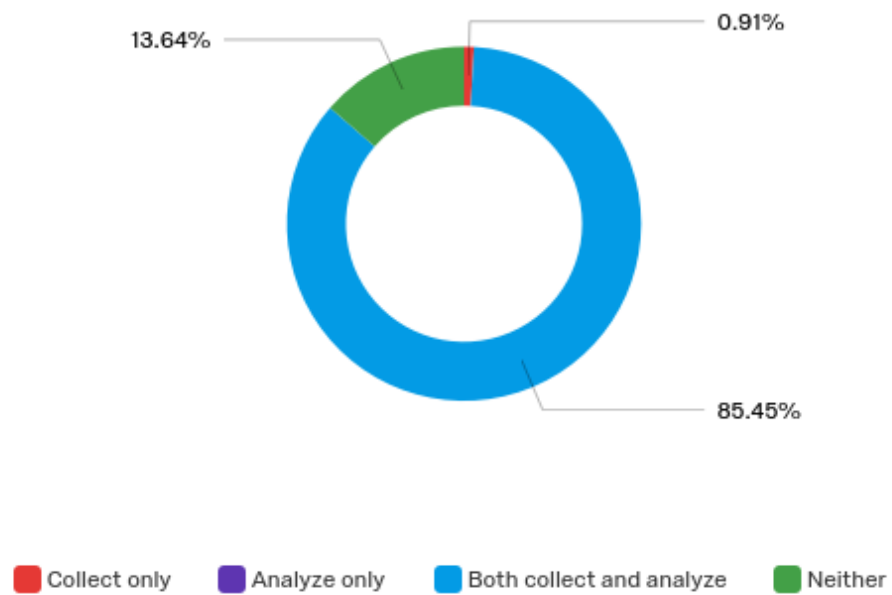**Figure 2.** Language Sample Requirements in Undergraduate Courses
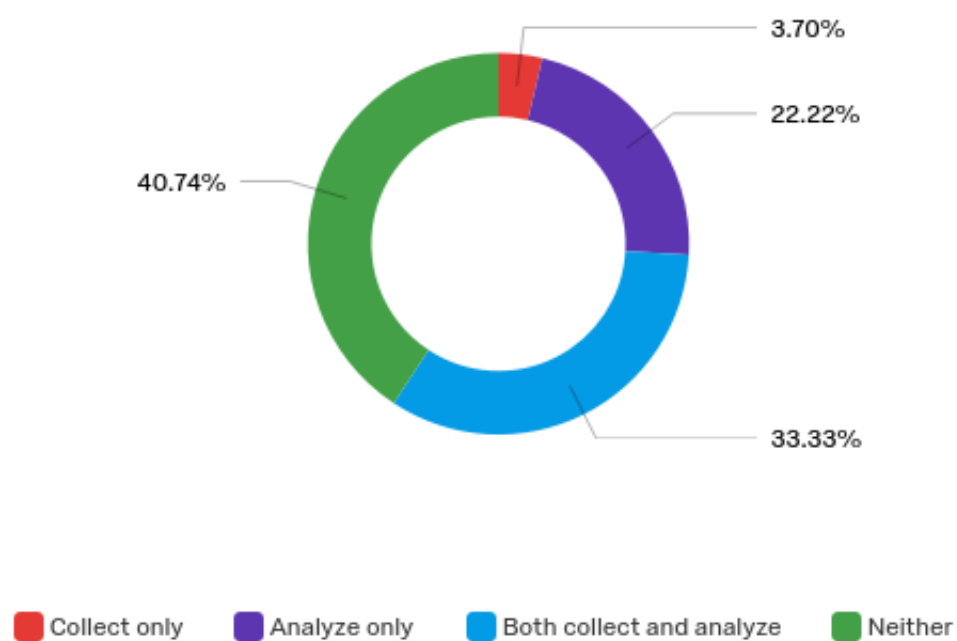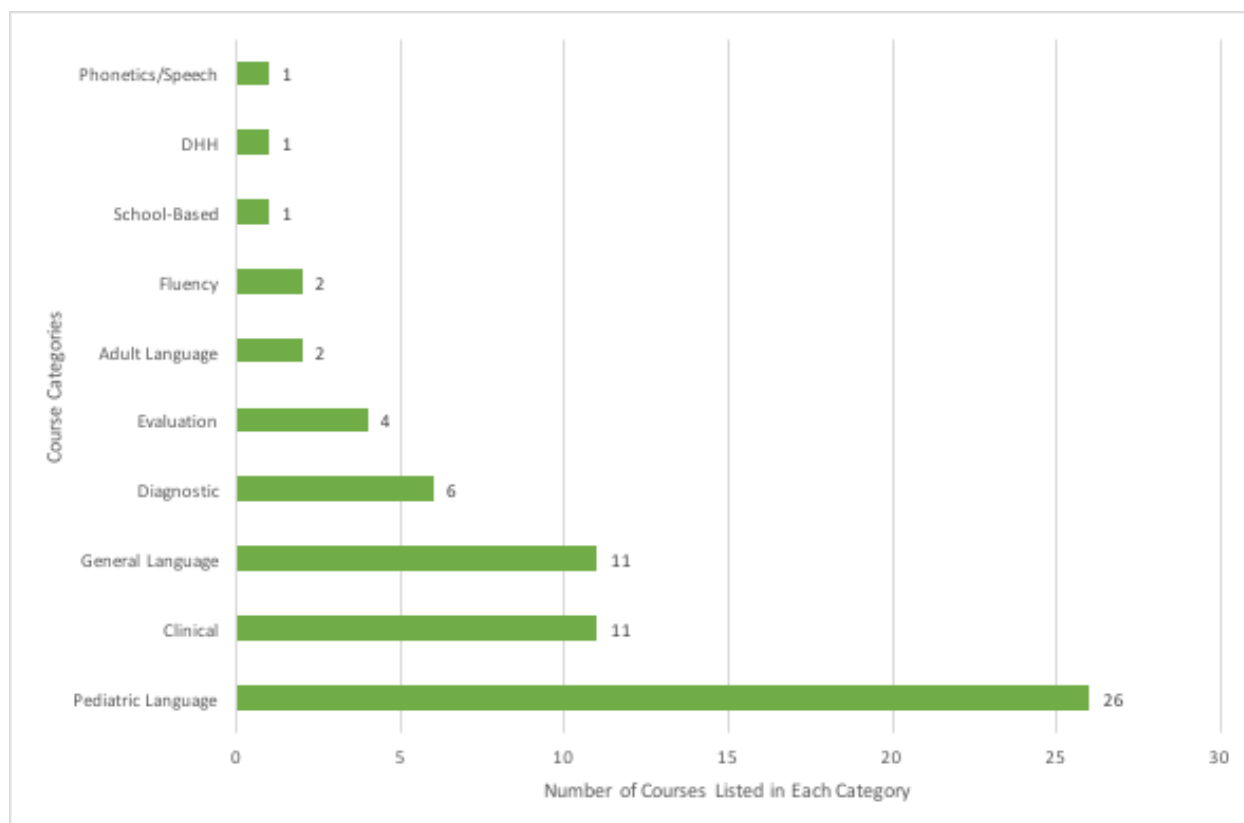
Figure 3. Language Sample Requirements in Clinic

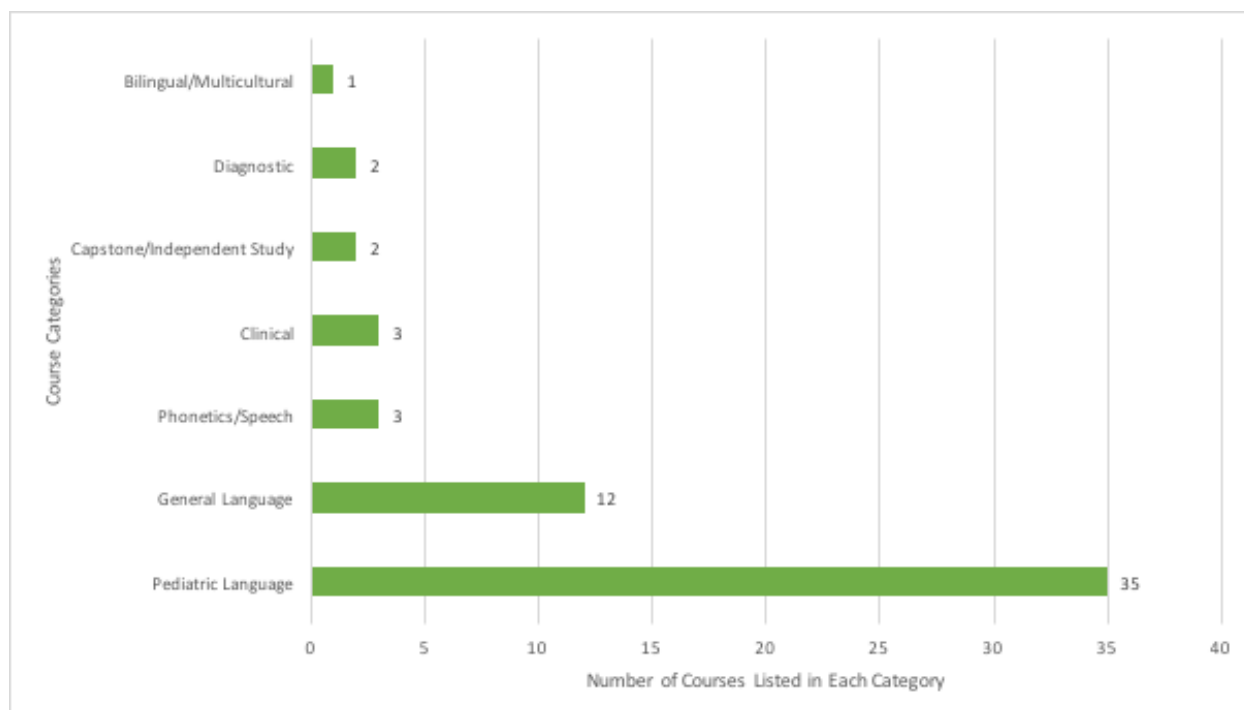**Figure 4.** Itemization of Graduate Courses that Require Language Samples

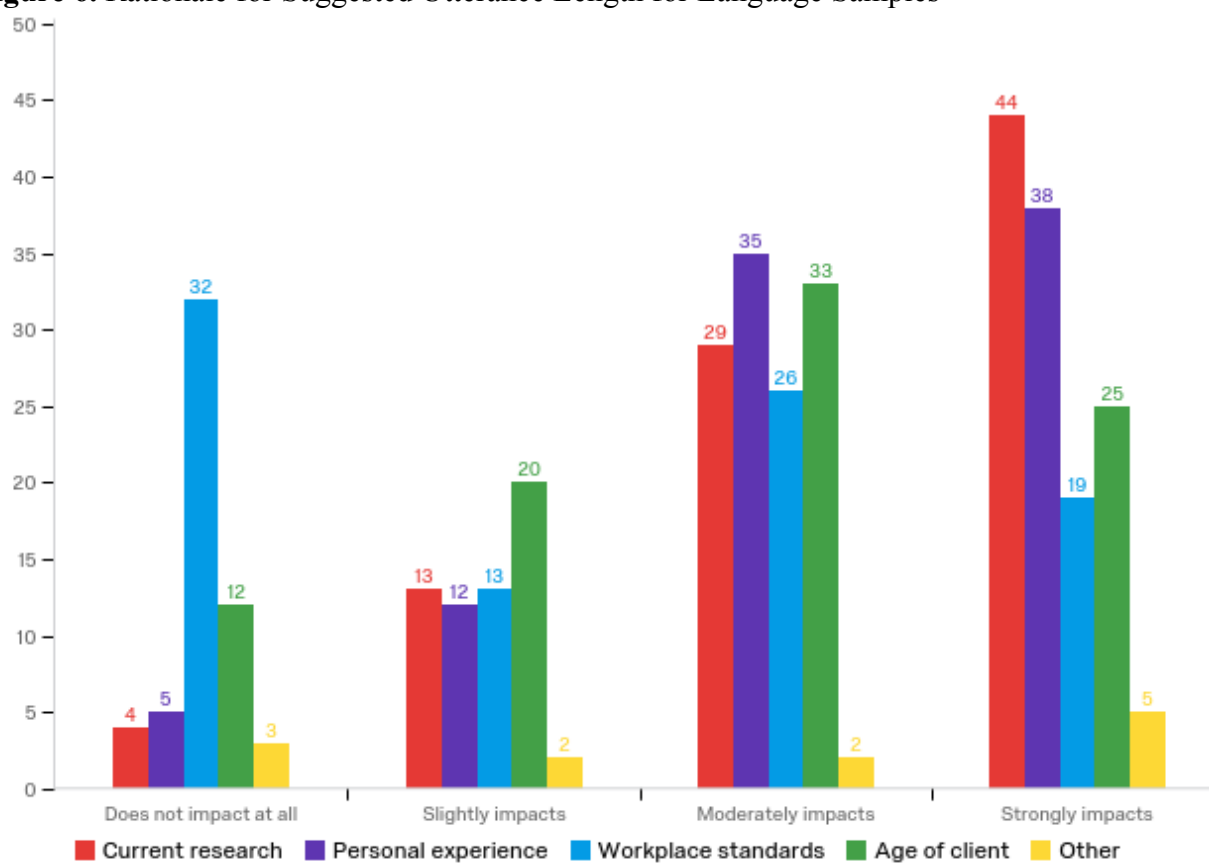**Figure 5.** Itemization of Undergraduate Courses that Require Language Sample

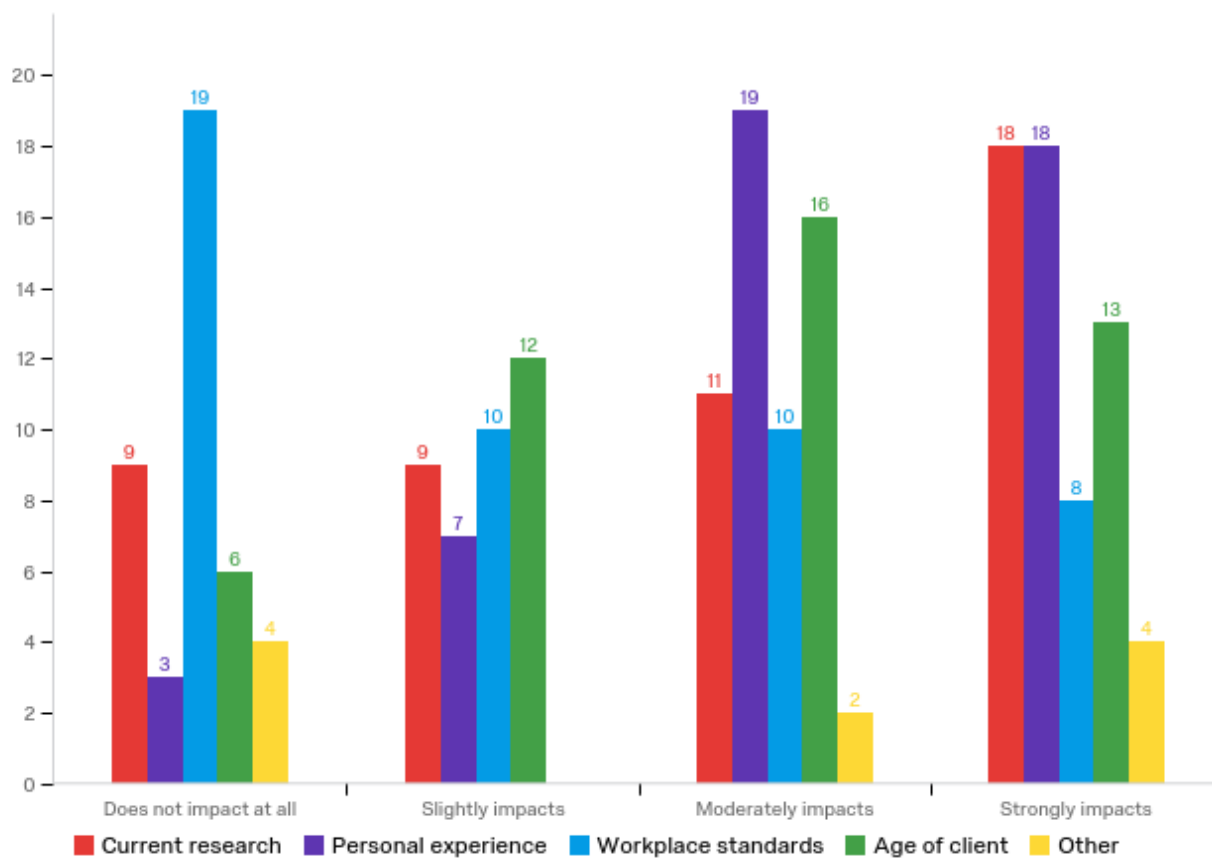**Figure 6.** Rationale for Suggested Utterance Length for Language Samples

Figure 7. Rationale for Suggested Amount of Time to Collect Language Samples

Figure 8. Time to Grade as a Contributing Factor of Language Sample Use