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Michelle Veyvoda
Iona College

Amanda Howerton-Fox
Iona College

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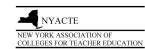
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Michelle Veyvoda¹ and Amanda Howerton-Fox¹

Abstract

This pilot study explored the linguistic attitudes, knowledge, and beliefs of undergraduate majors in speech-language pathology (SLP) and the role an interest in linguistics played in their choice of the SLP major. Fifteen undergraduate students declared as SLP majors participated in this mixed-methods study. Participants responded to a survey and open-ended questions measuring their knowledge about and interest in linguistics; they also wrote a narrative essay describing their decision to major in SLP. Results showed that most participants were interested in linguistics and expressed a belief that knowledge of linguistics would be important in their work as SLPs, but they demonstrated limited linguistic knowledge and did not include an interest in linguistics as a major influence in their choice to major in SLP. Participants’ responses indicated that personal interests, quality of life concerns, and the constraints of other career choices—possibly aligned with societal norms and expectations related to gender and ethnicity—intersected as factors that led to the career choice of SLP. Results are of importance to those involved in the design and implementation of undergraduate programs in speech-language pathology, as well as those wishing to recruit students, including minority and male students, to the field of SLP.

Keywords

Speech-Language Pathology; Career Choice; Linguistics; Gender; Ethnicity

¹ Iona College

Corresponding Author:

Michelle Veyvoda, Iona College, 715 North Avenue, New Rochelle, NY, 10801

Email: mveyvoda@iona.edu



At a state-wide speech, language, and hearing convention in 2017, the primary investigator sat in the audience of a lecture on metalinguistics. A participant rose to ask a question, prefaced by the statement, “Clearly, we are all here because we love language.” The primary investigator, also a college professor of speech-language pathology (SLP), turned to one of her students who sat next to her. “Do you love language?” she asked curiously. “I don’t love language,” the student replied dryly; “I love children.”

The Academic Affairs Board of the American Speech-Language Hearing Association (ASHA) has listed “linguistics” as one of the scientific foundations of the knowledge and skills students should learn in undergraduate education programs (Academic Affairs Board, 2015). Yet, according to the 2014 CFCC Standards (ASHA, n.d.), academic coursework in linguistics is not a requirement for certification as an SLP. While SLP students - both undergraduate and graduate - may complete their academic and clinical preparation without taking a single course in linguistics, the case can be made that practitioners should ideally be curious and knowledgeable about linguistic domains and their clinical applications. Numerous studies on evaluation and intervention with both children and adults with language and literacy delays and disorders cite the importance of knowledge of socio-linguistics, morphology, phonology, and semantics (Ball, 2005; Bernhardt & Gilbert, 1992; Morley, 1960; Muller, 2000).

Some might assume that young adults entering the career of SLP possess a curiosity about or passion for the study of language. Yet, this assumption has yet to be tested through empirical research. Indeed, there is no empirical research indicating that an interest in language or linguistics influences pre-professionals to enter the field of SLP; for that matter, there is no empirical research indicating what factors aside from an interest in language influence young adults to choose this profession. While knowledge of linguistics is essential for those speech-language pathologists (SLPs) involved in the diagnosis and treatment of language and speech disorders, there is a lack of evidence documenting the range and depth of linguistics knowledge among SLP undergraduates. Anecdotal evidence from a blog visited by young people interested in SLP as a career (www.bilinguistics.com) indicates that students choose to major in this subject for reasons such as: 1) personal experience with speech therapy; 2) knowing someone with a communication or swallowing disorder; 3) interest in working with children; 4) interest in working with the elderly; and 5) interest in helping people.

Research on Knowledge of Language Among Teachers

In the field of education, substantial research evidence suggests that many language teachers are not adequately prepared to teach linguistics. In some settings, such as schools, SLPs can be likened to language “teachers;” indeed, speech-language pathologists in school settings often require teacher certification, such as the Teacher of Students with Speech and Language Disabilities certification in New York State. Therefore, the researchers believe the comparison to teachers is appropriate in this case.

There is evidence in the field of second language (L2) education that both pre-service teachers (Andrews, 1994; Bloor, 1986; Chandler et al., 1988; Williamson & Hardman, 1995) and in-service teachers (Andrews, 1997, 1999a, 1999b; Brumfit et al., 1996; Huang, 2010; Pahissa & Tragant, 2009) lack the adequate language knowledge to do their jobs effectively. A few studies also suggest that, during grammar instruction, teachers are often limited in their ability to make sufficient use of the language knowledge they do possess, even when that knowledge has been measured at high levels (Andrews, 1997; Bigelow & Ranney, 2005; Burns & Knox, 2005).

Furthermore, in the field of education, there is a body of literature covering teacher beliefs, perceptions, and knowledge regarding language. Cota-Grijalva and Ruiz-Esparza Barajas (2013)

studied the changes in beliefs held by pre-service teachers about English language teaching and learning over the course of eight semesters of study. They found that beliefs about language changed and student beliefs about language instruction became more sophisticated as the pre-service teachers proceeded through coursework and practicum experiences. Fillmore and Snow (2000) argue that teachers need a wider array of language and linguistics preparation, including the study of “language structure, language in literacy development, language use in educational settings, history of English, and the basics of linguistic analysis” (p. 33). Harper and Rennie (2009) found that pre-service teachers lack confidence in their ability to teach English; they also suggest that, due to the lack of knowledge pre-service teachers have regarding English and language constructs, teacher training programs must devote more time and resources to teaching language. They emphasize that training should encompass a “broad discipline of linguistics” (p. 31) including metalinguistics, phonology, and cultural linguistics. Kim et al. (2013) describe the role linguistic awareness plays in student ability to read. In their study of 304 school-age children receiving differentiated instruction through a Response to Intervention method of instruction, they write of the predictive role phonological and morphological awareness played in reading outcomes. The authors argue that knowledge of the relationships between different linguistic domains (specifically phonology, morphology, and word meaning), have educational implications for reading intervention, which is under the scope of practice of SLPs.

While this topic has been explored in the field of education, there is a dearth of evidence in the field of SLP regarding undergraduate beliefs and knowledge related to language. Certainly, undergraduate SLP majors are required to take coursework covering speech and language development, but without clear criteria, academic programs are free to concentrate more on the practical or clinical application of speech and language development, rather than on the study of language. Furthermore, according to the websites of numerous SLP undergraduate programs in both public and private academic institutions, some programs require an undergraduate course in linguistics or the study of language, while others offer it as an elective. Therefore, students arrive at graduate schools with differing degrees of preparation in language and linguistics.

While limited research has been conducted on the motivations for choosing a career in SLP, there is evidence from a small number of studies in the field of SLP and in other “helping professions” that career choice in these fields is fundamentally grounded in a desire to help people, but that multiple influences and considerations, including constraints of other professions and financial security, ultimately lead to the choice of a career in a specific helping profession (Byrne, 2007; Mooney et al., 2008). Thus, while the literature and ASHA (2017) document the importance of foundational knowledge in linguistics for the evaluation and treatment of speech, language, and literacy disorders, research on pre-professionals in the field indicates that subject matter interest and expertise are not typically factors that motivate career choice. It is plausible that pre-professional SLPs choose their career due to factors that have little to do with the subject matter in which they must become experts. This may indicate that undergraduate and graduate programs should enhance their course offerings related to language and linguistics in order to ensure that their students are able to apply knowledge of these areas to clinical situations. While the scope of practice of a clinical speech-language pathologist certainly extends beyond the field of applied linguistics and includes working with clients with fluency, voice, and swallowing disorders, 52.3% of SLPs report working in educational environments (excluding higher education), where the application of linguistic knowledge to treating literacy, language development, and language-based academic difficulties is essential (ASHA, 2017).

Considering the important role that a foundation in linguistics plays in the diagnosis and treatment of speech and language disorders, the authors found it worthwhile to investigate the knowledge,

attitudes, and beliefs undergraduate SLP students hold toward linguistics. While it might be assumed that undergraduates without previous linguistics coursework would have limited knowledge of linguistics, the authors sought to examine student knowledge, attitudes and beliefs prior to beginning advanced coursework in order to obtain some level of understanding of these factors at the point of entry into the profession. Therefore, this study was designed to measure undergraduates' beliefs and attitudes toward linguistics at a relatively early point in their undergraduate education (during their first year in the major). Student beliefs and attitudes toward linguistics were a primary concern of the authors; however, under the assumption that knowledge of linguistics might correlate to certain attitudes and beliefs, knowledge of linguistics was included as an additional measure. Finally, under the assumption that some participants might have chosen the CSD major for reasons other than an interest in linguistics, this study investigated additional reasons why students choose this field of study.

Due to logistical factors coupled with demographics typical of SLP majors, a limited and homogeneous sample of undergraduate students participated in this study. Specifically, the study involved fifteen participants, all females between the ages of 18 and 21, 93% of whom identified as White and were monolingual speakers of English, an issue that will be discussed at greater length in the Participants section. Thus, the researchers approached this investigation as a pilot study that will inform future exploration into undergraduate academic preparation, as well as recruitment into the profession. This pilot study was designed to address the following research questions:

1. What knowledge, attitudes, and beliefs do undergraduate SLP students possess regarding the relevance of linguistics to a career in SLP?
2. What role does an interest in linguistics play in the decision of undergraduate speech-language pathology majors to choose the SLP major?
3. What additional factors influence the decision of undergraduate students to pursue the SLP major?

Method

A mixed methods approach to data analysis was employed. Numerical data were analyzed quantitatively via descriptive statistics, and participants' written responses to survey prompts were analyzed qualitatively via thematic coding. Data was collected from three sources: responses to a self-designed 5-point Likert scale survey on knowledge and attitudes toward linguistic sub-areas (phonology, morphology, syntax, semantics, and pragmatics); written responses in which participants described their beliefs regarding the value of such linguistic knowledge as future SLPs; and narrative responses to the question: "Tell us how you chose the speech-language pathology major, and describe why you want to become a speech language pathologist." The researchers chose to collect responses to the Likert scale survey in order to gauge knowledge of and attitudes toward each domain of linguistics. The follow-up written response was used to triangulate data and to contextualize responses to the survey. The narrative response was included as an additional data source in order to investigate whether an interest in linguistics played a role in participants' reported decisions to pursue a career in SLP, and also to reveal any other reasons the participants had for choosing to major in SLP.

Participants

Purposeful sampling was used to recruit participants. Due to the nature of this study, which aimed to examine knowledge, beliefs and attitudes of students relatively early in the SLP/Audiology major and before they had taken coursework in linguistics, participants were recruited who met the following criteria: were in their first year of the SLP/Audiology major; planned to pursue SLP (as opposed to Audiology) as a career; had taken no more than one semester's worth of coursework in SLP. The rationale for recruiting participants so early in the CSD major was to measure the knowledge, attitudes and beliefs toward linguistics that students possessed upon entering the major, rather than after they had already been taught linguistics content. In this undergraduate program, a course in linguistics is optional; however, some linguistics concepts are taught in required courses. It was assumed that students new to the major would have limited knowledge in linguistics; however, the researchers believed that if some participants demonstrated linguistic knowledge, it could be related to their attitudes and beliefs regarding linguistics, as well as to their interest in the career. Participants were recruited through flyers posted in academic buildings and through announcements made in classes.

Fifteen undergraduate students declared as Speech-Language Pathology and Audiology (SLP/A) majors who intended to pursue SLP as a career participated in this pilot study. All participants responded to demographic and background questions prior to beginning the survey. All were females between the ages of 18 and 21 years old. The majority of participants were 19 years old ($n=8$), followed by 20 ($n=4$), and 18 ($n=3$). While relatively new to the SLP/A major, participants had completed a varied number of semesters in college: zero ($n=2$), one ($n=9$), two ($n=3$), and three ($n=1$). All participants ($n=15$) reported plans to pursue SLP, as opposed to Audiology, as a career. Participants were primarily White ($n=13$), with one mixed White and Latina and one Latina participant. The majority of participants was monolingual ($n=14$), and one was bilingual. Most participants had completed one course in the SLP major ($n=11$), and four participants had not completed any prior coursework in SLP. Courses completed were Normal Language Acquisition ($n=6$), Introduction to Communication Disorders ($n=2$), and Phonetics ($n=2$). See Table 1 for the participants' demographics.

Setting

Located thirty minutes from New York City, Iona College is a small, mission-centered private liberal arts school. While the SLP/A major provides a preparatory path for students planning to apply to graduate school in either SLP or Audiology, the majority of students plan to pursue the field of SLP. Students are required to apply to the major and must achieve a 3.0 grade point average in order to be accepted. Once in the major, students balance core curriculum and major requirements, as well as a series of major electives. The program provides a generalist education which is meant to prepare students for graduate study.

While the size of our sample was limited by size of the major at our college, also of concern is the lack of gender, cultural and linguistic diversity among the participants. However, referencing demographic data for the profession of speech-language pathology as it whole, it appears that this is less a limitation of this pilot study than it is one of the entire profession. The college at which this pilot study took place is comprised of approximately 48% students of color. However, the percentage of students of color who major in speech-language pathology is dramatically lower. Within the major, 72% of students are white, 20% identify as being of Hispanic origin, and one percent identify as either Asian or African American.

Lack of gender diversity among the sample was another limitation, and this too is reflective of an under-representation of males in both the major and the field in general. There was no male representation in this study, which is not surprising given that five percent of the major is male, and participation in the study was limited to underclassmen.

Table 1.
Participant Demographics

Characteristics		Participants (n=15)
Gender	Male	0 (0%)
	Female	15 (100%)
Age	19	8 (53%)
	20	4 (27%)
	18	3 (20%)
Planned Career	SLP	15 (100%)
	AUD	0 (0%)
Ethnicity	White	13 (86%)
	White and Latin American	1 (7%)
	Latin American	1 (7%)
# Languages Spoken	Monolingual	14 (93%)
	Bilingual	1 (7%)
Courses Completed	Normal Language Acquisition	6 (40%)
	Introduction to Communication Disorders	2 (13%)
	Phonetics	2 (13%)

Looking beyond our college, according to the most recent available demographic data from ASHA (2018), 92.8% of speech-language pathologists in New York State are White and 96.6% are female. According to the same data, 8.2% of speech-language pathologists identify as members of a racial minority nation-wide, and 3.7% are male. These statistics demonstrate that in both New York State and nation-wide, the gender, cultural and linguistic diversity within the field of speech-language pathology is significantly lower than that of the general population. This is a concern that has been well-documented in the literature (Rodriguez, 2016; Mylott, 2009; Pimentel, 2003) and that is now being targeted by the Allied Health Workforce Diversity Act (H.R. 3637), which was introduced to the U.S. House of Representatives in order to increase opportunities for students from underrepresented backgrounds to pursue careers as SLPs and in other allied health professions. As increasing attention turns to diversifying the field of SLP, the results of this study may be useful in recruiting more diverse pre-professionals into the field.

Instrument Design and Data Collection

A researcher-designed questionnaire measuring knowledge and attitudes toward linguistics, specifically as it relates to a career in SLP (Appendix A), was administered using the Qualtrics online platform in order to examine student knowledge and beliefs about linguistics and its relevance to a career in SLP. Participants took the online survey in a computer lab, while the researchers were present. The online survey contained three sections. First, participants provided responses to the demographic questions reported above and listed in Table 1. Second, participants were given unlimited time to “free write” a response to the question: “Tell us how you chose the speech-language pathology major, and describe why you want to become a speech language pathologist.” Participants were verbally encouraged by the researchers to provide as much detail as possible. Similar methods of narrative discourse have been used in educational research to capture a snapshot of the educational experience of a group of people. Written narrative allows researchers to examine participants’ experience, personal knowledge, reflection, and deliberation at a given time (Clandinin & Connelly, 1989).

After completing and submitting their free-write responses via the online platform, students were automatically taken to the next section, a questionnaire on knowledge and attitudes related to linguistics and its relevance to the SLP profession. Cognizant that participants would have taken limited coursework in linguistics, the researchers provided a definition and an example of each linguistic domain examined (i.e. phonology, morphology, syntax, semantics, and pragmatics), prior to asking questions about their knowledge, attitudes and beliefs toward each domain. Participants responded to these questions using a 5-point Likert scale. Participants were also provided space underneath each set of questions to describe their perceptions of and attitudes toward each linguistic sub-area as it related to SLP. Following completion, students submitted their surveys online, were thanked for their time, and were given a debriefing statement describing the purpose of the study.

Data Analysis

Separate analyses were conducted for the three data sources: survey responses on linguistic knowledge and attitudes, short-answer responses to linguistics questions, and narrative responses to the essay question.

Survey Responses. Participants indicated their level of agreement with statements about the five linguistic domains on a 5-point Likert scale. During analysis, the categories agree and strongly agree were collapsed, and the categories disagree and strongly disagree were collapsed to simplify data analysis since changes in attitudes were not being analyzed. The researchers then noted the percentage of participants who agreed, disagreed, or felt neutrally about each statement and used that data to contextualize findings from descriptive data.

Short-answer Responses to Linguistics Questions. For each linguistic domain (phonology, morphology, syntax, semantics, and pragmatics), participants described their beliefs regarding the relevance of that domain to their future work as an SLP. These written responses were entered into NVivo (version 12.1.0), and the data analysis proceeded in eight phases. In the first phase, the researchers individually reviewed all of the responses to familiarize themselves with the content and highlight “relevant” statements. A statement was deemed relevant if it revealed participants’ attitudes, knowledge, or beliefs

about each of the linguistic domains, including statements in which they provided definitions, offered examples, admitted a lack of knowledge, or expressed an opinion or belief about the domain. In phase two of data analysis, the researchers once again read the responses individually, but this time they kept memos on emerging themes. In phase three, the researchers individually generated a list of codes from the memos they had kept on emerging themes. For example, one researcher noticed that several participants discussed a way of applying linguistic knowledge to the evaluation or treatment of a client. Thus, she generated a code of “Application (APP)” with sub-codes “APP: Evaluation” and “APP: Treatment.” In phase four, the researchers met in person to compare their code lists and to negotiate a final set of codes that would be used for thematic coding of the responses (see Table 2 for the list of codes on “Attitude, Knowledge, and Beliefs about Linguistics”). The researchers agreed that statements could be assigned multiple codes in cases where more than one code was relevant. In phase five, the researchers used the list of codes they had developed to independently conduct line-by-line coding of only the responses related to phonology, which represented approximately 20% of the written content related to the linguistic domains. In phase 6, they met to compare their work and found that they agreed on more than 80% of these first-round codes. Where differences arose, the researchers resolved the discrepancies and established agreement on how to avoid those discrepancies in future coding. In phase seven, the researchers independently coded all of the remaining text, now with inter-rater reliability approaching 95%. In phase eight, they compared their codes, resolving any coding discrepancies.

Narrative Responses to the Essay Question. The eight phases described above were also employed to analyze participants’ narrative responses to the essay question: “Tell us how you chose the speech-language pathology major, and describe why you want to become a speech language pathologist.” In phase one, a statement was deemed “relevant” if it addressed specific reasons for pursuing a career in SLP, identified any factors that played a role in the participants’ decision about a college major, recounted life experiences, or conveyed emotions or opinions related to the participant’s career choice. The next seven phases proceeded identically to how they were described above. In phase four, the researchers created the list of codes on “Reasons for Choosing the Field” (see Table 3).

Results

Overall, student attitudes toward each linguistic domain were favorable, but students did not perceive themselves to be knowledgeable about the linguistic domains, particularly phonology and morphology. In addition, participants were generally unable to apply their knowledge of linguistics to clinical situations. An interest in linguistics was not a factor in most participants’ decisions to major in speech-language pathology; other factors, such as personal affinities, past experiences, and career-related lifestyle concerns, were more influential in that decision. Finally, an unexpected finding was that participants made extensive use of value-laden terminology when discussing the clinical application of linguistics, using words such as ‘proper’, ‘correct’, and ‘right’ when discussing their goals for clients.

Table 2.
Codes for "Attitude, Knowledge, and Beliefs about Linguistics"

<u>Category</u>	<u>Codes</u>
ATT	ATTITUDE ATT: Impersonal (shift to 3rd person) ATT: Value-laden terminology
BEL	BELIEF BEL: Domain is important BEL: Domain is unimportant
KNO	KNOWLEDGE KNO: Lack of knowledge KNO: Misconceptions KNO: Vague statements KNO: Definition KNO: Example
APP	APPLICATION APP: Diagnosis/assessment APP: Goal-setting APP: Use in therapy APP: Unsure/unknown APP: Incorrect APP: Vague APP: Maintaining communication

Table 3.
Codes for "Reasons for Choosing the Field"

<u>Category</u>	<u>Codes</u>
EXP	EXPERIENCES EXP: Interactions with SLPs EXP: Experience in help professions EXP: Self-received therapy EXP: Friend/family received speech therapy EXP: Friend/family is a therapist EXP: Mentor EXP: Advice (AHF 6/21) EXP: Observation of therapy EXP: Researched the field

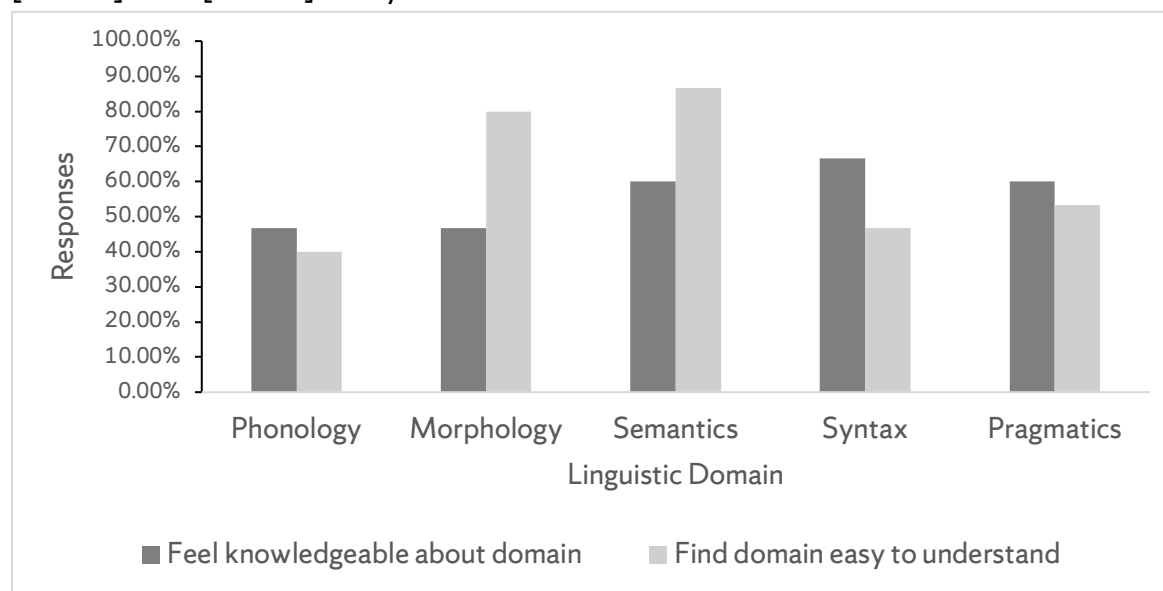
AFF	AFFINITIES
	AFF: Children
	AFF: Helping others
	AFF: Teaching
	AFF: Language/Linguistics
	AFF: Bilingualism
	AFF: Sign
	AFF: Brain/Cognition
	AFF: Communication
	AFF: Psychology
	AFF: Medicine
	AFF: Autism
PER	PERSONALITY
	PER: Extrovert
	PER: Introvert
	PER: Successful in coursework
	PER: Identifies with the field
	PER: Emotional connection
CON	CONSTRAINTS
	CON: Majors offered
	CON: Lack of skills
	CON: Risks or difficulties associated with other careers
IDE	IDEALS
	IDE: Right to communicate
LIF	LIFESTYLE
	LIF: Fulfilling/Rewarding
	LIF: Hours/Life balance
	LIF: Career options
	LIF: Pay
	LIF: Work attire
	LIF: Bureaucracy
	LIF: Work with people

Research Question 1: What Knowledge, Attitudes, and Beliefs do Undergraduate SLP Students Possess Regarding the Relevance of Linguistics to a Career in Speech Language Pathology?

Overview. The survey contained five Likert scale items in relation to each linguistic domain (phonology, morphology, syntax, semantics, and pragmatics). Two of the scales were designed to measure

participants' knowledge about linguistics ("I am knowledgeable about [domain]" and "[domain] is easy to understand"), and two were designed to measure participants' attitudes and beliefs about linguistics ("I find [domain] interesting" and "[domain] is relevant to my work as an SLP"). The fifth scale was a demographic measure of the extent to which each domain had been covered in participants' prior coursework. Figure 1 shows the percentage of participants who agreed, by indicating "Strongly Agree" or "Agree" on the survey, with the Likert scale items associated with participants' knowledge about linguistics, and Figure 2 shows the percentage of participants who agreed with the Likert scale items associated with participants' attitudes and beliefs about linguistics.

Figure 1. Percentage of participants who indicated strong knowledge of the five language domains by choosing "Agree" or "Strongly Agree" on the following Likert scale items: "I am knowledgeable about [domain]" and "[domain] is easy to understand."

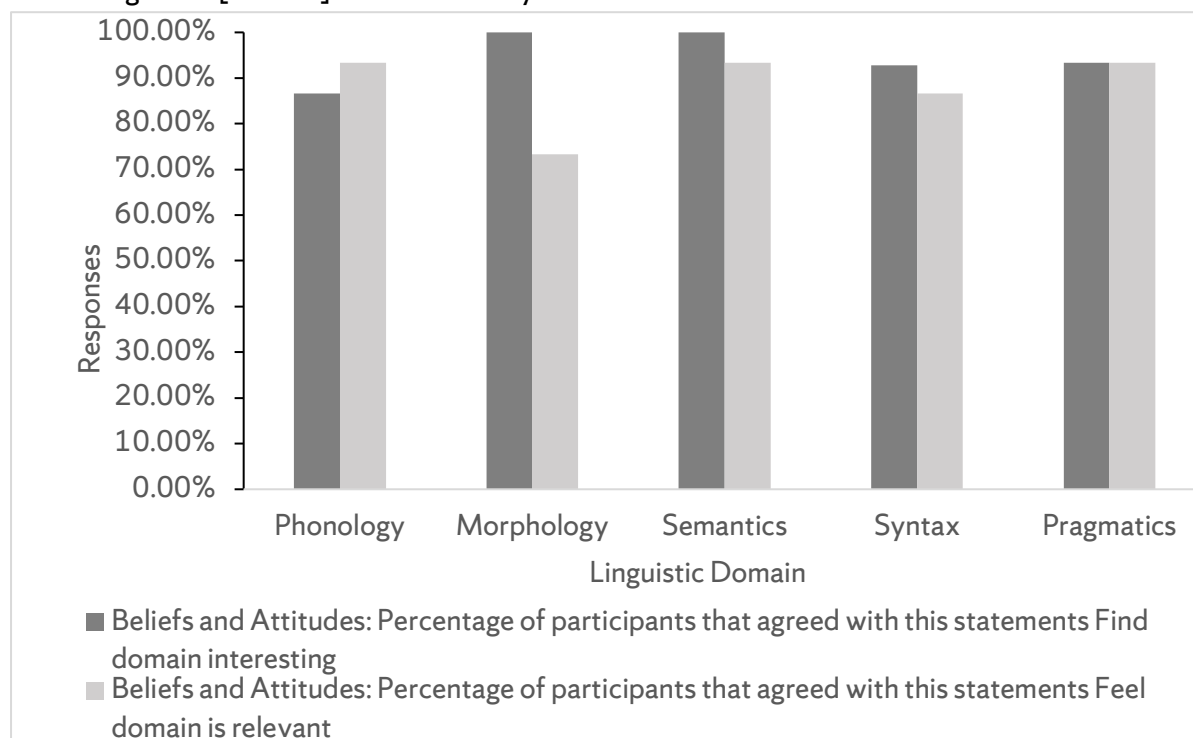


The highest degree of agreement across all domains related to interest; between 83% and 100% of participants agreed that they were interested in every domain. Fewer participants perceived themselves to be knowledgeable about linguistics, with fewer than half agreeing they were knowledgeable about phonology and morphology, and less than two-thirds feeling knowledgeable about semantics, syntax and pragmatics. Fewer than half of participants felt that phonology and syntax were easy to understand, while 53% found pragmatics easy to understand, 80% found morphology easy to understand, and 87% found semantics easy to understand. Most participants reported a belief that the domains were relevant to a career in SLP: 93% for phonology; 73% for morphology; 87% for syntax; 93% for semantics; and 93% for pragmatics.

Participants also responded to five writing prompts phrased as follows: "Please describe how [phonology / morphology / syntax / semantics / pragmatics] will, or will not, be relevant to your work as an SLP." The qualitative data derived from their written responses revealed that most participants (80%) believed that all five language domains would be relevant to their work as SLPs. In regard to knowledge, responses were rated using a subjective scale developed by the researchers on which 0 represented no knowledge; 1 represented a vague understanding of the domain with no concrete examples; 2 represented the ability to provide one example of how knowledge of the domain would be

relevant to an SLP; and 3 represented the ability to provide more than one example of how knowledge of the domain would be relevant to an SLP. Based on the mean scores in each domain, participants showed the strongest knowledge of pragmatics ($\bar{x} = 1.8$), followed by phonology ($\bar{x} = 1.47$), syntax ($\bar{x} = 1.33$), morphology ($\bar{x} = 1.33$), and semantics ($\bar{x} = 1.07$).

Figure 2. Percentage of participants who indicated positive attitudes and beliefs about the five language domains by choosing “Agree” or “Strongly Agree” on the following Likert scale items: “I find [domain] interesting” and “[domain] is relevant to my work as an SLP”



Beliefs. The beliefs participants expressed in writing regarding the value of each linguistic domain to their future work as SLPs closely resembled the beliefs they indicated in response to the Likert scale questions. The majority of participants stated in writing that they believed each of the linguistic domains would be relevant to their future work as SLPs: 73% for morphology and 93% for phonology, syntax, semantics, and pragmatics. These numbers are almost identical to those drawn from the Likert scale results, with the exception that one fewer participant expressed a belief in the value of syntax in the written responses.

While participants believed fairly strongly that linguistics would be important in their work, upon closer inspection, the reasons participants offered for valuing various kinds of linguistic knowledge were often vague or inaccurate. In relation to pragmatics, for example—a domain that 93% of participants stated would be relevant to their work as an SLP—20% of the participants offered extremely vague arguments for how a knowledge of pragmatics would serve them. Their responses included: “it’s an aspect of communication”; “any time the use and study of language is being done it is involved with what a speech pathologist may be doing”; and an assertion that pragmatics can help clients to “produce more than one-word utterances.” Twenty percent of participants also offered vague justifications for the value of phonology (i.e., “sound in language is extremely important”) and syntax (i.e., “syntax of a

language is how it can be spoken to others”). Thirty-three percent of participants offered vague or inaccurate arguments in support of the value of semantics: arguing that it’s “essential to the use of words,” that it has to do with “the flow of combinations of words,” and, incorrectly, that it’s related to “proper sentence structure.” Finally, for morphology, a domain that only 80% of participants believe to be relevant to their work, over half of these participants could offer only weak justifications for its import, appealing vaguely to its role in “meaning,” “comprehension,” and “how children or adults break down language.”

Attitudes. Participants’ attitudes about the role of linguistics centered on concerns about teaching their clients to communicate “correctly” and “properly”; such value-laden terminology was used by 60% of the participants in at least one of their responses. The words coded as value-laden were the following: right, perfect(ly), proper(ly), correct(ly), fix, wrong, improper(ly), and incorrect(ly).

Knowledge

Pragmatics. Nearly 75% of the participants (11 out of 15) demonstrated sufficient knowledge of pragmatics that they could offer at least one example of how knowledge of the domain would be relevant to an SLP. Three of those 11 were able to provide more than one example. Examples offered by the participants included the use of gestures to enhance communication, the role of intonation, the importance of context in word choice, appropriate use of code-switching, the meaning and use of common colloquial phrases, and conversational turn-taking. Two participants demonstrated no knowledge of pragmatics, and two demonstrated only vague understandings, offering no relevant examples. Vague assertions included a statement that pragmatics is important to an SLP because “it’s an aspect of communication,” and that pragmatics could help clients who only communicate in “one-word utterances.” No participants made incorrect statements about this domain.

Phonology. In contrast to pragmatics, not quite 50% of the participants (7 of the 15) were able to demonstrate sufficient knowledge of phonology that they could offer at least one example of how knowledge of the domain would be relevant to an SLP, and all of examples offered focused narrowly on phonetics: placement of the articulators, voicing, assimilation, and cluster reduction. Only one participant was able to provide more than one example. One participant demonstrated no knowledge of phonology, and the remaining seven participants offered only vague explanations of how an understanding of phonology would help them in their work. For example, one stated that “basic sounds in speech are very important as these are put together to produce words and therefore are important in speech;” and another asserted, “Sound in a language is extremely important and the way we understand language.” No participants made incorrect statements about this domain.

Syntax. Only 40% of participants (6 of 15) demonstrated sufficient knowledge of syntax that they could offer at least one example of how knowledge of the domain would be relevant to an SLP. Most examples referenced the ways in which word order can influence meaning, but one participant focused on tense in particular, another discussed the relative placement of subjects and verbs cross-linguistically, and a third mentioned the importance of syntax in reading and writing. One participant demonstrated no knowledge of syntax, and the remaining eight offered only vague explanations of how an understanding of syntax might help them in their work. For example, one participant wrote, “One day, being a SLP and knowing more about syntax will help me combine words to create a sentence, to communicate.” Other vague comments included: “syntax...will allow me to help people come up with sentences and help them hold a conversation with another person”; “people sometimes have trouble

with their syntax when speaking and that is very relevant to what a speech pathologist works on”; and “it is important for all people to know how to properly place each word in a given sentence for even the simplest forms of communication.” One vague response—“the syntax of a language is how it can be spoken to others”—indicated a misconception of syntax on the part of the participant.

Morphology. Only 33% of participants (5 out of 15) demonstrated sufficient knowledge of morphology to offer at least one example of how knowledge of the domain would be relevant to an SLP; one participant offered two examples. Three participants focused on a client being able to pronounce particular word segments correctly (e.g., -s and -ing); one asserted that “knowing roots and parts of words can help in understanding words out of context”; and one discussed the importance of “knowing the basic building blocks to form words” for vocabulary development. The participant who scored a 3 for morphological knowledge specifically discussed the relevance of morphology to clients with TBI or dementia who might need “tools” to help them remember words. One participant demonstrated no knowledge of morphology, and the remaining nine offered vague explanations of the domain’s utility to an SLP, two of which revealed misconceptions of the domain. Examples of vague statements were: “any aspect of communication is relevant to me as an SLP” and “knowing about morphology will help me understand the concept of how children or adults break down language in different ways.” Two participants revealed misconceptions about morphology, conflating it with semantics, as indicated by statements like, “it’s the study of the meaning of words” and “morphology concerns word meaning.”

Semantics. Only 33% of participants (5 out of 15) demonstrated sufficient knowledge of semantics that they could offer at least one example of how knowledge of the domain would be relevant to an SLP; two participants were able to offer more than one example. Examples provided by the participants including helping clients: distinguish the meanings of similar words, recognize synonyms, expand their vocabulary, and improve their word retention, word recognition, and word choice. Two participants also discussed the importance of the therapist, herself, understanding semantics so that she could better ascertain the meaning her clients were attempting to convey. Of the remaining 10 participants, five offered only vague statements regarding the relevance of semantics to their future work as SLPs. Representative examples of vague statements in this domain are as follows: “semantics is important because it is essential to the use of words”; “if you use semantics in the wrong context, it can come off wrong to other people”; and “semantics is important for an SLP because it is important to know speech but more important to be able to put that speech together and create a language out of that speech.” The final five participants demonstrated no knowledge of the domain, and two of these five revealed the misconception that semantics was about “the formation of proper sentence structure” or the “correct order of words in a sentence.”

Research Question 2: What role does an interest in linguistics play in the decision of undergraduate speech-language pathology majors to choose the SLP major?

Only one participant directly mentioned linguistics as a factor in the decision to major in SLP. For this participant (P1), an interest in the English language intersected with her interest in neuroscience to bring her to consider working within the field of linguistics: “I still wanted to incorporate my love for neuroscience into my life...I went to my mom about it (who happens to be an SLP!) and she told me

about Linguistics...that seemed perfect for me! It seemed like it combined my love for science and for English.”

Ten participants discussed specific interests related to linguistics, including neuroscience, English, sign language, bilingualism, SLP/A coursework, and autism. Many of these participants reported that the SLP major allowed them to apply their combined interests, as evidenced by the following quote from Participant 11: “When I first saw what speech language pathology is, I felt like it was a good combination of all the things that I had been interested in when looking at careers.” Several discussed that these interests were strongly considered when beginning to contemplate a major and career, and that a career as an SLP would allow them to apply their interests to their vocation. The following quote from Participant 15 illustrates this point: “I took many years of sign language in high school and wanted a career that involved the use of sign language.” Still others, such as Participant 6, chose the major after taking one SLP course and finding that she was both successful with and interested in the course. “I took Phonetics the fall semester of my sophomore year. I really enjoyed that course and found that I was both interested in it and good at it.”

Research Question 3: What additional factors influence the decision of undergraduate students to pursue the SLP major?

While the initial focus of this study was exploration of the role an interest in linguistics plays in students’ decisions to pursue the SLP/A major and a career in SLP, the researchers chose to provide participants with a broad, open-ended prompt in order to gain a richer understanding of participants’ reasons for choosing this major: “Tell us how you chose the speech-language pathology major and describe why you want to become a speech language pathologist.” Analysis of the participants’ narrative responses revealed the following themes, presented in order of strength (determined by the frequency with which each theme was represented in participants’ responses): 1) personal affinities; 2) past experiences; 3) perceived constraints; and 4) lifestyle concerns. Tables 4-7 contain participant quotations coded as relevant to each theme. While data relevant to each theme is discussed separately below, it is important to note that no participant stated one, specific reason for choosing the SLP/A major; rather, analysis revealed that all participants came to the decision to major in SLP/A through an intersection of factors. These intersections are explored after each theme is addressed individually.

Personal Affinities. All participants referenced interests and strengths they possessed that led them to the decision to choose the SLP/A major. (See Table 4 for a representative sample of participant quotations coded as “personal affinities.”) While these affinities weren’t always the sole factor in the decision, participants reported that their interests and strengths played a role in their decision to investigate the major, interview other SLPs, or take SLP-related coursework. The most commonly referenced sub-theme was “subject area affinities,” in which students discussed academic subjects that aligned with an interest in SLP. Other common references included “interest in communication,” followed by “interest in working with or helping children/people” and “interest in the helping (or allied health) professions.” Other affinities included an interest in bilingualism or sign language, interest in neuroscience and linguistics, interest in autism, interest in the SLP/A curriculum, and the ability for an individual to satisfy a combination of interests through a career in speech-language pathology. Seven participants discussed their interest in, or ideals related to, communication and their perception that all people deserve the right to communicate. Eight participants referenced an interest in “working with”

children and people, in general, while six referenced a desire to “help people.” Six participants mentioned an interest in related professions, such as those under the allied health umbrella or education, as helping to guide them toward the SLP/A major. Often, these related professions were discussed as “starting points” from which students began exploring what they wanted from a career and how they could find a career that matched their interests.

Past Experiences. References to past experiences were noted 58 times throughout the narratives by 8 participants (see Table 5 for a representative sample of participant quotations coded as “past experiences”). Eight participants made reference to specific periods of time in their lives when they contemplated career options. These periods of time ranged from the early high school years to first and second years of college. Of these eight participants, only one had an interest in SLP from an early age, reporting that her sister had received speech therapy and that she had “always had an interest in what [her] sister was attending.” This participant’s burgeoning interest in the career was reinforced by exposure to a family friend who owns her own SLP practice. Based on these two influences, she wrote “By the time I was a freshman in high school, I had already known what I wanted to do with the rest of my life.” The other seven participants wrote about a career decision process that began with uncertainty and evolved as they began to process a combination of personal interests, lifestyle considerations, constraints and experiences. A quote from Participant 7 conveys an interaction of personal interest in working with children and constraints of not wanting to be a teacher, with the recent past experience of exposure to SLP coursework: “I knew I wanted to work with children, preferably young children, and help them out but I didn’t want to be a teacher. To be completely honest I never truly considered being an SLP until a few months ago when I began taking an introductory class.”

Seven participants referenced their own “personal research” into the career as influencing their decision. This research included “watching YouTube videos” of speech therapy sessions, taking “personality quizzes,” and “writing a research paper about my intended career.” Four participants referenced receiving “career advice” from parents, family member, SLPs, and professors. Participant 2 wrote “I learned of speech pathology from family and friends. They would always come to me with things they have heard of or about people they know in a career in a certain field.”

Lifestyle Considerations. There were 35 references that related to “lifestyle considerations” in the narratives by 14 participants (see Table 6 for a representative sample of participant quotations coded as “lifestyle considerations”). Nine participants wrote of a desire to “help people” through their careers, such as Participant 12, who wrote “I have a desire to help others and be able to make an impact on someone’s life.” Five participants wrote about the variety of workplace options in the career of SLP, such as Participant 9, who wrote “After learning about the different areas where SLPs can work in and specialize in, I began to become interested in this area.” Five participants wrote of a desire to have a “fulfilling or rewarding” career, such as Participant 8, who wrote “I wanted to work in a place where I could grow close to the people I saw every day; see them grow, see them improve, and know that I was the catalyst of their improvement. Additional lifestyle considerations mentioned were “ability to work with people” in career, “work and family balance,” “salary,” and “work attire.”

Table 4.
Representative Quotations Coded as "Personal Affinities"

<u>Participant</u>	<u>Quotation</u>
<i>Sub-theme: Affinity for helping people (particularly to communicate)</i>	
P3	Everybody deserves to have a voice.
P4	Communicating is important, and I look forward to the day when I can help somebody else communicate better.
P5	Communication and language as a fascinating element of human development and behavior and I feel that everyone should be able to have the skills to communicate effectively through speech and language.
P8	I always wanted to help someone in my career and I think being an SLP will give me that opportunity.
P7	I want to become a speech-language pathologist because I have always had an interest in helping people.
P8	I want to (hopefully) better the lives of people struggling to do what every human being's right is to do: communicate.
P9	The idea of helping children, or any individual for that matter, improve the way they express themselves and facilitate their communication truly appealed to me.
<i>Sub-theme: Affinity for working with children</i>	
P1	I enjoy working with children.
P2	I would like to work with kids in the future.
P9	My first job was a babysitter. The kids love me and I love them.
P10	I knew I wanted to work with children.
<i>Sub-theme: Affinity for allied health professions</i>	
P2	In high school, I put together some ideas as to what I could maybe be interested in. My ideas were psychology, speech pathology, physical therapy, radiology and a few others that I can't remember at the moment.
P5	I had many ideas in mind, those ranging from social work, psychology, therapy, teaching, nonprofit work, and nursing.

Table 5.
Representative Quotations Coded as “Past Experiences”

<u>Participant</u>	<u>Quotation</u>
<i>Sub-theme: Interactions with SLPs</i>	
P4	When my brother was little, he was delayed in speech and when he would go for therapy, I would imitate the SLP.
P11	My aunt works as part of a school board and knows many speech language pathologists so I was able to shadow a few of them and also I was able to volunteer one summer with a speech language pathologist who works in a birth-to-three program for my town. I really enjoyed these visits and it looked like the SLPs really enjoyed their jobs as well.
P3	Towards the end of my senior year, it was time for career day, a day where alumni came in to our classes to talk about their career choices. A speech pathologist came in and told my class how much she loves her job and how it doesn't feel like work at all.
<i>Sub-theme: Career advice from trusted sources</i>	
P3	My aunt who has an autistic son was always trying to tell me about how great of a job being a speech pathologist is and how it is so rewarding.
P5	My dad always told me to find something you're passionate about, and be really good at it. 'Make it your own, be the best in your field with something marketable and special only you have.' This led me to speech.
<i>Sub-theme: Experience working in a health profession</i>	
P9	My first real (taxable) job was at a nursing home where I worked closely with those in hospice...As hard as it was to work in a place that was so highly unpredictable, I miss it.

Perceived Constraints. There were 12 references to “perceived constraints” in the narratives by nine participants (see Table 7 for a representative sample of participant quotations related to “constraints”). The most frequently referenced constraint involved “risks associated with other professions.” Four participants discussed risks they felt were associated with other careers. These careers were aligned with affinities the participants had and were within the scope of “helping professions.” However, for these participants the careers mentioned had perceived flaws that motivated the participants to consider alternatives. Participant 13 wrote “I had always had a passion for helping others so I thought maybe nursing would be my intended career. However, I didn't want someone's life on the line so I chose speech-language pathology.” Through this quote, she reveals reconsidering her career options due to the perceived risk of not being able to save a patient's life as a nurse. Additional “constraints” perceived by participants in their narratives included “availability of majors” (one participant had an interest in Linguistics, but her college did not have that major) and “perceived skill set” (one participant was interested in psychology but did not believe she had the capacity to pursue that career).

Table 6.
Representative Quotations Coded as "Lifestyle Concerns"

<u>Participant</u>	<u>Quotation</u>
<i>Sub-theme:</i>	
<i>Diversity of career options</i>	
P3	I was amazed at the diversity of the career and how I could do so many things with my future degree...I love the fact that the field of speech pathology is so broad and that I can study so many different concentrations and work in hospitals, private practices, nursing homes, etc. Even though I would like to work with children at the moment, I love the fact that I can work with adults or the elderly later down the line and that I don't have to be tied down to one specific area.
<i>Sub-theme:</i>	
<i>Practical concerns</i>	
P6	The career options seemed enjoyable and the hours seem less monotonous and the job is lucrative.
P9	Sitting behind a desk all day, staring at a computer screen, sounds infuriatingly boring. I want to interact with new people from diverse walks of life, and to build genuine relationships with them.
<i>Sub-theme:</i>	
<i>Importance of enjoying one's career</i>	
P11	I saw what kind of work [the SLPs] were doing with their students and it made me see how I could have fun with helping people.
P5	I remember having a conversation with my family friend at a barbeque one summer about her job as an SLP. I remember really thinking about my interests, what triggered me, what made me excited. I could feel my heart flutter with excitement as she spoke about her job.

Intersection of Themes. Four intersecting factors were discussed by five participants (n=5). For example, Participant 6 described constraints of her initial major (mass communications), success and interest in SLP coursework, interest in communication, and perception of a high quality of life for SLPs as reasons she chose the major. Five intersecting factors were discussed by five participants (n=5), such as Participant 11, who referenced a desire to work with people, interest in a helping profession, experience observing SLPs, perception of high quality of life of SLPs, and attraction to the diversity of work settings afforded SLPs. Two intersecting factors were discussed by three participants (n=3), such as Participant 15, who discussed an interest in sign language, combined with meeting an SLP who uses sign language with deaf clients, as factors in her decision. Three intersecting factors were described by one participant (n=1), such as Participant 7 who cited interest in SLP coursework, interest in helping people, and personal experience receiving SLP services as a child as factors leading her to choose the major. Finally, one participant (n=1) described seven intersecting factors. They were: an interest in the

helping professions (teaching, nursing, etc.), constraints of certain professions, personal interactions with an SLP, an interest in bilingualism, perception of the quality of life of SLPs, interest in working with people, and an interest in communication. On average, participants described four factors that intersected with one another to lead them to the decision to choose the SLP/A major.

Table 7.

Representative Quotations Coded as "Perceived Constraints"

<u>Participant</u>	<u>Quotation</u>
<i>Sub-theme: Perceived risks</i>	
P13	I had always had a passion for helping others, so I thought maybe nursing would be my intended career. But I didn't want someone's life on the line so I chose speech language pathology.
P6	I was already declared as a Mass Communications major but I wasn't sure if that was exactly what I wanted my options to be limited to in terms of a career field. I enjoy that major, but I'd hear things such as there are not many jobs in journalism and that the hours are long and hard without the pay being all too great.
<i>Sub-theme: Lack of interest in related fields</i>	
P2	Psychology and speech pathology were the only two ideas that I kept when starting my freshman year of college. I took a psychology class my very first semester and that interested me a lot, but as time went on I wasn't sure if it was the main thing I wanted to have a career in someday.
P10	I knew I wanted to work with children, preferably young children, and help them out but I didn't want to be a teacher.
<i>Sub-theme: Lack of opportunity to pursue other fields</i>	
P1	As I did more research on what it means to major in Linguistics, I fell in love with it. I found it so interesting and knew I wanted to do it as a career. As time grew closer to applying for college, I noticed that not many schools had Linguistics as a major. But they all had something else called speech-language pathology.

Discussion

Disconnect between Knowledge, Attitudes, and Beliefs

In general, participants showed a limited understanding of the linguistic domains that were the focus of this study: phonology, morphology, syntax, semantics, and pragmatics. Although participants expressed a high level of interest in linguistics (with 83% to 100% expressing interest across the domains), and although they reported a belief that linguistics would be relevant to work as SLPs (with 73% to 93% reporting that the various domains would be relevant), only 47% to 67% of participants reported feeling knowledgeable across the domains. Analysis of participants' written responses aligned with their

self-reports: In every area except pragmatics, only 33% to 50% of participants could offer even one example of how the domain would be relevant to their future work as SLPs. Nearly 75% of the participants could offer an example of how pragmatics would be relevant, a somewhat surprising finding, which may be explained by an emphasis on pragmatics in coursework the students had already taken.

Attitudes Implicit in Terminology

An unexpected finding of the study concerned the terminology participants used to describe their perspectives on the relevance of linguistics to the work of a speech-language pathologist. As we coded the transcripts for evidence of participants' attitudes, knowledge, and beliefs, we were taken by the recurrence of statements like the following: "a client may have trouble remembering or figuring out the *proper* morphemes," "teach them the *correct* way," "show what is the *right* thing to say," and "once the person knows how to say a word *perfectly*" (emphasis ours). In sum, such value-laden terminology was used by 60% of the participants in at least one of their responses. We were not looking for the use of value-laden terminology; it was so abundant that it was impossible to ignore. We believe this finding has important implications not only for the way linguistics is infused into SLP/A programs, but for the ways we teach SLP majors to talk about—indeed to think about—their clients more generally. Whether consciously or unconsciously, the language-choices made by participants indicated that many of them had negative perceptions of non-standard language variations or speech productions and potentially held implicit biases about how speech and language should be produced and communicated.

Although this study was not designed to specifically look at cultural and linguistic biases, this unintended result echoes findings of a 2016 study conducted by Franc et al. In their study, which explored the attitudes and beliefs of SLP students toward non-Standard American English dialects, the researchers found that attitudes toward diversity were correlated with exposure to cultural and linguistic differences. For the current study, participants were relatively new to the major and may have had limited experience with cultural and linguistic diversity. Certainly, among graduate programs accredited by ASHA, cultural competence is emphasized in many courses and throughout clinical experience (Council on Academic Accreditation, 2017). The high prevalence of value-laden terminology used by the participants in our study indicates a need for increased attention to cultural and linguistic diversity in linguistics instruction within undergraduate SLP programs.

Reasons for Choosing the Field: An Intersection of Factors

Participants' narrative responses revealed four main factors that led to their choice of SLP as a major: 1) personal affinities, 2) past experiences, 3) perceived constraints, and 4) lifestyle concerns. Not one participant, however, identified a single, independent factor that influenced her decision to pursue the SLP/A major. Instead, it was the intersections of the above four factors that brought each participant to ultimately choose the SLP/A major. This is consistent with findings on career choice motivation in other helping professions, such as nursing and psychotherapy, as well as with the limited research conducted in the field of SLP in this area (Byrne, 2007; Norcross & Farber, 2005; Mooney et al., 2007.)

All participants, for example, referenced certain affinities—whether an interest in certain coursework, specialties, or other helping professions—however, these affinities were also coupled with specific constraints or difficulties associated with pursuing alternative career choices. For example, one

participant mentioned an interest in working with children, but immediately after stated that she did not want to be a teacher. These affinities and constraints were very often contextualized by further outside influencers, such as adults giving them advice, conversations with SLPs, observations of SLP sessions, or personal experience as SLP clients. In addition, over half of the participants mentioned ideals they held related to communication; perhaps their beliefs and attitudes on communication as a human right intersected with these other factors to lead them to the field of SLP. Throughout the narratives, there was a common thread of participants wanting a vocation, rather than career—something aligned with how they identified themselves and how they felt. Many participants evoked words conveying emotion in their narratives, such as “passionate,” “excited,” and “makes my heart flutter.” These factors, combined with the common perception that SLPs hold a high quality of life (related to work hours, salary, human connection, etc.) seemed to have led participants to the choice of SLP as a career.

The intersection of factors that contribute to career choice is consistent with what past studies on career choice in the health professions have shown. Mooney et al., (2008) revealed that among nursing students interviewed on factors pertaining to their career choice, the majority of students reported the desire to help others as their primary factor, in addition to other factors such as job security and relevant experience, such as internships. Interestingly for our study, these authors shared that approximately one third of their study’s participants reported that nursing was not their first choice of career, and that the decision to pursue nursing related to constraints of other careers, such as teaching. Byrne’s (2007) study on factors influencing the career choice of SLP revealed that all participants expressed a desire to help people, and that all participants referenced an intersection of influences, examples of which included: an interest in the intersection of different fields of study in the curriculum, past experiences with SLP or SLPs, and input from parents and other mentors. Norcross & Farber (2005) wrote about the choice to pursue a career in psychotherapy. In their paper, they noted that among professionals and graduate students interviewed regarding career choice determinants, desire to help people was the most frequently cited factor. However, the authors acknowledged that while interviewees may consciously believe this to be the strongest contributing factor, there most likely is an intersection of influences of which the interviewees might be unaware. These authors found that, among psychotherapists, a combination of “desire to help people” and “chance” - chance encounters with professionals and chance exposure to related content, for example - combined with “personal proclivities” (p. 941) influenced career trajectory.

The findings from these studies resonate with the career determinants of the participants in the current study, which found that the pre-professional SLPs studied overwhelmingly want to help others while pursuing their interests, obtaining financial stability, and avoiding perceived risks associated with other helping professions. With that said, it is important to draw attention at this time to the demographics of the participant sample, which was completely female. It is generally acknowledged that the field of SLP, which in the United States is 3.7% male (ASHA, 2018), and other helping professions such as nursing, are professions with significant gender imbalances (Mooney et al., 2007; Boyd & Hewlett, 2001). Thus, these results generally represent the female experience of choosing SLP as a career, which might differ from that of males, who may have different priorities when it comes to career choice.

It is also worth revisiting at this time the importance of SLP students possessing an extensive knowledge base in language and linguistics. A desire to help others is a noble reason for entering a professional field, but it alone is not enough to motivate students to become high-quality, excellent speech and language service providers. Four participants (25%) noted that a career other than SLP was their first choice, but that perceived constraints in those professions led them to major in SLP. While the

path to a career can be circuitous, it is important for academic programs to be aware that reasons other than academic content influence students to choose the major. It cannot be assumed that students are intrinsically motivated to study linguistics and its clinical applications; the subject should be taught explicitly in order to produce knowledgeable professionals who are curious about linguistics and its role in the diagnostic and therapeutic process.

Finally, the realization that students come to the SLP major out of a confluence of interconnected interests has implications for recruitment efforts into the SLP career. The personal connections prospective students make with SLPs in their community or on campus through mentorships, observations, or career-centered events are influential and enable young people to see this career as an opportunity to combine their various interests and passions. This should especially be considered in the recruitment of male and minority students, who are still under-represented in the profession (ASHA, n.d.). Further exploration is warranted to investigate the reasons male and minority students choose the SLP career.

Demographics and Career Choice

Given the homogeneity of our sample—primarily young, white, women—it is important to interpret the participants' responses in light of their largely shared gender, cultural background, and generation. Qualitative analysis of the data clearly revealed that a majority of the study participants were highly motivated to work with others—particularly children—and to “help” people. Analysis also revealed that many participants chose not to pursue related careers perceived as more medical or scientific (i.e., nursing, psychology, neuroscience), often citing the difficulty of the coursework or the higher stakes associated with failure (e.g., “I didn’t want someone’s life on the line”), and that they preferred meaningful, “fulfilling” careers. These findings align with those of prior research into factors leading to career choice in helping professions (Byrne, 2007; Mooney et al., 2008); our society’s cultural norms and expectations for young women, young men, and people of color; and the values of college students who are members of Generation Z.

Dekhtyar et al. (2017) found that women - even those whose academic strengths are aligned with the STEM fields - tend to enter careers with more “verbal” cognitive demands, while men tend to choose careers that are more “numerically” demanding. Thus, women tend to dominate the fields of health-services, dental/medical technology, and business and legal assistant,; while men tend to dominate in industry, computers, data processing, and engineering/science technologies (National Center for Education Statistics, 2000; American Association of University Women, 2004). Dekhtyar et al. (2017) also found that women’s career choices are bounded by constraints. Compounding these constraints are personal variables, such as self-efficacy (personal beliefs regarding academic strengths) and “role conflict” (management of both work and family roles) that contribute greatly to adolescent girls’ career plans (Novakovic, 2012). This relates to findings of our study, which illuminated a juxtaposition between academic/career interests of participants (entering a helping profession) and the constraints they identified around pursuing those majors or careers (not wanting to be a teacher; aversion to “high-stakes” professions such as medicine; lack of confidence in abilities to pursue a career perceived as more rigorous; and disinterest in work where the hours are “long and hard”). Many of the constraints found in participant responses may relate to ongoing gender norms and stereotypes for women, beginning in early childhood, such as perceived academic abilities, perceived job capabilities, and work-life balance.

Research findings on the relationship between race and career choice offer a compelling explanation for why SLP is a career that continues to be dominated by White people. First, there is evidence that professions that are seen as prestigious and well-paid in our society are also those populated primarily by Whites and/or men (Solomon, 1989). Second, lack of representation of people of color in certain professions - even those typically held by women, such as nursing, teaching, and SLP - may “block” entrance of people of color to these professions (Sayman, 2007, p.25). Compounding social expectations is the fact that having friends and family members in a profession is a primary influencer for young people as they choose their career path (Mooney et al., 2008; Hill et al., 1990). This is an important consideration, in light of the many participants in our study who referenced a family member or friend who influenced their decision to become an SLP.

Lastly, it seems worthwhile to discuss the quality of life references participants made related to a career in SLP. Multiple references were made to the “diversity” of work in the profession, the career as a “rewarding” or “fulfilling” profession, and the importance of work-life balance. These references are similar to findings on career interest and motivation among members of the Generation Z age group, who according to Fodor and Jaeckel (2018), prioritize careers that they enjoy, that provide flexible scheduling and time for pursuing hobbies and leisure activity, and that offer a diverse scope of duties. These three factors were mentioned by numerous participants in our study, all of who belong to Generation Z. Participants described their ideal career as a “great job” that “makes everything so worth it.” It is important to these students that they enjoy what they do and see benefits and fulfillment in their own lives, as well as the lives of their clients. Fodor and Jaeckel (2018) also found that many participants described their career aspirations as being shaped by their negative perceptions of their parents’ careers. Indeed, several of the participants in the current study wrote that their parents seemed “tired” and “shattered” (p. 5) and that despite hard work, their parents did not receive deserved compensation. These subjects stated that they did not intend to follow their parents’ examples and aspired to the examples of non-family members who enjoyed their careers and engaged in work that allowed them to “do something good” (p. 5). It is worth recalling, at this time, the narrative of a participant in our study who detailed the “heartaches” she associated with her parents’ careers as teachers. When describing her father’s career, she recounted the “long hours he worked, dinners he missed, and early alarm clocks set, to ensure that his family was living comfortably.” She described “heartache, anxieties, and disappointments” related to her mother’s career and difficulty she had finding gainful employment. This student decided not to follow her parents’ career paths and wrote that the idea of a career in SLP “made her excited” and “made her heart flutter.”

Limitations

The first set of limitations relates to the participants. Data was collected from a small and homogeneous participant sample. Considering that this study was piloted at one small college, the limited sample size (n=15) was unavoidable. Thus, caution must be exercised when generalizing the results of this study to the larger population of speech-language pathology undergraduate students. Of equal concern and significance was the lack of gender, cultural and linguistic diversity among the participants. Unfortunately, as discussed above, this is less a limitation of this pilot study than it is a representation of the lack of diversity in the profession.

An additional limitation of the participant sample is that the student participants had completed different courses in the speech-language pathology curriculum. While care was taken to ensure that all

participants were within the first year of the major, some participants had already completed courses that others had not. Thus, the knowledge and attitudes toward linguistic domains reported by some participants could have been shaped by exposure to academic content that others had not yet received. Future studies should attempt to control for this variable.

Another set of limitations relates to the survey instrument used. When designing the survey, the researchers decided to provide both a definition and an example of each linguistic domain. Upon reviewing survey responses, it became unclear to the researchers whether students understood the linguistic domain when discussing how they would apply it clinically, or whether they were simply restating the example given by the researchers. Results might have differed had the researchers only given participants a definition. Another limitation of this instrument was that, in the demographic section of the survey, the researchers did not include a “0” option for students to indicate if they had taken no classes in the SLP curriculum. This should be added for future study.

Conclusion

This pilot study is the first to examine the knowledge about, attitudes toward, and interest in linguistics of undergraduate SLP students. It is also the first to examine the role an interest in linguistics may play in the decision to study SLP, and what other factors contribute to a student’s decision to choose the SLP major. This study found that, among undergraduate students surveyed, an interest in linguistics played a limited role in the decision to pursue SLP as a career. While these participants reported a belief that knowledge of linguistics is important for a career in SLP, few demonstrated knowledge of linguistics concepts or their applicability to clinical work. Other factors, including personal interests or affinities, past experiences with speech-language pathologists, quality of life consideration, and perceived constraints of majoring in other fields were more influential in this decision. These factors may be interpreted through the lens of cultural norms and expectations related to gender and race, which should be scrutinized for their roles in the under-representation of women of color and men in the profession of SLP. Since a course in linguistics is not a requirement of ASHA or many undergraduate/graduate SLP preparation programs, results suggest that explicit linguistics instruction is warranted at some point in the SLP coursework sequence. Results of this pilot study may inform future research into effective strategies to recruit a more diverse workforce into the field of speech-language pathology.

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Appendix

Welcome

Thank you for taking part in our survey. Before you begin, we'd like to know a little more about you. Please take a moment to answer the following few questions.

What is your gender?

- Male
- Female
- Non-binary

How old are you?

- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25-30
- >30

How many years have you been a student in the SCS department?

- 0-1
- 1-2
- 2-3
- 3-4

What is your intended career?

- Speech Language Pathology
- Audiology
- Other

How many languages do you speak fluently?

- 1
- 2
- 3
- >3

How many foreign languages have you studied (including signed languages)?

- 1
- 2
- 3
- >3

Which categories best describe you in terms of race, ethnicity, and/or origin? You may choose more than one.

- White
- Hispanic, Latino, or Spanish origin
- Black or African American
- Asian
- American Indian or Alaskan Native
- Middle Eastern or North African
- Native Hawaiian or other Pacific Islander

- Some other race, ethnicity, or origin
 I prefer not to say.

Please list any required and elective speech-language pathology or audiology courses you have taken so far:

Please indicate how beneficial you believe the following courses will be in preparing you for your career as a speech-language pathologist:

	Unbeneficial	Somewhat Unbeneficial	Neither Beneficial Nor Unbeneficial	Somewhat Beneficial	Very Beneficial
Normal Acquisition of Language	1	2	3	4	5
Introduction to Communication Disorders	1	2	3	4	5
Phonetics	1	2	3	4	5
Anatomy/Physiology of the Speech/Hearing Mechanisms	1	2	3	4	5
Introduction to Hearing Science	1	2	3	4	5
Audiology	1	2	3	4	5
Speech Science	1	2	3	4	5
Clinical Linguistics	1	2	3	4	5
Bilingualism and Speech/Language Disorders	1	2	3	4	5
Aural Rehabilitation	1	2	3	4	5
Communication Problems in the Aging	1	2	3	4	5
Internship in Speech	1	2	3	4	5
Clinical Practice in Speech	1	2	3	4	5

Swallowing Disorders in Adults and Children	1	2	3	4	5
Evaluation Procedures for Diagnostic Purposes in Speech-Language Pathology	1	2	3	4	5
Medical Speech-Language Pathology	1	2	3	4	5

Directions

The following survey is intended to assess your interest in, and familiarity with, various domains of language.

You will be presented with definitions of five language domains, along with an example of the kind of language analysis associated with each domain.

You will then be asked to circle the response that best characterizes how you feel about a number of statements, where: 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neither Agree nor Disagree, 4 = Somewhat Agree, and 5 = Strongly Agree.

Finally, you will also be asked to offer a brief written response to a question regarding the relevance of each language domain to the field of Speech Language Pathology.

PHONOLOGY is the study of the speech sounds of a language.

EXAMPLE of phonological analysis:

The allophones, or variations, of the sound /t/ in English are represented by the following transcriptions:

- a) [t^h] (aspirated) is the allophone of /t/ produced in the word *time*.
- b) [t] (released) is the allophone of /t/ produced in the word *stem*.
- c) [t¹] (unreleased) is the allophone of /t/ produced in the word *hot*.
- d) [ʔ] (glottal stop) is the allophone is /t/ produced in the word *acts*.
- e) [ɾ] (alveolar flap) is the allophone of /t/ produced in the word *butter*.

Please circle the response the best characterizes how you feel about the following statements.

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1. I find phonology interesting.	1	2	3	4	5
2. I already know a lot about phonology.	1	2	3	4	5
3. Phonology is easy to understand.	1	2	3	4	5
4. Understanding phonology will be relevant to my work as an SLP.	1	2	3	4	5
5. I have learned about phonology in previous courses.	1	2	3	4	5

Please describe how phonology will, or will not, be relevant to your work as an SLP.

MORPHOLOGY is the study of the meaningful parts of words.

EXAMPLE of morphological analysis:

The word *antifederalist* can be said to consist of three morphemes: *anti*, *federal*, and *ist*.

- *anti* is a prefix that means “against”
- *federalis* is a root word that means “alliance”
- *ist* is a suffix that means “a person who is”

Therefore, *antifederalist* can be understood to mean a “a person who is against alliance.”

Please circle the response the best characterizes how you feel about the following statements.

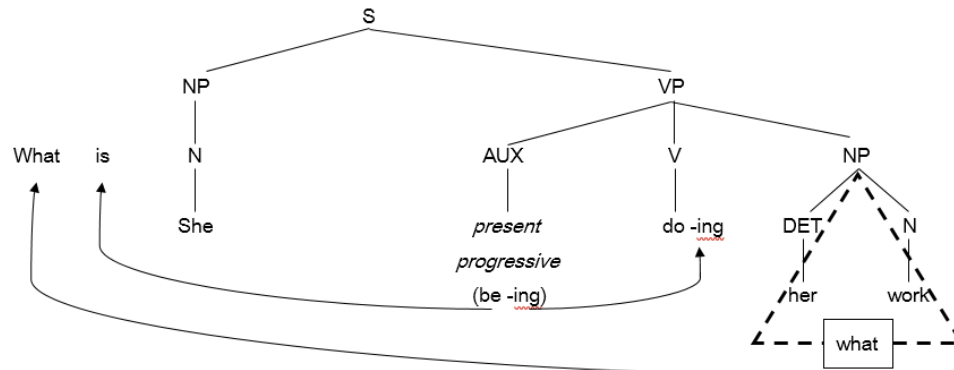
	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1. I find morphology interesting.	1	2	3	4	5
2. I already know a lot about morphology.	1	2	3	4	5
3. Morphology is easy to understand.	1	2	3	4	5
4. Understanding morphology will be relevant to my work as an SLP.	1	2	3	4	5
5. I have learned about morphology in previous courses.	1	2	3	4	5

Please describe how morphology will, or will not, be relevant to your work as an SLP.

SYNTAX is the rules that govern how words can be combined to form sentences in a language.

EXAMPLE of syntactic analysis:

The tree diagram below represents the syntactic structure of the sentence, "What is she doing?"



Please circle the response the best characterizes how you feel about the following statements.

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1. I find syntax interesting.	1	2	3	4	5
2. I already know a lot about syntax.	1	2	3	4	5
3. Syntax is easy to understand.	1	2	3	4	5
4. Understanding syntax will be relevant to my work as an SLP.	1	2	3	4	5
5. I have learned about syntax in previous courses.	1	2	3	4	5

Please describe how syntax will, or will not, be relevant to your work as an SLP.

SEMANTICS is the meaning of words and combinations of words in a language.

EXAMPLE of semantic analysis:

Synonyms are two words that have the same meaning in a language. For example, the following sets of words are generally considered synonyms in English:

- “big” and “large”
- “pretty” and “beautiful”

However, these words cannot be used interchangeably in English, as evidenced by the following examples:

- “She is my *big* sister.” vs. “She is my *large* sister.”
- “My new TV cost a *prettypenny*.” vs. “My new TV cost a *beautifulpenny*.”

Please circle the response the best characterizes how you feel about the following statements.

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1. I find semantics interesting.	1	2	3	4	5
2. I already know a lot about semantics.	1	2	3	4	5
3. Semantics is easy to understand.	1	2	3	4	5
4. Understanding semantics will be relevant to my work as an SLP.	1	2	3	4	5
5. I have learned about semantics in previous courses.	1	2	3	4	5

Please describe how semantics will, or will not, be relevant to your work as an SLP.

PRAGMATICS is the rules associated with the use of language in conversation and social situations.

EXAMPLE of pragmatic analysis:

Grice (1975) proposed the “quantity maxim,” which states that a speaker is assumed to make a contribution to the conversation that is adequately but not overly informative. In the interaction below, the girl violates the quantity maxim.

[A 14 year-old girl comes through the front door an hour after she was expected by her mother...]

Mother: It’s 6:30pm, young lady! Where on Earth have you been?!

Girl: Out.

Please circle the response the best characterizes how you feel about the following statements.

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree
1. I find pragmatics interesting.	1	2	3	4	5
2. I already know a lot about pragmatics.	1	2	3	4	5
3. Pragmatics is easy to understand.	1	2	3	4	5
4. Understanding pragmatics will be relevant to my work as an SLP.	1	2	3	4	5
5. I have learned about pragmatics in previous courses.	1	2	3	4	5

Please describe how pragmatics will, or will not, be relevant to your work as an SLP.