

THE STATE OF LITERACY IN SPEECH-LANGUAGE PATHOLOGY

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ABSTRACT

Julia J. Yi: The State of Literacy in Speech-Language Pathology
(Under the direction of Dr. Karen A. Erickson)

The purpose of these two studies was to examine the state of pre-service and in-service literacy training, self-efficacy, and clinical practice of speech-language pathologists (SLPs) and speech-language pathology programs in the United States. Study one analyzed course descriptions and available syllabi from a sample of 50 accredited graduate programs and examined the likelihood of offering literacy coursework in relation to geographical region, Carnegie Classification, or U.S. News & World Report ranking. About one-half of the programs ($n = 28$) offered a dedicated literacy course or a course that embedded literacy. None of the variables significantly predicted the probability of having literacy courses. However, an R1 or R2 Carnegie Classification was associated with a higher odds ratio of offering literacy courses compared to not having those classifications. Dedicated literacy courses were at least 60% more likely to include literacy assessment or intervention than literacy-embedded courses.

Study two was a survey of a nationwide U.S. sample of 444 SLPs. Approximately half ($n = 225$) of respondents reported taking either a dedicated or embedded literacy course. Only 8.05% felt that their graduate programs prepared them well or very well to assess and treat written language. Approximately 80% of respondents reported receiving in-service literacy training. School-based SLPs reported spending significantly less time on written language intervention than non-school-based SLPs ($p < .001$), a difference not found with spoken language. School-based SLPs had significantly lower rates of agreement regarding their roles

with literacy compared to non-school based SLPs ($p < .001$). There were significantly lower rates of self-efficacy in addressing written versus spoken language ($p < .001$). Having received in-service literacy training significantly predicted clinical time spent on written language ($p < .05$), self-efficacy in assessing and treating written language ($p < .05$), and the extent of beliefs regarding their roles with literacy ($p < .01$): effects that pre-service training did not have. In summary, there continues to be a significant need for increased pre-service and in-service trainings in literacy and to investigate reasons for differences in literacy practices and beliefs between school-based and non-school-based SLPs.

In memory of my dad, who believed in me to do the things I'm doing now.

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LIST OF ABBREVIATIONS

ASHA	American Speech-Language-Hearing Association
CAA	Council of Academic Accreditation
SLP	Speech-Language Pathologist

CHAPTER 1: INTRODUCTION TO THE STATE OF LITERACY IN SPEECH-LANGUAGE PATHOLOGY

There is a disconcertingly widespread issue in the field of speech-language pathology regarding the preparedness and practice of speech-language pathologists (SLPs) in literacy. Though SLPs have a role in assessing and treating spoken and written language (American Speech-Language-Hearing Association [ASHA], n.d., 2001), their experiences in pre-service training and self-perceptions of proficiency in addressing written language falls far behind expectations (Blood et al., 2010; Fallon & Katz, 2011; Sakowicz, 2009; Shelton, 2018). Their limited understandings of written language, or literacy, is all the more concerning given that a majority of SLPs work in the schools where they have a major responsibility to contribute to the literacy achievement of students on their caseloads and where the vast majority of those students struggle with literacy (ASHA, 2010, 2021).

In 2001, ASHA issued a position statement that clearly communicated that SLPs play a critical role and have responsibilities with literacy. Reflecting ASHA's position on SLPs' roles with literacy, shortly afterward, the Council for Clinical Certification in Audiology and Speech-Language Pathology (2004) explicitly included reading and writing as a part of the knowledge standards to be attained through coursework at the graduate level in order to receive certification as an SLP (ASHA, 2020b).

Despite these efforts to make explicit the expectations regarding literacy approximately two decades ago, surveys regarding pre-service training in graduate programs suggest that literacy has not received adequate attention (Blood et al., 2010; Fallon & Katz, 2011; Shelton,

2018). This reality is reflected in the fact that nearly 90% of school-based SLPs target spoken language disorders and only 36% address written language in their work with children with speech or language impairment (ASHA, 2020a). This discrepancy may be indicative of shortcomings that exist at the pre-service level. SLPs may not be receiving adequate pre-service training on the relationship between spoken and written language nor adequate pre-service training on literacy assessment and intervention. According to ASHA (2001),

the connections between spoken and written language are well established in that (a) spoken language provides the foundation for the development of reading and writing; (b) spoken and written language have a reciprocal relationship, such that each builds on the other to result in general language and literacy competence, starting early and continuing through childhood into adulthood; (c) children with spoken language problems frequently have difficulty learning to read and write, and children with reading and writing problems frequently have difficulty with spoken language; and (d) instruction in spoken language can result in growth in written language, and instruction in written language can result in growth in spoken language. (para. 2)

For all these reasons, it is imperative that SLPs are trained to identify, prevent, assess, and treat both spoken and written language disorders.

The Two Studies

The purpose of the two studies reported in this dissertation was to illuminate what the state of literacy is in the field of speech-language pathology in the United States, with specific attention toward pre-service and in-service literacy training, SLPs' self-perceptions of proficiency (i.e., self-efficacy) to address literacy, and SLPs' clinical experiences regarding literacy. The most recent studies surveying a national sample of SLPs that examined some of these questions were published more than a decade ago (Blood et al., 2010; Fallon & Katz, 2011). However, since then, there have been two national and pivotal educational initiatives, the implementation of the *Common Core State Standards*, now known as college- and career-readiness standards (Achieve, n.d.; National Governors Association Center for Best Practices,

Council of Chief State School Officers, 2010) and the implementation of the Every Student Succeeds Act (2015). ASHA clearly stated the role SLPs held in implementing aspects of both initiatives, with particular attention to the literacy development of students (ASHA, n.d.-b, 2016). Thus, there is reason to hope that the state of the field has shifted and that there is a need to provide updates to these studies.

The first study in this dissertation was an analysis of a nationally representative sample of 50 speech-language pathology graduate programs in the United States. This is the first known study to investigate the types of literacy training occurring at the pre-service level using a direct analysis of the courses offered by the graduate programs. This study entailed an analysis of information obtained primarily through the programs' online descriptions of coursework. Analyses focused on courses that were dedicated to literacy and courses that embedded literacy in a broader context. Information on geographic region, Carnegie Classifications of research activity, and the U.S. News & World Report ranking were obtained to determine their relationship to the likelihood that programs offered literacy training.

The second study in this dissertation was a survey of a national sample of SLPs who received their degree in speech-language pathology, speech and hearing sciences, communication sciences and disorders, or a related field from a graduate program in the United States. The survey was composed of questions regarding SLPs' pre-service and in-service training; their self-efficacy in assessing and treating literacy; and for respondents currently working with 5- to 21-year-olds, their current clinical experiences pertaining to literacy. Like the first study, important variables used throughout were the courses they completed that were dedicated to literacy and courses that embedded literacy in a larger context (e.g., child language course). Additionally, two sets of variables were compared throughout: (a) spoken language

versus written language (e.g., how well respondents felt their graduate programs trained them to address spoken language versus written language), and (b) school-based versus non-school-based SLPs (e.g., differences in beliefs about SLPs' roles with aspects of literacy between school-based and non-school-based SLPs).

Literacy and Pediatric SLPs

One important issue to note is that though the general state of literacy was examined in these studies, the latter section of the survey was focused on gathering information about clinical experiences from SLPs working in pediatrics, with clients or students who are 5- to 21-years-old. The reason for this was that the clients in this age-range are expected to acquire literacy skills in schools in accordance with current state standards (e.g., Common Core State Standards Initiative, n.d.) and educational laws (Every Student Succeeds Act, 2015), which include a specific focus on literacy. Without grade-appropriate literacy skills, students ages 5 to 21 years simply are not able to meet educational standards and expectations. Furthermore, ASHA specifically targeted SLPs working with school-aged children in its position statement (2001). As such, it was deemed important to specifically address the experiences, practices, and perceptions of SLPs who work with this population for a portion of the survey.

Conclusion

In summary, the goal of these two studies was to provide a better understanding of the state of literacy in speech-language pathology with a focus on pre-service and in-service training, SLPs' self-efficacy in addressing literacy, and their clinical experiences and practices regarding literacy. These studies included an analysis of courses offered in a representative sample of 50 programs in accredited speech-language pathology graduate programs (Council on Academic Accreditation, 2021) and a survey of a nationwide sample of SLPs (total $n = 444$). The findings

from these studies highlight areas where speech-language pathology graduate programs can improve literacy preparation, areas of literacy that SLPs feel the most and least self-efficacious to assess and treat, areas where they would like more in-service training on, areas of literacy need of the students on SLPs' workloads, and relationships between specific variables (e.g., having received pre-service training) and SLPs' current clinical literacy practice.

REFERENCES

- Achieve (n.d.). *Achieving the Common Core*. <https://www.achieve.org/achieving-common-core>
- American Speech-Language-Hearing Association (n.d.-a). *Implications Common Core state standards*. <https://www.asha.org/slp/schools/implications>
- American Speech-Language-Hearing Association (n.d.-b). *Roles and responsibilities of speech-language pathologists in schools*. <https://www.asha.org/policy/pi2010-00317/>
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of SLPs with respect to reading and writing in children and adolescents* [Position Statement]. <https://www.asha.org/policy/ps2001-00104>
- American Speech-Language-Hearing Association. (2020a). *2020 schools survey report: SLP caseload and workload characteristics*. www.asha.org/Research/memberdata/Schools-Survey/
- American Speech-Language-Hearing Association. (2020b). *2020 standards and implementation procedures for the Certificate of Clinical Competence in speech-language pathology*. <https://www.asha.org/certification/2020-slp-certification-standards/>
- American Speech-Language-Hearing Association (2021). *Employment settings for SLPs*. <https://www.asha.org/students/employment-settings-for-slps/>
- American Speech-Language-Hearing Association (2016). *Every Student Succeeds Act: Key issues for ASHA members*. <https://www.asha.org/siteassets/uploadedfiles/every-student-succeeds-act-key-issues.pdf>
- Blood, G. W., Mamett, C., Gordon, R., & Blood, I. M. (2010). Written language disorders: SLPs' training, knowledge, and confidence. *Language, Speech & Hearing Services in Schools, 41*(4), 416-428A. [https://doi.org/10.1044/0161-1461\(2009/09-0032\)](https://doi.org/10.1044/0161-1461(2009/09-0032))
- Council on Academic Accreditation (2021). *Programs*. <https://caa.asha.org/programs/>
- Common Core State Standards Initiative (n.d.). *English language arts standards*. <http://www.corestandards.org/ELA-Literacy/>
- Council on Professional Standards in Speech-Language Pathology and Audiology of the American Speech-Language-Hearing Association (2004). *Background information and standards and implementation for the certificate of clinical competence in speech language pathology*. American Speech-Language-Hearing Association.
- Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). <https://www.congress.gov/bill/114th-congress/senate-bill/1177>

- Fallon, K. A., & Katz, L. A. (2011). Providing written language services in the schools: The time is now. *Language, Speech & Hearing Services in Schools*, 42(1), 3-17A. [https://doi.org/10.1044/0161-1461\(2010/09-0068\)](https://doi.org/10.1044/0161-1461(2010/09-0068))
- Johnson, D. E. (2017). *The perceived roles of SLPs, reading specialists, and general education teachers in the intervention of reading comprehension and decoding for elementary school students* [M.A. Thesis, California State University, Long Beach]. ProQuest Dissertations and Theses Global. <https://www.proquest.com/docview/1981229801>
- National Center for the Study of Adult Learning and Literacy, Harvard Graduate School of Education (2007). *Adult literacy research: Opportunities and challenges*. National Institute for Literacy. <https://files.eric.ed.gov/fulltext/ED495439.pdf>
- National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core state standards*. <http://www.corestandards.org/>
- Sakowicz, J. L. (2009). *School-based SLPs' involvement with students who have writing difficulties: A statewide survey* [M.S. Thesis, Southern Connecticut State University]. Proquest Dissertations and Theses Global. <https://www.proquest.com/docview/305141716>
- Shelton, M. D. A. (2018). *School-based SLPs: Perspective of literacy and collaboration with classroom teachers* (Publication No. 13819696) [Doctoral dissertation, Sam Houston State University]. ProQuest Dissertations and Theses Global. <https://hdl.handle.net/20.500.11875/2555>

CHAPTER 2: LITERACY TRAINING IN GRADUATE SPEECH-LANGUAGE PATHOLOGY PROGRAMS

In 2001, the American Speech-Language-Hearing Association (ASHA) released a position statement that clearly described the role of speech-language pathologists (SLPs) with respect to literacy, defined as the ability to read and write (ASHA, n.d.-c). In this position statement, ASHA stated that SLPs “play a critical and direct role in the development of literacy for children and adolescents with communication disorders” (para. 1), including prevention, identification, assessment, and intervention. Many language and literacy researchers have echoed this call for SLPs to take a greater part in assessing and treating literacy (Ehren & Ehren, 2001; Kamhi & Catts, 1986; Moxam, 2020; Powell, 2018; Tambyraja & Schmitt, 2020).

ASHA Certification and Knowledge Standards

In line with ASHA’s position statement, the role of SLPs with literacy has been reflected in the ASHA certification standards since 2005. These standards require SLPs to have knowledge of reading and writing for certification (Council on Professional Standards in Speech-Language Pathology and Audiology of ASHA, 2004).

Further, ASHA (2002) detailed the knowledge and skills needed by SLPs with respect to literacy for children and adolescents in a Knowledge and Skills document. The five knowledge areas outlined in the guidelines were:

1. **The nature of literacy**, including spoken-written language relationships, and reading and writing as acts of communication and tools of learning.
2. **Normal development** of reading and writing in the context of the general education curriculum.
3. **Disorders of language and literacy** and their relationships to each other and to other communication disorders.

4. **Clinical tools and methods** for targeting reciprocal spoken and written language growth.
5. **Collaboration, leadership, and research principles** for working with others, serving as advocates, and advancing knowledge about evidence-based practices. (ASHA, 2002, p. 2)

Spoken and Written Language Across the Language Domains

Like spoken language, literacy or written language is impacted by five domains (i.e., phonology, morphology, syntax, semantics, and pragmatics), and it is expected that SLPs are knowledgeable about these domains (ASHA, n.d.-d, 2002). According to ASHA (n.d.-b), the domain of phonology involves the awareness and use of appropriate phonological patterns in spoken language. This then applies in written language as children learn sound-letter associations and use phonological awareness skills to read and spell words. The domain of morphology involves understanding and using the smallest units of meaning, or morphemes, in spoken and written language. This includes applying the knowledge of morphemes (e.g., affixes, root words, inflections) in reading and spelling words (Apel, 2014) and using grammar across reading and writing tasks. The domain of syntax includes understanding and using appropriate sentence structures in spoken and written language. The domain of semantics involves understanding and using vocabulary appropriately in spoken and written language. Lastly, the domain of pragmatics involves understanding and using the social aspects of language in spoken and written language. This includes comprehending the social and inferential aspects of text (e.g., point-of-view) when reading and writing.

Pre-Service Training in Literacy

Training in written language, across the language domains, is especially important for SLPs because the majority work in the schools (ASHA, 2021) where they have a critical role and responsibility to support the literacy achievement of students with diagnosed language disorders

and those who are at-risk for language disorders (ASHA, 2010). Unfortunately, only 36% of school-based SLPs report that they address literacy or written language disorders in their practice, whereas 90% report that they address spoken language disorders, as they relate to semantics, morphology, and syntax (ASHA, 2020).

This small percentage of school-based SLPs who report that they address written language in their practice compared to the percentage who report that they address spoken language may be indicative of limited training and experience with literacy assessment and intervention at the pre-service level. Inadequate training in literacy has been reported in both large-scale (Fallon & Katz, 2011) and small-scale (Shelton, 2018) surveys of SLPs with no more than a quarter of responding SLPs reporting to have received some pre-service training in the area of literacy. In another survey of nearly 600 SLPs (Blood et al., 2010), the majority of respondents (approximately 65%) noted limited and unsatisfactory academic training in evaluating and treating written language disorders.

SLPs report that their limited experiences with literacy training extend beyond coursework to practicum placements (Blood et al., 2010). This is unfortunate, given that participating in clinical practicums consistently results in increased clinical self-efficacy (McBride, 2022), which is individuals' beliefs in their proficiency to accomplish a task (Bandura, 1977). Participation in clinical practicums also improves clinical performance in evaluating and treating targeted skills (Baigorri et al., 2020; Pasupathy & Bogschutz, 2013; Rudolf et al., 1983). Further, supervised clinical practice in the area of literacy results in improved outcomes of the students served, including on standardized reading measures (Brownell et al., 2017).

The lack of pre-service training in literacy likely has deleterious effects on students with

language disorders because it may decrease the likelihood that their written language needs will be identified during assessment or that they will receive the literacy interventions they require. When SLPs do receive pre-service training in written language disorders, they are five times more likely than SLPs who did not receive this training to provide services targeting written language to all students on their workloads who needed them (Fallon & Katz, 2011). Clearly, there is a need to ensure that all SLPs receive adequate training and experience in literacy to address the written language needs of the clients they serve.

The Present Study

Though it has been two decades since ASHA published its original position statement on the roles and responsibilities of SLPs with respect to literacy for children and adolescents (ASHA, 2001) and almost two decades since speech-language pathology graduate programs were first required to include training in written language in their pre-service training (Council on Professional Standards in Speech-Language Pathology and Audiology of ASHA, 2004), few efforts have been made to understand whether and how graduate programs are addressing literacy. There have been surveys of practicing SLPs to address this question (e.g., Blood et al., 2010; Fallon & Katz, 2011); however, at present, there are no known investigations of the ways literacy and written language disorders are addressed in coursework in graduate speech-language pathology programs across the United States. There is also little known regarding whether factors associated with education such as geographic region, the college or university's research activity (i.e., Carnegie Classification), or the program's overall rankings (i.e., U.S. News & World Report), are related to the likelihood of providing literacy training.

Geographic Region

Differences in educational outcomes across the four U.S. geographic regions (i.e.,

Northeast, South, Midwest, and West) have spanned all levels of education, from elementary school to post-secondary schools. For example, as early as 2003, the National Assessment of Education Progress Reading scores for grades four and eight were the highest in the Northeast, followed by the Midwest, the South, and then the West (Donahue et al., 2005), a trend that has remained relatively the same since then (National Center for Education Statistics, 2019). It is not surprising then that these regional differences are also evident at the secondary level, with patterns fairly similar to the National Assessment of Education Progress scores. For example, as reported by Greene and Forster (2003), high school graduation rates have been highest in the Northeast and Midwest and lower in the South and West and college readiness rates have been highest in the South, followed by the Northeast, the Midwest, and the West. Although there are no known studies of differences in allied health sciences graduate programs across regions, based on the aforementioned trends, there may very well be regional differences in pre-service literacy coursework and training opportunities across speech-language pathology graduate programs.

Carnegie Classification

Carnegie classifies doctoral universities as R1 or R2 based on the number of research and scholarship doctorates awarded, research expenditures, and measures of research activity across specific fields. The Carnegie Classification is essentially a measure of each institution's research activity (Carnegie Classification of Institutions of Higher Education, n.d.). In previous studies, Carnegie Classification was found to have positive, significant effects on students' outcomes, such as cognitive gains (McCormick et al., 2009) and even the odds of passing the National Examination for licensure in some allied health fields (Riddle et al., 2009). One possible reason for this relationship may be that increased levels of research activity and the resulting proximity to research corresponds to different educational opportunities, resources, and outcomes. Thus,

there may be a higher probability of literacy training in speech-language pathology programs in institutions that are more actively committed to research because they may have language and literacy researchers teaching literacy in graduate courses or they may be engaged in relatively novel areas in the field of speech-language pathology, including literacy.

U.S. News & World Report Ranking

The U.S. News & World Report ranking represent the rankings of graduate programs from the highest to lowest, based on composite mean scores for each program. These scores are determined by the opinions of administrators or faculty of other accredited speech-language pathology programs as reported in peer assessment surveys on a scale from one (marginal) to five (outstanding) and programs with scores of less than 2.0 are listed as Rank Not Published (Morse et al., 2021). Unlike the Carnegie Classification, these rankings measure specific graduate programs, including speech-language pathology programs, whereas the Carnegie Classification measures the universities or colleges where the programs are housed.

The U.S. News & World Report rankings have been especially influential in the past twenty years (Taylor et al., 2019) in evaluating the effectiveness of institutions or programs (Bowman & Bastedo, 2009; Sponsler, 2009), in informing institutional policies (Gnolek et al., 2014), and in impacting students' college or university choice (Eagan et al., 2017). They have also been positively associated with post-graduation outcomes (Morriss & Henderson, 2008). However, these rankings are not without controversy because they are determined subjectively and may fail to comprehensively measure the complexities of education quality (Altbach, 2006; Gladwell, 2011; Tierney, 2013; Zilvinskis & Rocconi, 2018). However, given its current influence on the academic reputations of post-secondary institutions, it is a variable to consider regarding pre-service training and the range of opportunities each affords its students.

Research Questions

The purpose of this study was to directly examine the way literacy is addressed in pre-service speech-language pathology graduate programs across the United States and examine potentially associated variables. The specific research questions for this study were:

- R1. What percentage of speech-language pathology graduate programs in the sample offer one or more courses that are dedicated to literacy and/or embed literacy content as part of a course?
- R2. How are the dedicated literacy and literacy-embedded courses named and described?
 - R2a. What percentage of dedicated literacy and literacy-embedded courses provide training in the assessment or treatment of written language disorders?
 - R2b. What percentage of dedicated literacy and literacy-embedded courses focus on pediatrics versus adults?
- R3. Do graduate programs provide specialty tracks or clinical programs or tracks focused on literacy and if so, how are they named and described?
- R4. What is the nature of the relationship between the probability of offering dedicated literacy and literacy-embedded courses and: (a) region, (b) the university's level of research activity defined by Carnegie's Classification, or (c) US News & World Report's ranking?

Methods

A sample of 50 schools was selected, through stratified random sampling. The strata were based on geographic region and Carnegie ranking. Using this stratification, 50 schools were randomly selected from all programs that held accreditation from the Council on Academic Accreditation in Speech-Language Pathology (CAA) in the spring of 2021. There were four

levels of geographic region based on the U.S. Census Bureau's definition of U.S. regions (2010): Northeast, South, Midwest, and West. There were three levels of Carnegie rankings using Carnegie's Basic Classification of Doctoral Universities (Carnegie Classification of Institutions of Higher Education, n.d.): (a) R1 (i.e., very high research activity), (b) R2 (i.e., high research activity), and (c) not an R1 or R2 university. The Carnegie levels were derived from the most recent list of Carnegie's Basic Classification of doctoral universities (Carnegie Classification of Institutions of Higher Education, 2018). In the current study, stratification of these two variables, Carnegie Classification and region, resulted in a total of 12 sub-groups or stratum (e.g., Northeast R1 schools; Northeast R2 schools; Northeast non-R1 or R2 doctoral universities). At the time of sampling in February 2021, there were a total of 265 accredited speech-language pathology graduate programs without probation by the CAA (2021). These formed the population from which the sample was selected.

In order to calculate the representative proportion of each sub-group for the stratified sampling, all the accredited programs were first coded by region and Carnegie classification. Next, representative proportions were calculated by dividing the frequency in each subgroup by the total number of accredited speech-language pathology programs. This proportion was then used to calculate the frequency of schools in each stratum for the sample of 50. Then, the resulting number of schools in each stratum was randomly selected. After this, the U.S. News & World Report ranking was recorded for each school in the sample from the most recent report (2020). The representative proportions and corresponding frequency of programs in each of the twelve strata are reported in Table 2.1.

After the programs in the sample were randomly selected, a correlation analysis was conducted using Kendall's coefficient of rank correlation tau-b to explore the relationship

between the Carnegie Classification and the U.S. News & World Report ranking of the programs in the sample. This was conducted to determine if the Carnegie Classification reflected the speech-language pathology programs specifically and not just the universities at large.

Table 2.1

Representative Proportions and Frequency of Programs in the Sample, By Stratum

U.S. Region	R1	R2	Not an R1 or R2	Total
Northeast	4.0% (<i>n</i> = 2)	2.0% (<i>n</i> = 1)	16.0% (<i>n</i> = 8)	22.0% (<i>n</i> = 11)
South	12.0% (<i>n</i> = 6)	12.0% (<i>n</i> = 6)	12.0% (<i>n</i> = 6)	36.0% (<i>n</i> = 18)
Midwest	6.0% (<i>n</i> = 3)	8.0% (<i>n</i> = 4)	12.0% (<i>n</i> = 6)	26.0% (<i>n</i> = 13)
West	4.0% (<i>n</i> = 2)	4.0% (<i>n</i> = 2)	8.0% (<i>n</i> = 4)	16.0% (<i>n</i> = 8)
Total	26.0% (<i>n</i> = 13)	26.0% (<i>n</i> = 13)	48.0% (<i>n</i> = 24)	100% (<i>n</i> = 50)

Data Collection and Coding

To gather information about each of the selected graduate programs, first, a graduate assistant obtained information from the websites of each graduate program in the sample. Specifically, pages and documents posted on websites were saved if they had the following information: (a) course names, (b) course descriptions, or (c) number of credits. If this information could not be found online, the graduate assistant reached out to the program directors via email and by phone call, using a template, which was required to secure the information from six schools. Using these methods, information was obtained for each of the 50 programs. If there was information on the instructors teaching the courses that addressed literacy, their names and contact information were recorded, and they were later contacted to request their course syllabi for content analysis.

Coding was conducted via a protocol (see Appendix 2.1), which was completed using Qualtrics (www.qualtrics.com). This approach ensured blinding during coding while supporting ease of analysis item-by-item after coding. Both the first author and a second graduate assistant

independently coded the information based on the websites and documents gathered by the first graduate assistant. Information regarding details of the courses (e.g., whether there was training in literacy assessment and/or treatment) were predominantly obtained through the course descriptions. After the first author and graduate assistant completed one iteration of independently coding five randomly selected schools not in the sample, they compared codes, discussed their decisions, and edited the coding protocol as needed. Using the edited protocol, three more rounds of reliability with follow-up discussions were conducted using randomly selected schools that were not in the final sample. In the final round, the two reviewers achieved inter-rater reliability with a Kappa statistic exceeding 0.81, which is deemed a level of “almost perfect” reliability (Landis & Koch, 1977). After this, coding of the sample of 50 schools ensued. The first author coded information of all schools in the sample and the graduate assistant coded information from 20% of the sample (i.e., ten schools) to ensure reliability. The measure of agreement of coding the schools in the final sample was calculated using a Kappa statistic.

Data Analysis

All statistical analyses were conducted using IBM SPSS (Version 26.0). The *p*-value was set to $< .05$. All data were screened to determine their appropriateness given the required assumptions for each analysis. Univariate logistic regression analyses were conducted with the binary dependent variable (i.e., 0 or 1, no or yes) indicating whether there were dedicated literacy courses (dedicated courses) or courses that embedded literacy (embedded courses) in the program. The U.S. News & World Report ranking, which is continuous in nature, was one of the independent variables. The univariate logistic regressions were computed using Nagelkerke R^2 , which indicates how much variance in the dependent variable can be explained by the model. The linearity of these reported scores with respect to the logit of the dependent variable was first

assessed using the Box-Tidwell (1962) procedure. Additionally, a Chi-Square test of Independence was performed to further assess the relationship between (a) the probability of providing coursework in literacy (i.e., dedicated course, embedded course, either dedicated or embedded courses) and (b) the categorical variables of region and Carnegie ranking.

Results

The 50 schools in the final sample are listed in Table 2.2 with the corresponding information on geographic region, Carnegie Classification, and U.S. News & World Report ranking. Pertinent information was readily obtainable on 44 programs' websites. Using the template, the remaining six programs were contacted, and the necessary information was provided by the programs after the first contact. The Kappa statistic of the measure of agreement in coding 20% of the final sample between the first author and the graduate assistant was 0.88, a level of "almost perfect" reliability (Landis & Koch, 1977).

To determine if the Carnegie Classification was representative of the speech-language pathology programs and not just the university at large, a correlation analysis was conducted to explore the relationship with U.S. News & World Report ranking of the speech-language pathology programs. There was a positive, significant correlation (Kendall's tau-b) between the Carnegie Classification of the schools and the U.S. News & World Report ranking of the speech-language pathology programs across the schools in the sample ($\tau_b = 0.43, p < .001$). Additionally, there were no outliers found across all the analyses.

The names and contact information of the twenty-one professors teaching the courses in the sample were found on the programs' websites. Syllabi from their courses, whether dedicated or embedded, were requested via email. The syllabi from six courses were obtained. Four were from embedded courses, and two were dedicated courses.

Table 2.2*Programs in the Sample with Corresponding Regions and Rankings*

Program	Region	Carnegie	U.S. News & World
Alabama A&M University	South	Not R1/R2	229
Bowling Green State University	Midwest	R2	63
California State University, Fresno	West	Not R1/R2	170
California State University, Long Beach	West	Not R1/R2	189
CUNY, Hunter	Northeast	Not R1/R2	92
CUNY, Lehman	Northeast	Not R1/R2	109
CUNY, Queens	Northeast	Not R1/R2	72
Eastern Michigan University	Midwest	R2	189
Eastern Washington University	West	Not R1/R2	170
Fort Hays State University	Midwest	Not R1/R2	189
Gallaudet University	South	R2	38
Georgia State University	South	R1	55
Grand Valley State University	Midwest	Not R1/R2	213
Hofstra University	Northeast	Not R1/R2	132
Jackson State University	South	R2	244
La Salle University	Northeast	Not R1/R2	146
Lamar University	South	Not R1/R2	189
Loyola University Maryland	South	Not R1/R2	82
Marquette University	Midwest	R2	55
Marshall University	South	R2	146
Maryville University	Midwest	Not R1/R2	Not reported
Monmouth University	Northeast	Not R1/R2	213
Montclair State University	Northeast	R2	109
New York Medical College	Northeast	Not R1/R2	92
Northern Arizona University	West	R2	132
Northwestern University	Midwest	R1	2
Nova Southeastern University	South	R2	213
Southern University and A&M College	South	Not R1/R2	258
SUNY Plattsburg	Northeast	Not R1/R2	189
Tennessee State University	South	R2	170
University of Florida, Gainesville	South	R1	25
University of Iowa	Midwest	R1	6
University of Kentucky	South	R1	45
University of Louisville	South	R1	109
University of Minnesota Duluth	Midwest	Not R1/R2	109
University of Mississippi	South	R1	92
University of Montana	West	R2	109

Program	Region	Carnegie	U.S. News & World
University of Nebraska, Lincoln	Midwest	R1	20
University of Nebraska, Omaha	Midwest	R2	82
University of New Hampshire	Northeast	R1	109
University of New Mexico	West	R1	72
University of Northern Colorado	West	Not R1/R2	92
University of Oklahoma Health Sciences Center	South	Not R1/R2	63
University of Pittsburgh	Northeast	R1	3
University of South Alabama	South	R2	92
University of Tennessee Health Sciences Center	South	R1	38
University of West Georgia	South	Not R1/R2	229
University of Wisconsin, River Falls	Midwest	Not R1/R2	213
University of Wisconsin, Stevens Point	Midwest	Not R1/R2	132
Washington State University	West	R1	72

Programs That Include Literacy Training in Their Courses

Across the sample, 56% ($n = 28$) of the programs had some type of dedicated literacy or embedded course. There were seven programs (14%) offering both a dedicated and embedded course.

Dedicated Literacy Courses

Of the 50 programs in the sample, 28% ($n = 14$) indicated that they offered a dedicated literacy course. One program had two dedicated literacy courses, resulting in a total of 15 dedicated literacy courses in the sample. The names and the descriptions of the 15 dedicated courses are reported in Table 2.3. All the courses were offered for three credits in traditional academic year formats (i.e., semesters) except for one two-credit course in a semester system and one one-credit course in a quarter system.

Among the 15 dedicated courses, 86.67% ($n = 13$) addressed literacy assessment and 93.33% ($n = 14$) addressed literacy treatment. Slightly more than half (53.33%; $n = 8$) were geared towards children and/or adolescents (i.e., pediatric).

Table 2.3*Names, Descriptions, Formats, and Credits of the 15 Courses Dedicated to Literacy*

Course Names	Course Descriptions	Area of Knowledge Included ¹
Advanced Issues in Literacy Disorders	This course will provide theoretical perspectives on typical and atypical development of literacy skills. Current and historical models of reading and written language and their implications for instruction will be presented. Efficacy-based interventions and the use of technology will be addressed.	<ul style="list-style-type: none"> - Normal development - Disorders of language and literacy - Clinical tools and methods
Applied Reading Disabilities: Diagnosis and Treatment	Seminar and practicum in diagnosis and treatment of developmental reading disabilities.	<ul style="list-style-type: none"> - Disorders of language and literacy - Clinical tools and methods
Clinical Methods in Speech-Language Pathology: Reading and Dyslexia	This clinical seminar addresses typical processes of reading across the lifespan including pre literacy skills. Reading disorders in children and adults are discussed, differential diagnosis, therapeutic intervention; the role of the Speech-Language pathologist in the educational setting; collaboration among reading professionals and school-based curriculum.	<ul style="list-style-type: none"> - Normal development - Disorders of language and literacy - Clinical tools and methods - Collaboration, leadership and research principles
Diagnosis and Treatment of Language and Language-Based Literacy Disorders	Clinical aspects of intervention for children and adults who have language disabilities, focusing on identification, diagnosis, and treatment of emergent literacy and language disorders.	<ul style="list-style-type: none"> - Disorders of language and literacy - Clinical tools and methods
Disorders of Language & Literacy: School-Age and Adolescent	In-depth study of impairments of oral language, reading, and written expression in school-age children and adolescents. Explores typical development, models of impairment, assessment and treatment.	<ul style="list-style-type: none"> - Normal development - Disorders of language and literacy - Clinical tools and methods

Course Names	Course Descriptions	Area of Knowledge Included ¹
Language and Literacy	<p>This course discusses the theories of reading development, general milestones, and the relationship of cognition and reading. Different types of reading impairments will be examined as well as factors related to the multi-lingual language learners. Standardized, criterion-referenced, and dynamic assessment procedures will be studied using case examples. Intervention procedures will be examined with special attention to multi-sensory approaches. The role of the speech-language pathologist on an individualized education team will be discussed including methods of consultation and collaboration.</p>	<ul style="list-style-type: none"> - The nature of literacy - Normal development - Disorders of language and literacy - Clinical tools and methods - Collaboration, leadership and research principles
<p>Language and Literacy Development and Disorders: Preschool Through Early School Age</p>	<p>This course focuses on assessment, prevention, and intervention for children with language and literacy disorders, preschool through early school age. Emphasis is placed on evidence-based strategies for implementing language services in school settings.</p>	<ul style="list-style-type: none"> - Disorders of language and literacy - Clinical tools and methods
<p>Language and Literacy Disorders in School-Age Children and Adolescents</p>	<p>Characteristics, assessment and intervention of oral and written language disorders in school-age children including: risk factors, impact of commonly co-occurring cognitive characteristics (e.g., executive dysfunction), manifestations of language disorders in various language systems and forms (syntax, semantics, phonology, morphology, pragmatics, narrative language, metalinguistics), multicultural issues, assessment, public and professional policies, assistive technology, and evidence-based practices.</p>	<ul style="list-style-type: none"> - Disorders of language and literacy - Clinical tools and methods

Course Names	Course Descriptions	Area of Knowledge Included ¹
Language and Literacy Disorders: School-Age Population	Explores the roles and responsibilities of the speech-language pathologist with school-aged clients typically aged 5 to 21. Emphasis is on prevention, assessment, and intervention strategies for language disorders with a focus on literacy. Practice issues specific to school-based services are addressed.	<ul style="list-style-type: none"> - Disorders of language and literacy - Clinical tools and methods - Collaboration, leadership and research principles
Language and Literacy for Speech Language Pathology	Participants will learn how language and literacy are intertwined and the role of the speech-language pathologist in assessing and treating patients with literacy disorders including students with dyslexia and English Language Learners.	<ul style="list-style-type: none"> - The nature of literacy - Disorders of language and literacy - Clinical tools and methods
Language Disorders and Literacy	A study of etiology, characteristics, assessment, diagnosis, intervention, and prevention of speech and language disorders in children, including those children with multicultural backgrounds and special needs. This course is designed to focus on characteristics of growth, norm-reference and criterion-referenced measures, and assessment and intervention procedures and strategies related to reading and literacy development.	<ul style="list-style-type: none"> - Normal development - Disorders of language and literacy - Clinical tools and methods
Language, Learning and Literacy: Development and Disabilities from Kindergarten Through Adulthood	This is an intensive study of the connections between oral and written language, literacy development, discourse processes, academic skills, and their sociocultural significance. Theoretical models of assessment and intervention and the influence of diverse linguistic and cultural factors are addressed. Students are required to complete field research of persons who have language-learning disabilities.	<ul style="list-style-type: none"> - The nature of literacy - Normal development - Disorders of language and literacy

Course Names	Course Descriptions	Area of Knowledge Included ¹
Seminar in Language and Literacy Disorders in School-Age Children and Adolescents	Discuss oral and written language continuum, literacy development and disorders and language-based learning disabilities in school-age children and adolescents. Comprehensive assessment and intervention approaches to enhance literacy development will also be covered.	- The nature of literacy - Normal development - Disorders of language and literacy - Clinical tools and methods
Seminar in Literate Language	A review and discussion of the literature concerning literate language. Topics include: 1) characteristics of literate language; 2) differences between literate and oral language; 3) emergent literacy; 4) theories of the reading and writing processes; 5) components, development, strategies, and factors involved in typical reading and writing; 6) literate language and speaking; and 7) issues pertaining to atypical readers and writers.	- The nature of literacy - Normal development - Disorders of language and literacy
Special Topics: Advanced Topics in Language and Literacy	Advanced topics in language and literacy will focus on reading and writing skills from preschool through adolescence. Assessment and intervention strategies for deficits in reading and writing will be emphasized. Graduate students planning on working in schools will develop communication goals relevant to the school curriculum.	- Normal development - Clinical tools and methods

Note. The five knowledge areas are: (a) the nature of literacy, (b) normal development of reading and writing, (c) disorders of language and literacy, (d) clinical tools and methods, and (e) collaboration, leadership, and research principles.

¹ ASHA, 2002

Three (20%) of the dedicated courses addressed both children and/or adolescents and adults, and none of the courses were geared specifically towards adults. For the remaining four courses (26.68%), it was not clear if there was a target age group addressed. Information regarding whether a course was required or elective was only provided for two (13.33%) of the

dedicated courses, which were stated to be electives.

Of the five knowledge areas referenced in ASHA's (2002) document on the *Knowledge and Skills Needed by SLPs With Respect to Reading and Writing in Children and Adolescents*, almost all the course descriptions included some element of the two knowledge areas: (a) *disorders of language and literacy* and their relationships to each other and to other communication disorders ($n = 14$); and (b) *clinical tools and methods* for targeting reciprocal spoken and written language growth ($n = 13$), though most of the courses alluded to only written language, rather than both spoken and written language. The remaining knowledge areas were referenced less frequently: (a) *normal development of reading and writing* in the context of the general education curriculum ($n = 9$); (b) *the nature of literacy*, including spoken-written language relationships, and reading and writing as acts of communication and tools of learning ($n = 5$); and (c) *collaboration, leadership, and research principles* for working with others, serving as advocates, and advancing knowledge about evidence-based practices ($n = 3$).

The Content of Dedicated Courses Syllabi. Two syllabi of dedicated courses were obtained. In both course syllabi, instruction on the relationship between spoken and written language disorders was addressed. Beyond that, there was a bit of variability between the courses. For example, in one course, the focus was on a single reading assessment (e.g., Qualitative Reading Inventory-7; Leslie & Caldwell, 2021) whereas in the other course, a variety of reading assessments were addressed. Further, dyslexia was mentioned in one syllabus but not in the other.

The first course, Disorders of Language and Literacy: School-age and Adolescent, covered literacy-based topics such as the relationship between language and literacy, literacy in the schools, administration of the Qualitative Reading Inventory 7 (Leslie & Caldwell, 2021),

and reading comprehension. The textbook that accompanied the course was *School-Age Language Intervention* (Ukrainetz, 2015). One of the assignments was to generate a language and literacy profile for a case study of a school-age student with a language disorder.

The second course, Language and Literacy for Speech-Language Pathologists, focused on childhood spoken and written language disorders and the role of SLPs in literacy development and intervention. The course covered both assessment and intervention of language disorders with the impact on literacy discussed, analyzed, and practiced through case studies. This course addressed the needs of children with dyslexia or language-based reading disorders and English language learners. The syllabus specified that clinical decision-making and evidenced-based practices would be emphasized. Two textbooks were required for the second course: *Language and Literacy Development* (Byrnes & Wasik, 2019) and *Interventions for Reading Success* (Haager et al., 2014). There were various literacy-related assignments, such as narrative storybooks, practice with running records, graphic organizers, and a discussion board on balanced literacy classrooms. The class topics included: (a) the five pillars of reading; (b) emergent literacy; (c) the stages of reading and writing development and assessment; (d) informal [i.e., running record; Clay's (2016) Observation Survey] and formal literacy assessments [i.e., Gray Oral Reading Test (Wiederholt & Bryant, 2012), Comprehensive Test of Phonological Processes (Wagner et al., 2013), Phonological and Print Awareness Scale (Williams, 2014), Test of Language and Literacy Skills (Nelson et al., 2016)]; (e) dyslexia; (f) English language learners; (g) response to intervention; and (h) literacy intervention in individual education programs.

Predictors of the Likelihood of Offering a Dedicated Course. Prior to completing the analysis of the predictive relationship between the U.S. News & World Report ranking and the

probability of having a dedicated literacy course, a Box-Tidwell procedure (1962) confirmed the linearity of the relationship between the U.S. News & World Report ranking and the logit of the independent variable. A logistic regression model of the U.S. News & World Report ranking was $X^2(1) = 0.14, p = 0.71$ and a Nagelkerke R^2 of 0.4% (Nagelkerke R^2).

Additionally, a chi-square test of independence was performed to examine the relationship between the categorical variables of region and Carnegie ranking to the probability of offering coursework in literacy. There was no significant association found between the probability of offering coursework in literacy and region, $X^2(3, n = 50) = 0.52, p = 0.92$ or Carnegie ranking, $p = 0.92$; $X^2(2, n = 50) = 2.26, p = 0.32$.

As reported in Table 2.4, none of the predictor variables (i.e., region, Carnegie Classification, or U.S. News & World Report ranking) had a statistically significant predictive relationship with the probability of having a dedicated literacy course. For the independent variable of region, the logistic regression model was $X^2(3) = 0.50, p = 0.92$ with a Nagelkerke R^2 of 1.4%. For the independent variable of Carnegie ranking, the logistic regression model was $X^2(2) = 2.33, p = 0.31$ and a Nagelkerke R^2 of 6.6%. It was noted that the odds ratio of having a dedicated course in R1 schools was 3.3 times larger than the odds ratio for schools that were not ranked as R1 or R2, which is equivalent to a small to medium effect size (Chen et al., 2010).

Table 2.4

Univariate Logistic Regression Predicting the Likelihood of Having a Dedicated and/or Embedded Literacy Course Based on Region, Carnegie Ranking, and the U.S. News & World Report Ranking

	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	OR ¹	95% CI for OR ¹	
							Lower	Upper
Region (MW) ²								
Dedicated			0.51	3	0.92			
Embedded			0.90	3	0.83			
Either			0.40	3	0.94			
Region (NE)								
Dedicated	-0.69	0.98	0.50	1	0.48	0.50	0.07	3.44
Embedded	0.04	0.93	0.002	1	0.97	1.04	0.17	6.40
Either	0.15	0.90	0.03	1	0.86	1.12	0.20	6.81
Region (S)								
Dedicated	-0.47	0.996	0.22	1	0.64	0.63	0.09	4.40
Embedded	0.69	0.95	0.53	1	0.47	2.0	0.31	12.84
Either	0.56	0.95	0.35	1	0.55	1.75	0.28	11.12
Region (W)								
Dedicated	-0.45	0.90	0.24	1	0.64	0.63	0.11	3.74
Embedded	0.6	0.88	0.01	1	0.95	1.06	0.19	5.90
Either	0.22	0.85	0.69	1	0.79	1.25	0.24	6.63
Carnegie (Not R1/R2) ²								
Dedicated			2.16	2	0.34			
Embedded			2.73	2	0.26			
Either			0.72	2	0.70			
Carnegie (R1)								
Dedicated	1.19	0.88	1.86	1	0.17	3.3	0.59	18.40
Embedded	0.22	0.72	0.10	1	0.76	1.25	0.31	5.09
Either	-0.13	0.71	0.04	1	0.85	0.88	0.22	3.49
Carnegie (R2)								
Dedicated	0.50	1.01	0.25	1	0.62	1.65	0.23	11.99
Embedded	1.16	0.72	2.64	1	0.10	3.20	0.79	13.02
Either	-0.62	0.78	0.61	1	0.43	0.54	0.11	2.55
U.S. News & World								
Dedicated	0.002	0.005	0.14	1	0.71	1.0	0.99	1.01
Embedded	-0.003	0.004	0.65	1	0.42	1.0	0.99	1.01
Either	-0.00	0.00	0.12	1	0.73	1.00	0.99	1.01

Note. *Either* = dedicated or embedded course. ¹OR is the Odds Ratio ²Reference group

Courses that Embed Literacy

There was a total of 38 embedded courses in the sample: 21 (42%) of programs had at least one embedded literacy course, 11 (22%) had two embedded literacy courses, 5 (10%) had three embedded literacy courses, and 1 (2%) had four embedded literacy courses. Most were three-credit courses in a semester system. Two were two-credit courses and one was a four-credit course in a semester system. There were two courses in the quarter system offered for one credit and all three courses in the trimester system were offered for three credits. Four of the courses were specifically identified as elective courses. The course names and descriptions for these 38 courses are provided in Appendix 2.2.

Only 10 (26.32%) of the 38 courses that embedded literacy addressed written language assessment, and only nine (23.58%) addressed written language treatment. The remaining courses did not explicitly state that written language assessment or treatment were addressed, but they did explicitly address a variety of literacy-related topics (e.g., emergent literacy, the relationship between spoken and written language, and the processes and stages of literacy development, reading and writing disorders). Among the 38 embedded courses, 31 (81.58%) were geared toward children and/or adolescents and four (10.53%) were geared toward individuals of all ages. In three (7.89%) of these embedded courses, there was no specification of which age group the courses addressed.

Content of Literacy-Embedded Courses Syllabi. Only four syllabi for embedded courses were provided upon request. In these four syllabi, there was quite a bit of variability in the emphasis on literacy. One course, Phonological Development and Disorders (Fall 2020) had nine course objectives, with a single objective pertaining to literacy, which focused on the relationship between literacy and the phonological system. One of the assignments, which was

worth 40 points or 14% of the overall grade, required students to develop a treatment plan that incorporated the use of school-based materials and demonstrated knowledge of literacy development.

The second course, Developmental Psycholinguistics, included a specific reference to literacy in the course description, but there were no explicit or implicit references to literacy in the syllabus. The third course, Language Disorders in School-Age Populations, included several sessions combined into a module dedicated to assessing and treating written language impairments. The learning outcomes for this module included describing narrative and expository text structures, identifying skills required to comprehend text, identifying appropriate formal and informal assessment procedures, utilizing assessment data to design intervention, and describing deficits exhibited by children with language disabilities. All the listed readings for that module were from the textbook, *Language Disorders From Infancy Through Adolescence* (Paul, 2018). The fourth course, Language Disorders in Early Childhood and Preschool, included a single session dedicated to emergent literacy intervention and enrichment.

Predictors on the Likelihood of Offering a Literacy-Embedded Course. As reported in Table 2.4, none of the predictor variables (i.e., region, Carnegie Classification, or U.S. News & World Report ranking) had a statistically significant predictive relationship with the probability of having an embedded literacy course. For the independent variable of region, the logistic regression model was $X^2(3) = 0.50, p = 0.92$ and a Nagelkerke R^2 of 1.4%. For the independent variable of Carnegie Classification, the logistic regression model was $X^2(2) = 2.33, p = 0.31$ with a Nagelkerke R^2 of 6.6%. Though this relationship was not significant, it was noted that the odds ratio of having a dedicated course was 3.2 times greater in R2 schools compared to schools that were neither R1 nor R2, which is equivalent to a small to medium effect size (Chen et al., 2010).

The independent, continuous variable of the U.S. News & World Report ranking was found to be linearly related to the logit of the dependent variable via the Box-Tidwell procedure (1962). A logistic regression model of the U.S. News & World Report ranking was $X^2(1) = 0.14, p = 0.71$ with a Nagelkerke R^2 of 0.4%.

All Programs with a Dedicated or Embedded Literacy Course

As reported in Table 2.4, none of the predictor variables (i.e., region, Carnegie ranking, and U.S. News & World Report ranking) were statistically significant in predicting the probability of offering coursework in literacy, whether dedicated or embedded. For the independent variable of region, the logistic regression model was $X^2(3) = .41, p = .94$ with Nagelkerke R^2 of 1.1%. For the independent variable of Carnegie ranking, the logistic regression model was $X^2(2) = .72, p = .70$ and Nagelkerke R^2 of 1.0%. The independent, continuous variable of the U.S. News & World Report ranking was found to be linearly related to the logit of the dependent variable as assessed via the Box-Tidwell (1962) procedure. However, a logistic regression model of the U.S. News & World Report ranking was not statistically significant, $X^2(1) = .12, p = .73$, Nagelkerke R^2 of 0.3%.

Additionally, a chi-square test of independence was performed to examine the relationship between the categorical variables of region and Carnegie ranking and the probability of offering coursework in literacy. There was no significant association found between the probability of offering coursework in literacy and region, $X^2(3, N = 50) = 0.40, p = 0.94$ or Carnegie ranking, $X^2(2, N = 50) = 0.73, p = 0.70$.

Specialty and Clinical Programs or Tracks

Of the 50 graduate programs in the sample, none offered a specialty track in literacy, but four (8%) offered a clinical program focused on literacy. The names and descriptions of the

clinical programs are reported in Table 2.5.

Table 2.5

Names and Descriptions of Literacy-based Clinical Programs

Name	Description of Clinical Program
Letters and Literacy: Summer Story Time	It is a six-week program where caregivers and students work together to develop emergent literacy skills in our children between the ages of 18 mos. and 5 years.
Joan and Arnold Saltzman Center: Reading/ Speech-Language Specialty Clinic	Language-literacy therapy for children in childcare settings; language-literacy therapy for monolingual and bilingual children in elementary-school settings.
Camp CHRONICLE	Creating High-Quality Renderings & Original Narratives in Comics in a Language-Rich Environment is a program designed for adolescents who experience literacy challenges and would benefit from literacy-learning strategies to better prepare them for the literacy demands of middle school. During the program, adolescents are presented with evidence-based strategies to improve various aspects of reading (such as decoding, reading comprehension and vocabulary) and writing (such as spelling, organization and word study). Literacy interventions take place while children create an original comic with the help from the Media Arts Department.
Language and Literacy	The Language and Literacy group is a 6-week summer program designed for older school-aged children, their siblings and hearing peers. This group uses theatre and fractured fairy tales as the backdrop for developing skills in literacy and language. Students read, write and perform plays throughout the six weeks. In a culminating event, the group performs a play for their families and young children who are deaf/hard of hearing.

Discussion

This was the first known study to examine literacy offerings in speech-language pathology graduate programs through an analysis of the descriptions of courses. Many of the findings of the current study were consistent with those of previous survey studies conducted with in-service SLPs regarding their pre-service training (e.g., Fallon & Katz, 2011; Shelton,

2018). In short, despite ASHA's clear stance twenty years ago on the role of SLPs in literacy (ASHA, 2001) and the inclusion of reading and writing in the accreditation standards (CAA, 2018), literacy training as reflected in course descriptions and clinical program descriptions was limited in the sample of graduate speech-language pathology programs in the current study.

In this study, nearly half of the programs in the sample (44%; $n = 22$) failed to provide any type of coursework in literacy according to their course descriptions. It appeared that there has not been much of an increase in literacy training in graduate programs since Fallon and Katz's study over a decade ago (2011), in which only half of newly graduated respondents reported that they received any pre-service training in literacy. In the current study, the majority of the programs that did provide some training in literacy did so through courses that embedded literacy content (42%; $n = 22$) and some to only a limited degree, and only about a quarter of the programs (28%; $n = 14$) had a course dedicated to literacy.

In the course descriptions of the 15 dedicated courses, three of the knowledge areas set forth by ASHA (2002) were emphasized the most: disorders of language and literacy (93.33%; $n = 14$), clinical tools and methods (86.67%; $n = 13$), and normal development of literacy (60.0%; $n = 9$). The remaining knowledge areas were included in no more than a third of the course descriptions: knowledge areas of the nature of literacy (33.3%; $n = 5$) and collaboration, leadership, and research principles (20.0%; $n = 3$). Given the extensive knowledge base required for targeting reading and writing, dedicated literacy courses seem to be the most ideal means to gain this knowledge in the context of academic coursework. As exhibited in these course descriptions, the majority of these knowledge areas are, in fact, being covered in the dedicated literacy courses. However, the evidence also suggests that there is a need to increase training on the two knowledge areas least included in the course descriptions: the nature of literacy (e.g., the

relationship between spoken and written language, literacy as communication and learning tools) and principles of collaboration, leadership, and research. Across the board, there was quite a bit of variability in the quantity (i.e., amount of course time) and foci (i.e., depth, range of topics) of instruction addressing literacy, especially in the courses that embedded literacy. For example, of the four syllabi from courses with descriptions that suggested literacy was embedded, one syllabus did not include any specific references to literacy. In contrast, another embedded course dedicated an entire month to instruction in written language assessment and remediation. Furthermore, across the course descriptions and obtained syllabi, there was almost no mention of training in the five domains of language as it pertains to written language, which is central to the expectations for SLPs (ASHA, n.d.-c; ASHA, 2002).

A concerning finding was the low percentage of embedded course descriptions that referenced written language assessment (26.32%; $n = 10$) or written language intervention (23.68%; $n = 9$). These percentages were much higher in the descriptions of dedicated literacy courses, with most course descriptions stating that training was provided in both written language assessment (86.67%; $n = 13$) and written language intervention (93.33%; $n = 14$). Only approximately one-third of the programs had courses that included written language assessment and intervention in their course descriptions. This corroborates a previous study that found that only approximately 35% of SLPs had at least satisfactory academic training in assessing and treating written language disorders (Blood et al., 2010). Simply put, the evidence suggests that the majority of SLPs are not receiving any training in assessing or treating written language impairments, which is problematic given the high rates of written language disorders among children in U.S. public schools (ASHA, n.d.-d; Shaywitz, 2003), a setting in which a majority of SLPs work (ASHA, 2021).

Though there were no specialty tracks, there were four clinical programs that specifically addressed literacy in some specialized clinical way, three of which involved short-term sessions (e.g., camps, 6-week programs). The few SLP students trained in these programs obviously have extensive training, but the general trend supports a previous study that found that SLPs have limited experiences with literacy in practicum placements (Blood et al., 2010), which is unfortunate, given the opportunities that clinical placements provide in improving clinical self-efficacy and proficiency in the evaluation and treatment of the targeted skills (e.g., Baigorri et al., 2020; Rudolf et al., 1983).

Finally, one surprising finding was the lack of a significant relationship between the probability of offering coursework in literacy and the Carnegie Classification of research activity, U.S. News & World Report ranking, or region. Though none of these relationships were statistically significant, R1 schools were 3.3 times more likely to have a dedicated literacy course, and R2 schools were 3.2 times more likely to have an embedded literacy course compared to schools that were neither R1 nor R2 (see Table 2.4). Perhaps with a larger sample size, the relationship would have been statistically significant.

Limitations and Future Directions

In the current study, the use of a sample instead of the full population of speech-language pathology graduate programs in the United States poses a major limitation. Though the sample was stratified and selected at random, it is a sample rather than an analysis of the full population of graduate programs in the United States. Another significant limitation was that information gathered about the courses was acquired through course descriptions posted online. As was the case for one of the embedded courses, the course descriptions may not always match the actual content. Further, though CAA requires programs to publish their academic offerings on their

websites, it is possible that there are courses or other learning opportunities that addressed literacy but did not include that in the course descriptions. On the contrary, given that many programs and instructors did not respond to requests for syllabi and that one syllabus did not include any mention of literacy though its course description did, it is also possible that there are more courses that suggest they address literacy in the descriptions, but do not actually address it in practice. For these reasons, future studies would warrant in-depth, systematic studies of a larger sample of courses in speech-language pathology programs, perhaps by primarily using course syllabi as the content of analysis, rather than course descriptions.

Another limitation was that most of the programs did not explicitly indicate whether the courses were required and instead were more likely to report whether the courses were elective, though this was also not reported consistently. Because of this, data on whether courses were stated to be electives was collected; however, the percentage of elective courses should be interpreted with caution because of this inconsistent reporting. It cannot be confidently assumed that courses that were not listed as electives were always required courses.

Future studies should investigate potential reasons and obstacles for the low rates of literacy trainings occurring in graduate programs. Additionally, there is a need for speech-language pathology graduate programs to examine their course offerings to ensure that they offer adequate training in the areas of literacy assessment and treatment, and instruction on written language disorders across the domains of language as well as the complete list of the knowledge and skills outlined by ASHA (2002). Lastly, the focus on and effects of literacy training in clinical practica should be further investigated.

Conclusion

This study contributes to the current literature regarding pre-service training in the area of

literacy for SLPs. Though previous studies examined this topic utilizing surveys, this study is unique in its analysis of a sample of online information regarding accredited speech-language pathology graduate programs in the United States and a small sample of syllabi. The findings corroborate existing research: only one-half of speech-language pathology programs in the sample provided some type of coursework that addresses literacy, with even fewer (one-third) specifically that addressed literacy assessment and treatment. Furthermore, no programs were found to offer specialty tracks in literacy and only four offered clinical tracks or programs focused on literacy. Lastly, these results did not vary significantly by region, Carnegie Classification of research activity, or U.S. News & World Report ranking. However, the sampled programs with an R1 Carnegie Classification had an odds ratio of having dedicated courses that was three times higher than programs that were neither R1 nor R2. Similarly, those programs with an R2 classification had an odds ratio of having embedded courses in literacy that was three times higher than programs that were neither R1 nor R2.

In summary, based on the findings of this study, embedded courses do not sufficiently address the extensive knowledge base required to target written language (ASHA, 2002). Thus, given that the majority of SLPs work in the schools (ASHA, 2021) and fewer than 50% report that they address literacy in their clinical practice (ASHA, 2020), there is a need for graduate programs in speech-language pathology to increase dedicated literacy courses that offer training on all the knowledge areas of literacy (ASHA, 2002) and are inclusive of all the language domains present in written language.

REFERENCES

- Altbach, P. (2006). The dilemmas of ranking. *International Higher Education*, 42, 2-3.
<https://doi.org/10.6017/ihe.2006.42.7878>
- American Speech-Language-Hearing Association. (n.d.-a). *Employment settings for SLPs*.
<https://www.asha.org/students/employment-settings-for-slps/>
- American Speech-Language-Hearing Association. (n.d.-b). *Language in brief*.
<https://www.asha.org/practice-portal/clinical-topics/spoken-language-disorders/language-in-brief/>
- American Speech-Language-Hearing Association. (n.d.-c). *Reading and writing (literacy)*.
<https://www.asha.org/public/speech/development/literacy>
- American Speech-Language-Hearing Association. (n.d.-d). *Written language disorders*.
<https://www.asha.org/practice-portal/clinical-topics/written-language-disorders/>
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents* [Position Statement]. <https://www.asha.org/policy/ps2001-00104>
- American Speech-Language-Hearing Association. (2002). *Knowledge and skills needed by speech-language pathologists with respect to reading and writing in children and adolescents* [Knowledge and Skills]. www.asha.org/policy
- American Speech-Language-Hearing Association. (2010). *Roles and responsibilities of speech-language pathologists in schools* [Position Statement].
<https://www.asha.org/policy/PS2010-00318/>
- American Speech-Language-Hearing Association. (2020). *2020 schools survey report: SLP caseload and workload characteristics*. www.asha.org/Research/memberdata/Schools-Survey/
- American Speech-Language-Hearing Association. (2021). *Profile of ASHA members and affiliates, year-end 2020*. <https://www.asha.org/siteassets/surveys/2020-member-and-affiliate-profile.pdf>
- Apel, K. (2014). A comprehensive definition of morphological awareness: Implications for assessment. *Topics in Language Disorders*, 34(3), 197-209.
<https://doi.org/10.1097/TLD.000000000000019>
- Baigorri, M., Crowley, C. J., Sommer, C. L., Baquero, J., & Moya-Galé, G. (2021). Graduate students' clinical self-efficacy: Impact of an intensive cleft lip and palate clinical practicum. *Communication Disorders Quarterly*, 42(4), 249–256.

<https://doi.org/10.1177/1525740120942463>

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Blood, G. W., Mamett, C., Gordon, R., & Blood, I. M. (2010). Written language disorders: speech-language pathologists' training, knowledge, and confidence. *Language, Speech & Hearing Services in Schools*, 41(4), 416–428A. [https://doi.org/10.1044/0161-1461\(2009/09-0032\)](https://doi.org/10.1044/0161-1461(2009/09-0032))
- Bowman, N. A., & Bastedo, M. N. (2009). Getting on the front page: Organizational reputation, status signals, and the impact of U.S. News and World Report on student decisions. *Research in Higher Education*, 50(5), 415–436. <https://doi.org/10.1007/s11162-009-9129-8>
- Box, G. E. P., & Tidwell, P. W. (1962) Transformation of independent variables. *Technometrics*, 4, 531-550. <https://doi.org/10.1080/00401706.1962.10490038>
- Brownell, M., Kiely, M. T., Haager, D., Boardman, A., Corbett, N., Algina, J., Dingle, M. P., & Urbach, J. (2017). Literacy learning cohorts: Content-focused approach to improving special education teachers' reading instruction. *Exceptional Children*, 83(2), 143–164. <https://doi.org/10.1177/0014402916671517>
- Byrnes, J. P. & Wasik, B. A. (2019). *Language and literacy development: What educators need to know* (2nd ed.). Guilford Press.
- Carnegie Classification of Institutions of Higher Education (2018). *Carnegie Classification*. <https://carnegieclassifications.iu.edu/>
- Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics - Simulation and Computation*, 39(4). 860-864. <https://doi.org/10.1080/03610911003650383>
- Clay, M. M. (2016). *An observation survey of early literacy achievement*. Heinemann.
- Council on Academic Accreditation (2021). *Programs*. <https://caa.asha.org/programs/>
- Council on Professional Standards in Speech-Language Pathology and Audiology of the American Speech-Language-Hearing Association. (2004). *Background information and standards and implementation for the certificate of clinical competence in speech language pathology*. American Speech-Language-Hearing Association.
- Council for Clinical Certification in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association. (2018). *2020 standards for the certificate of clinical competence in speech-language pathology*. <https://www.asha.org/certification/2020-SLP-Certification-Standards>

- Donahue, P. L., Daane, M. C., & Jin, Y. (2005). *The nation's report card: Reading 2003*. (NCES 2005–453). U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.
<https://nces.ed.gov/nationsreportcard/pubs/main2003/2005453.asp>
- Eagan, K., Stolzenberg, E. B., Zimmerman, H. B., Aragon, M. C., Sayson, H. W., & Rios-Aguilar, C. (2017). *The American freshman: National norms fall 2016*. Higher Education Research Institute, UCLA.
<https://www.heri.ucla.edu/monographs/TheAmericanFreshman2016.pdf>
- Ehren, B. J., & Ehren, T. C. (2001). New or expanded literacy roles for speech-language pathologists: Making it happen in the schools. *Seminars in Speech and Language*, 22(03), 233–244. <https://doi.org/10.1055/s-2001-16146>
- Fallon, K. A., & Katz, L. A. (2011). Providing written language services in the schools: The time is now. *Language, Speech & Hearing Services in Schools*, 42(1), 3-17A.
[https://doi.org/10.1044/0161-1461\(2010/09-0068\)](https://doi.org/10.1044/0161-1461(2010/09-0068))
- Kamhi, A. G., & Catts, H. W. (1986). Reading disabilities and the speech-language pathologist. *NSSHLA Journal*, 101–118. <https://doi.org/10.1044/jshd.5104.337>
- Gladwell, M. (2011, February 6). The order of things: What college rankings really tell us. *The New Yorker*. <https://www.newyorker.com/magazine/2011/02/14/the-order-of-things>
- Gnolek, S. L., Falciano, V. T., & Kuncl, R. W. (2014). Modeling change and variation in U.S. News & World Report college rankings: What would it really take to be in the top 20? *Research in Higher Education*, 55(8), 761–779. <https://doi.org/10.1007/s11162-014-9336-9>
- Greene, J. P., & Forster, G. (2003). *Public high school graduation and college readiness rates in the United States*. Center for Civic Innovation at the Manhattan Institute.
<https://files.eric.ed.gov/fulltext/ED498138.pdf>
- Haager, D., Dimino, J. A., & Pearlman Windmueller, M. (2014). *Interventions for reading success* (2nd ed.). Paul H. Brookes Publishing.
- Kamhi, A. G., & Catts, H. W. (1986). Reading disabilities and the speech-language pathologist. *NSSHLA Journal*, 101–118. https://doi.org/10.1044/nsshla_14_101
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159–174. <https://doi.org/10.2307/2529310>
- Leslie, L., & Caldwell, J. A. (2021). *Qualitative Reading Inventory* (7th ed.) Pearson.

- McBride, E. (2022). The development of clinical self-efficacy in speech-language pathology graduate training: A longitudinal study. *American Journal of Speech-Language Pathology*, 1–20. https://doi.org/10.1044/2021_AJSLP-21-00134
- McCormick, A. C., Pike, G. R., Kuh, G. D., & Chen, P. D. (2009). Comparing the utility of the 2000 and 2005 Carnegie Classification systems in research on students' college experiences and outcomes. *Research in Higher Education* 50, 144-167. <https://doi.org/10.1007/s11162-008-9112-9>
- Morriss, A. P., & Henderson, W. D. (2008). Measuring outcomes: Post-graduation measures of success in the U.S. News and World Report law school rankings. *Indiana Law Journal*, 83(3), 791-834. <https://doi.org/10.2139/ssrn.954604>
- Morse, R., Castonguay, A., & Vega-Rodriguez, J. (2021, March 29). Methodology: Best health schools rankings. *U.S. News & World Report*. <https://www.usnews.com/education/best-graduate-schools/articles/health-schools-methodology>
- Moxam, C. (2020). The link between language and spelling: What speech-language pathologists and teachers need to know. *Language, Speech & Hearing Services in Schools*, 51(4), 939–954. https://doi.org/10.1044/2020_LSHSS-19-00009
- National Center for Education Statistics (2019). *NAEP data explorer*. National Assessment of Educational Progress. <https://nces.ed.gov/nationsreportcard/data/>
- Nelson, N. W., Plante, E., Helm-Estabrooks, N., & Hotz, G. (2016). *Test of Integrated Language and Literacy Skills*. Paul H. Brookes Publishing.
- Pasupathy, R., & Bogschutz, R. J. (2013). An investigation of graduate speech-language pathology students' SLP clinical self-efficacy. *Contemporary Issues in Communication Science and Disorders*, 40, 151–159. https://doi.org/10.1044/cicsd_40_F_151
- Paul, R., Norbury, C., & Gosse, C. (2018). *Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating*. Elsevier.
- Powell, R. K. (2018). Unique contributors to the curriculum: From research to practice for speech-language pathologists in schools. *Language, Speech & Hearing Services in Schools (Online)*, 49(2), 140–147. https://doi.org/10.1044/2017_LSHSS-17-0059
- Riddle, D. L., Utzman, R. R., Jewell, D. V., Pearson, S., & Kong, X. (2009). Academic difficulty and program-level variables predict performance on the national physical therapy examination for licensure: A population-based cohort study, *Physical Therapy* (89), 11, 1182–1191. <https://doi.org/10.2522/ptj.20080400>
- Rudolf, S. R., Manning, W. H., & Sewell, W. R. (1983). The use of self-efficacy scaling in training student clinicians: Implications for working with stutterers. *Journal of Fluency Disorders*, 8(1), 55–75. [https://doi.org/10.1016/0094-730X\(83\)90021-9](https://doi.org/10.1016/0094-730X(83)90021-9)

- Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. Alfred A. Knopf.
- Shelton, M. D. A. (2018). *School-based speech-language pathologists: Perspective of literacy and collaboration with classroom teachers* (Publication No. 13819696) [Doctoral dissertation, Sam Houston State University]. ProQuest Dissertations and Theses Global. <https://hdl.handle.net/20.500.11875/2555>
- Sponsler, B. A. (2009). *The role and relevance of rankings in higher education policymaking*. Institute for Higher Education Policy.
- Tambyraja, S. R., & Schmitt, M. B. (2020). Embedding evidence-based practices to address literacy in school-based speech–language therapy. *Topics in Language Disorders, 40*(4), 341–356. <https://doi.org/10.1097/TLD.000000000000228>
- Taylor, Z. W., Childs, J., Bick, I., & Alsmadi, I. (2019). Is bigger, better? Exploring U.S. News graduate education program rankings and internet characteristics. *Interchange, 50*, 205-219. <https://doi.org/10.1007/s10780-019-09366-0>
- Tierney, J. (2013, September 10). Your annual reminder to ignore the U.S. News and World Report college rankings. *The Atlantic*. <https://www.theatlantic.com/education/archive/2013/09/your-annual-reminder-to-ignore-the-em-us-news-world-report-em-college-rankings/279103/>
- Ukrainetz, T. A. (2015). *School-age language intervention: Evidence-based practices*. Pro-Ed, Inc.
- U.S. Census Bureau (2010). *2010 census regions and divisions of the United States*. https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf
- Wagner, R., Torgesen, J. Rashotte, C., & Pearson, N. A. (2013). *Comprehensive Test of Phonological Processing* (2nd edition). Pro-Ed.
- Wallach, G. P. (1998). The role of speech-language pathologists in literacy learning. *Perspectives on Language Learning and Education, 5*(1), pp. 20-21. <https://pubs.asha.org/doi/pdf/10.1044/llc5.1.20>
- Williams, K. T. (2014). *Phonological and Print Awareness Scale*. WPS.
- Wiederholt, J. L. & Bryant, B. R. (2012). *Gray Oral Reading Tests* (5th edition). Pro-Ed.
- Zilvinskis, J., & Rocconi, L. M. (2018). Revisiting the relationship between institutional rank and student engagement. *The Review of Higher Education, 41*(2), 253-280. <https://doi.org/10.1353/rhe.2018.0003>

CHAPTER 3: A NATIONAL SURVEY OF SPEECH LANGUAGE PATHOLOGISTS ON LITERACY: PRE-SERVICE AND IN-SERVICE TRAINING, EXPERIENCE, CURRENT PRACTICE, AND SELF EFFICACY

Speech-language pathologists (SLPs) have a critical role and responsibility in assessing, treating, and supporting both spoken and written language (American Speech-Language-Hearing Association [ASHA], 2001). In fact, spoken and written language are interrelated (e.g., ASHA, n.d.-f; Kamhi & Catts, 2012), with spoken language being both foundational to and predictive of written language or literacy (e.g., Hulme & Snowling, 2014; Melby-Lervåg et al., 2012; Nation et al., 2004, 2010). Additionally, both spoken and written language comprise receptive and expressive language and encompass the same five domains of language, albeit in different forms – reading and writing in written language and speaking and listening in spoken language. Therefore, SLPs play a critical role in assessing, treating, and supporting both spoken and written language, across the five domains. However, despite the relationship between spoken and written language, surveys repeatedly demonstrate that SLPs are ill-prepared to address written language (Blood et al., 2010; Fallon & Katz, 2011). Given that a majority of SLPs work with school-aged children and adolescents (ASHA, 2021), and that literacy (i.e., the ability to read and write) is critical to school success, this lack of preparation is especially problematic.

Spoken and Written Language Across the Domains

There are similarities and differences in the way that the five domains of language apply to spoken and written language. According to ASHA (n.d.-b), the skills involved in the language domain of phonology in spoken language include awareness of the sounds in language and the use of appropriate phonological patterns in speech. In written language, phonology involves the

knowledge of sound-letter associations in reading and spelling words. The domain of morphology in spoken language involves understanding and using knowledge of morphemes, the smallest meaningful units of words (e.g., affixes, root words, inflections), in listening and speaking. In written language, it involves using morphological awareness to read and spell words (Apel, 2014) and comprehend text (Levesque et al., 2017). The domain of semantics involves expressive use and receptive understanding of words individually and in context, during speaking and listening. In written language, semantics supports decoding (van Rijthoven, 2021), spelling (Ouellette, 2010), and understanding words in reading and writing. In spoken language, the domain of syntax includes understanding and using appropriate sentence structures when listening and speaking. In written language, syntax supports comprehension of sentences (Bowey, 1986; Tunmer et al., 1987) and supports the production of meaningful text in writing (Beers & Nagy, 2009). Lastly, the domain of pragmatics involves understanding and using the social aspects of language in conversational exchanges. In written language, pragmatics has a role in the comprehension of the social and inferential aspects of the text (e.g., author's perspective; Cain & Oakhill, 1999) and writing about those aspects. It is important that each of the domains is assessed and if needed, addressed, in both spoken and written language intervention. However, there is a history of focus on the area of phonology in spoken language (i.e., speech sound disorders; Duchan, 2010) in school-based speech and language services that now appears to have carried forward to written language as SLPs have been found to align themselves the most with a framework that emphasizes the domain of phonology for addressing literacy (Wellman, 2006).

Though spoken and written language have many similarities across the domains, there are important differences between the two (Chafe & Tannen, 1987). Generally, engaging in written

language is more challenging, requiring more explicit knowledge and awareness compared to spoken language. This is because compared to spoken language, comprehending and using written language involves: (a) more complex syntax (O'Donnell, 1974); (b) more diverse vocabulary (Gibson et al., 1966); (c) fewer paralinguistic and prosodic cues and contextualization (Schallert et al., 1977; Tannen, 1985); and (d) ongoing demands with mentally accessing orthographic information (Apel, 2002). Helping children acquire these and other skills that are integral to reading and writing requires that SLPs are well-trained to execute their responsibilities of preventing, identifying, and treating written language disorders (ASHA, 2001). However, there is evidence that this is not the case presently, as fewer than half of SLPs working in schools (34.5% to 44.3%) report that they address literacy (ASHA, 2020).

Pre-Service and In-Service Training of Literacy

Unfortunately, studies point to the low quantity and quality of pre-service literacy training in SLP graduate programs (Blood et al., 2010; Sakowicz, 2009; Wellman, 2006). In fact, the most recent nationwide survey revealed that only about a quarter of all responding SLPs and half of the newly graduated responding SLPs received pre-service training in written language (Fallon & Katz, 2011). This is especially problematic given that ASHA's learning standards for SLP certification include specific reference to reading and writing (Council for Clinical Certification in Audiology and Speech-Language Pathology of ASHA, 2018). The low rate of pre-service written language training may have negative effects on clinical practice, with SLPs addressing written language at disproportionately lower rates (36%), compared to spoken language (90%; ASHA, 2020). However, there is mixed evidence on the effects of pre-service training on clinical practices. In one study, receiving pre-service literacy training resulted in a fivefold increase in the likelihood that SLPs would address written language (Fallon & Katz,

2011), but in another study, pre-service training did not affect SLPs' self-reported proficiency in addressing literacy (Blood et al., 2010).

Perhaps due to limited pre-service training in literacy, most SLPs rely primarily on in-service training to learn more about literacy (Blood et al., 2010; Sakowicz, 2009; Shelton, 2018). However, there is mixed evidence of the impact of in-service training on clinical practice. For example, a study by Blood et al. (2021) found that in-service training had a significant effect on SLPs' belief in their own ability or proficiency to address literacy; however, a study by Neuman and Cunningham (2009) found that in-service training alone, in the absence of coaching, did not significantly affect the quality of practitioners' language and literacy instructional practices.

Relying on in-service training as a primary method of obtaining information is worrisome because continuing education does not require peer-review or substantiation of its instructional content as evidence-based (Nail-Chiwetalu & Ratner, 2007). Furthermore, it can be challenging to identify quality in-service training. A participant in Shelton (2018) poignantly described the challenges of locating evidence-based in-service training: "it is difficult to find which universities or researchers to follow – it requires a lot of effort to locate [evidenced based practices] and resources" (p. 51).

SLPs' Self-Efficacy in Their Clinical Skills Regarding Literacy

Self-efficacy is the belief in one's own ability or proficiency to accomplish tasks or behaviors, and this sense of intrapersonal agency can theoretically effectuate desired outcomes (Bandura, 1977, 2012). Self-efficacy regarding clinical skills has a positive relationship with clinical performance, as measured by SLP student clinicians themselves (Lee & Schmaman, 1987) and their instructors (Pasupathy & Bogschutz, 2013). However, this relationship between self-efficacy and instructors' evaluations of clinical abilities has not consistently been reported in

the literature (Lee & Schmaman, 1987; McBride, 2022; Rudolf et al., 1983). Instead, what has been consistently reported is that SLPs' self-efficacy increases with more opportunities to practice assessing and treating targeted skills, including through clinical practica (Baigorri et al., 2021; de Diego-Lázaro et al., 2020; Lee & Schmaman, 1987; McBride, 2022; Pasupathy & Bogschutz, 2013).

Specifically, with regard to literacy, SLPs report low rates of self-efficacy with only about 30% reporting confidence in their ability to assess and treat written language (Blood et al., 2010). This low self-efficacy regarding assessment and treatment exists despite the fact that SLPs report relatively high self-efficacy regarding their general knowledge of the relationship between literacy and language, emergent literacy, phonological awareness, and vocabulary intervention (Fallon & Katz, 2011; Sakowicz, 2009; Shelton, 2018). However, in these same studies, there were lower levels of self-efficacy in the assessment and intervention of phonics, spelling, and writing, as well as the integration of language and literacy skills in intervention. Self-efficacy regarding literacy assessment and intervention has potentially important clinical implications. For example, higher levels of self-efficacy regarding their ability to help struggling readers and writers almost doubles the likelihood that SLPs will provide written language services to their clients who need them (Fallon & Katz, 2011).

SLPs' Beliefs Regarding Their Roles with Literacy

There are studies that have examined SLPs' beliefs about their roles in assessing and treating literacy. In a study by Wellman (2006) with 172 SLPs, respondents tended to agree that it was their role to provide language-focused interventions for reading and writing, advocate for effective literacy practices, provide assistance to various team members, extend the knowledge base for language and literacy development, and collaborate in curricular responsibilities, but

they largely did not agree that it was their role to assess reading and writing or document literacy outcomes. In a more recent study with a smaller sample of SLPs ($n = 24$; Johnson, 2017), the majority indicated that they had a role in providing intervention targeting phonological awareness, strategies to comprehend unknown vocabulary in text, and sentence structures for reading comprehension, but the respondents largely disagreed that it was their role to provide direct intervention for reading comprehension and decoding. This discrepancy between SLPs' beliefs regarding their roles in targeting phonological awareness and vocabulary versus decoding and reading comprehension may demonstrate their limited knowledge of the direct influences of phonological awareness on decoding (Hogan et al., 2005; Swank & Catts, 1994) and of vocabulary on reading comprehension (Beck et al., 2013; Perfetti & Adlof, 2012; Stahl & Nagy, 2006). This limited knowledge is likely a direct result of inadequate training regarding reading comprehension and how spoken language skills directly contribute to it.

SLPs' beliefs about their role with literacy is an important consideration that affects clinical practice. In fact, SLPs' positive beliefs about their roles with literacy (e.g., belief that literacy is within their scope of practice; willing to participate in continuing education in literacy) was found to more than double the chance that they would provide written language services to students who need them (Fallon & Katz, 2011). However, currently, there is little known about how these beliefs differ across SLPs working in different clinical settings and how these beliefs differ as a result of pre-service and in-service training.

School-Age Speech-Language Services

Children and adolescents (i.e., pediatric clients and students) with spoken or written language impairments receive speech-language services in a variety of settings including schools, private practice, and hospital and university clinics. In public schools, speech and

language services are delivered as special education and/or a related service under the Individual with Disabilities Education Act (2004) for students with a diagnosed speech or language impairment (Power-de Fur, 2011). They are also delivered through multi-tiered systems of support (i.e., response to intervention) for struggling students who are suspected to have a language impairment (Sylvan, 2018). According to ASHA (2000), SLPs have specific roles in the schools to contribute to the literacy development of students with diagnosed language impairment and those who are at risk for a language impairment. ASHA also points to the need to collaborate with other educators who are also involved with developing students' literacy. Students with diagnosed language impairment may also receive services from a reading specialist in the schools and through private practices or clinics in hospitals or universities, which are usually funded through Medicare, Medicaid, private health insurance, and/or private pay (ASHA, n.d.-d). Regardless of setting, all SLPs who work with children and adolescents have a critical and direct role in developing the written language of students with communication disorders (ASHA, 2001); however, recent changes in educational standards and laws would suggest that school-based SLPs may attend more directly to written language than their peers in non-school-based settings.

The Present Study

The purpose of the current study was to conduct a nationwide survey of practicing SLPs regarding their literacy training, practice, and self-efficacy. The most recent nationwide surveys of SLPs and their literacy training, clinical experiences, beliefs, and self-efficacy (Blood et al., 2010; Fallon & Katz, 2011) occurred prior to the nationwide educational initiatives of the *Common Core State Standards* (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) and the Every Student Succeeds Act (2015). Both

initiatives impacted the focus on literacy in public schools in the United States. These affected SLPs as well. For example, ASHA issued guidance indicating that school-based SLPs have a direct role in implementing the *Common Core State Standards* for students who struggle with written language (ASHA, n.d.-b). Further, SLPs are considered “specialized instructional support personnel” in the Every Student Succeeds Act (2015, S. 1177—298) with a responsibility to be involved with the literacy development of students (ASHA, 2016).

Certainly, there is reason to believe that these initiatives would have impacted SLPs in relation to their access to literacy training, resulting in increased self-efficacy. It is also expected that especially amongst school-based SLPs, there would be an increased commitment to the delivery of written language services to students who require them in the schools. Therefore, a major purpose of this study was to conduct a survey that updated the most recent national surveys of practicing SLPs (Blood et al., 2010; Fallon & Katz, 2011) to explore their pre-service and in-service literacy training, self-efficacy, clinical experiences, and beliefs regarding literacy. The research questions were:

RQ1. What are SLPs’ pre-service and in-service training experiences and preparation around literacy?

RQ1a. Is there a relationship between the year of graduation from a speech-language pathology program and the likelihood of having received pre-service training in literacy?

RQ1b. Is there a difference in how well SLPs feel their graduate programs trained them in the assessment and treatment of spoken versus written language?

RQ2. What are SLPs’ self-perceptions of their: (a) proficiencies (i.e., self-efficacy) and (b) areas of need regarding assessment and treatment of literacy?

RQ2a. Are there differences between SLPs' self-efficacy in assessing and treating spoken versus written language?

RQ3. How are SLPs currently addressing literacy in their clinical practice?

RQ3a. Are there differences in the relative amount of time spent weekly on assessing and treating literacy between SLPs who report working with children and adolescents in school versus non-school settings?

RQ4. Does having received pre-service and in-service literacy training predict the percentages of SLPs' current workloads focused on literacy, the likelihood that they write and track literacy goals, and their self-efficacy in the assessment and treatment of literacy?

RQ5. What are the literacy needs of the students that SLPs currently serve?

RQ6. To what extent do SLPs agree with statements regarding the role and responsibilities of SLPs with aspects of literacy?

RQ6a. Does having received pre-service or in-service training in literacy predict the extent of these beliefs?

RQ6b. Are there differences in the extent of these belief statements between SLPs who report working with children and adolescents in school versus non-school settings?

Methods

A survey was created to answer the research questions and distributed to a nationwide sample of SLPs in the United States. The survey included two major sets of questions. The first set of questions was open to all SLPs who received a master's degree in a U.S. graduate program and were currently working in the United States. It also included questions about pre-service and

in-service training on spoken and written language and self-efficacy about written language assessment and treatment. The second set of questions was open to those who were currently working with 5- to 21-year-old clients or students and focused on obtaining information about respondents' clinical practices in the areas of spoken and written language. It also included questions addressing the language and literacy needs of the clients or students on their workloads.

The survey itself was developed and refined through two rounds of iterative review before dissemination. First, a licensed SLP who is a PhD with expertise in survey development reviewed the survey. After the suggestions from the review were incorporated, the survey was created as a web-based questionnaire in Qualtrics (www.qualtrics.com). This digital questionnaire was then shared with a focus group of six PhD students who had a range of four to twenty-four years of clinical experience as SLPs in a range of settings (e.g., private practice, hospital, school) across four U.S. regions (i.e., Northeast, Midwest, South, and West). They provided written and spoken feedback regarding the survey using a series of questions (see Appendix 3.1). Based on their feedback, the survey was revised and finalized for use in the current study (see Appendix 3.2).

Content Validity

The six PhD students who participated in the focus group of also completed a content validation questionnaire (see Appendix 3.3) that was adapted from the models provided by Zamanzadeh et al. (2015) and Yusoff (2019) to determine the degree to which this questionnaire was “representative of the topic and process being investigated” (Colton & Covert, 2007, p. 68). The content validity process involved separately rating the relevancy and clarity of each of the survey questions on a scale of 1 to 4, with one being not relevant or clear and four being very

relevant or clear. Using the rating scores, a content validity index was calculated using the average method. The relevancy of all the questions was 0.95 and the clarity was 0.85. Since acceptable content validity index values for at least six experts are at least 0.83 (Polit & Beck, 2006; Polit et al., 2007), the content validity of this survey, on measures of relevancy and clarity, were deemed to be acceptable.

Clarity of Terms

The following definitions were provided in the survey to clarify the meaning of terms. *Phonological awareness* is an awareness of the units of spoken language including recognizing rhymes, words in sentences, syllables in words, and sounds in words. *Decoding or encoding of words* is the reading and spelling of words. *Reading fluency* is the ability to read with accuracy, speed, and expression. *Reading comprehension* is the reader's ability to understand the text they read. *Written expression* is the text that the writer produces to communicate thought (i.e., written sentences or paragraphs).

Recruitment and Survey Dissemination

An anonymous link to the survey and a brief IRB-approved recruitment statement (see Appendix 3.2) were disseminated through various social media outlets (e.g., Facebook SLP groups) and listservs (e.g., ASHA discussion boards), as reported in Table 3.1. In addition, the survey was disseminated via direct email by colleagues. The anonymous link and recruitment statement were disseminated multiple times over a span of four months from June through September of 2021, with intervals of approximately six to eight weeks in between.

Respondents were eligible to complete the entire survey if they responded “yes” to three screening questions:

- Do you understand and agree with the following? My responses are confidential and my participation with this survey is voluntary.

- Are you a speech-language pathologist who received a Master's degree in speech language pathology from a program in the United States?
- Are you a speech-language pathologist currently working in the United States?

Table 3.1

Participant Recruitment Sites and Number of Members

	N of Members in Each Group or Listserv ¹
ASHA Special Interest Group 1: Language Learning and Education Community Discussion Board	5,200
ASHA Special Interest Group 1: School-Based Issues Community Discussion Board	5,300
Facebook Group: Center for Literacy and Disability Studies	1,922
Facebook Group: Clinical Research for SLPs	20,700
Facebook Group: SLPs for Evidence Based Practice	56,300
Facebook Group: Speech Language Pathologists Role in Language and Literacy	13,100
Facebook Group: Speech Pathologists at Large	49,600

¹The number of members in January 2022

An a priori power analysis (Beresford Research, n.d.) with a target margin of error of five points at a confidence level of 95%, and an estimated population of 188,143, resulted in a target sample of 383. The population estimate for these calculations was drawn from the most current, total number of certified SLPs who are constituents of ASHA (ASHA, 2021).

Analyses Procedures

Statistical analyses were conducted using IBM SPSS (Version 26.0). A complete list of variables is provided in Table 3.2, with explanations of variables that required transformations. Outliers were identified using boxplots or the casewise diagnostics output in SPSS. When there were outliers, they were reported in analyses with and without the outliers. Interpretations of effect sizes were calculated using a program for the computation of effect sizes (Lenhard & Lenhard, 2016). The *p*-value for all analyses was set to *p* < .05.

Table 3.2*Variable Transformations*

Transformed Variable	Original Variable Type	Transformation Process	Transformed Variable Type
Received pre-service coursework in literacy	Binary (yes/no)	Dummy variables assigned: (a) yes = 1 if respondent indicated “yes” to having completed either a dedicated or embedded course during pre-service training or (b) no = 0 if no coursework was completed.	Binary (1/0)
Self-efficacy in assessing literacy in each of five written language skills ¹	Ordinal	Mean scores were computed for Likert scale scores (1-5)	Continuous
Self-efficacy in treating literacy in each of five written language skills ¹	Ordinal	Mean scores were computed for Likert scale scores (1-5)	Continuous
Work setting: School ²	Binary (yes/no) for each work setting	Dummy variables assigned: (a) yes = 1 if they reported to work in at least 1 school setting or (b) no = 0 if they did not report any school setting	Binary (1/0)
Work setting: Not School-Based Setting ³	Binary (yes/no) for each work setting	Dummy variables assigned: (a) yes = 1 if they reported to work in a non-school setting or (b) no = 0 if they did not report any non-school setting	Binary (1/0)

¹The five written language skills are (a) phonological or phonemic awareness, (b) decoding or encoding of words, (c) reading fluency, (d) reading comprehension, and (e) written expression.

²School was defined as elementary, middle, and/or high school or school-based “other” settings, such as district, separate public day program, etc.

³Not school-based setting was defined as university, home health, hospital, private practice, etc.

First, to compare the demographics (i.e., race, ethnicity, and gender) of the survey respondents with the demographics of the full population of certified SLPs who are constituents of ASHA (ASHA, 2021), a Z-test of Proportions was conducted. Next, descriptive statistics were

computed to address research questions regarding pre-service and in-service experiences and preparation in the assessment and treatment of spoken versus written language. Line plots were created, and after screening the data to determine the analysis was appropriate, logistic regression was conducted to analyze the relationship between the year of graduation from a speech-language pathology program and receipt of pre-service training in literacy.

Descriptive statistics were also computed regarding SLPs' self-efficacy and perceived areas of needed growth in the areas of assessment and treatment of literacy, in addition to their current clinical experiences in addressing literacy. To determine the association between participants' reported perceptions of their preparedness to assess and treat spoken versus written language, a Pearson correlation was first conducted. Then the Wilcoxon signed-rank test was conducted to test for differences between the two. Differences in the percentage of clinical time spent assessing or treating literacy between SLPs in school-based and other non-school-based settings were calculated using Welch's *t*-test.

An ANOVA was conducted to determine the predictive relationship between the likelihood of having received pre-service or in-service training in literacy and (a) the percentage of respondents' current workloads focused on literacy, and (b) the respondents' self-efficacy with literacy. A logistic regression was conducted for the dependent, binary variable of the likelihood that the respondents write and track literacy goals.

The literacy profiles or needs of the students that SLPs currently work with and the extent of their agreements with statements regarding their roles and responsibilities with aspects of literacy were reported using descriptive statistics. The relationships between having received pre-service or in-service training in literacy and the extent of agreement with these beliefs were analyzed with ANOVA. To determine between-group differences of SLPs in schools versus non-

school settings (i.e., private practice, school and private practice, and hospital or other non-school-based settings) regarding their perceptions of their roles in literacy assessment and treatment, the Mann Whitney U test was conducted.

Results

Demographics

A total of 444 SLPs responded to the survey. The demographics (i.e., race, ethnicity, and gender) for the SLPs in the sample and the full population of certified SLPs who are constituents of ASHA (ASHA, 2021), as well as the z-score that resulted from the Z-test of Proportions between the two samples, are reported in Table 3.3. There were no significant differences between the survey sample and the national population of ASHA-certified SLPs using the Z-test of Proportions with $p < .05$ with the exception of the ethnicity of Hispanic or Latino. The survey sample had a smaller representation of Hispanic or Latino respondents compared to the representation in the national population of SLPs.

Table 3.3

Comparison of Demographics Between the Sample of Respondents and ASHA-Certified SLPs

	Survey Sample of SLPs	ASHA-Certified SLPs ¹	z-score (p -value)
Race			
American Indian or Alaska Native	0.2% ($n = 1$)	0.3%	-0.29 ($p = 0.77$)
Asian American	2.5% ($n = 11$)	2.9%	-0.53 ($p = 0.60$)
Black or African American	2.9% ($n = 13$)	3.6%	-0.76 ($p = 0.45$)
White American, European American, or Middle Eastern American	89.6% ($n = 398$)	91.6%	-1.49 ($p = 0.14$)
Two or more races	1.8% ($n = 8$)	1.4%	0.72 ($p = 0.47$)
Other	0.8% ($n = 4$)	N/A	
Would rather not state	2% ($n = 9$)	N/A	
Ethnicity			
Hispanic or Latino	2.7% ($n = 12$)	6.2%	-3.05 ($p < .001$)
Non-Hispanic or Latino	91.9% ($n = 408$)	93.8%	-1.66 ($p = 0.10$)
Would rather not state	5.4% ($n = 24$)	N/A	

	Survey Sample of SLPs	ASHA-Certified SLPs ¹	z-score (<i>p</i> -value)
Gender			
Female	97.5% (<i>n</i> = 433)	96.3%	1.36 (<i>p</i> = 0.17)
Male	2.5% (<i>n</i> = 11)	3.7%	-1.36 (<i>p</i> = 0.17)

Note. N/A = Not applicable because it is not explicitly reported in ASHA (2020)

¹ ASHA (2020)

The largest portion of respondents completed graduate school in speech-language pathology or communication disorders in the last decade (*n* = 160, 36.1%). The distribution within the specified five-year periods is reported in Table 3.4. There were 46 states represented amongst respondents who reported that they currently work with 5- to 21-year-olds (*n* = 343).

The states and the frequencies are reported in Table 3.5.

Table 3.4

Year of Graduation of Respondents

Year of Graduation	Frequency	Percent
1970 –1975	10	2.3%
1976 –1980	19	4.3%
1981 – 1985	32	7.2%
1986 – 1990	35	7.9%
1991 – 1995	38	8.6%
1996 – 2000	58	13.1%
2001 – 2005	46	10.4%
2006 – 2010	46	10.4%
2011 – 2015	66	14.9%
2016 – 2021	94	21.2%

Table 3.5

States or Territories of Respondents Who Are Currently Working with 5-to 21-Year-Old Clients or Students

State	<i>n</i>	%	State	<i>n</i>	%
Alabama (AL)	3	.9	Montana (MT)	2	.6
Arizona (AZ)	4	1.2	Nebraska (NE)	3	.9
Arkansas (AR)	3	.9	Nevada (NV)	1	.3
California (CA)	37	10.8	New Hampshire (NH)	4	1.2
Colorado (CO)	9	2.6	New Jersey (NJ)	11	3.2
Connecticut (CT)	11	3.2	New Mexico (NM)	3	.9
Delaware (DE)	5	1.5	New York (NY)	31	9.0

State	<i>n</i>	%	State	<i>n</i>	%
District of Columbia (DC)	1	.3	North Carolina (NC)	24	7.0
Florida (FL)	11	3.2	Ohio (OH)	12	3.5
Georgia (GA)	8	2.3	Oklahoma (OK)	5	1.5
Hawaii (HI)	3	.9	Oregon (OR)	1	.3
Idaho (ID)	2	.6	Pennsylvania (PA)	9	2.6
Illinois (IL)	17	5.0	Rhode Island (RI)	2	.6
Indiana (IN)	7	2.0	South Carolina (SC)	3	.9
Iowa (IA)	3	.9	Tennessee (TN)	3	.9
Kansas (KS)	3	.9	Texas (TX)	20	5.8
Kentucky (KY)	4	1.2	Utah (UT)	2	.6
Louisiana (LA)	3	.9	Vermont (VT)	1	.3
Maine (ME)	2	.6	Virginia (VA)	12	3.5
Maryland (MD)	6	1.7	Washington (WA)	8	2.3
Massachusetts (MA)	7	2.0	West Virginia (WV)	2	.6
Michigan (MI)	13	3.8	Wisconsin (WI)	10	2.9
Minnesota (MN)	5	1.5	Wyoming (WY)	1	.3

SLPs' Pre-Service Training Regarding Literacy

Among respondents, 23.0% ($n = 102$) reported completing a course dedicated to literacy (dedicated courses). Most of the respondents (70.7%, $n = 314$) reported not taking a dedicated course, and 6.3% ($n = 28$) indicated they did not remember. Compared to the percentage of respondents who took a dedicated course, a greater percentage reported taking courses that embedded literacy (embedded courses; 41.4% $n = 184$ with 46.2% ($n = 205$) of respondents reporting that they did not take an embedded course, and 12.4% ($n = 55$) indicating they did not remember. About one half of the participants (50.7%, $n = 225$) reported to have taken either a dedicated course or an embedded course, 46.6% ($n = 207$) did not take either a dedicated or embedded course, and 2.7% ($n = 12$) indicated they did not remember. The descriptive statistics for respondents who took a dedicated course, an embedded course, or both a dedicated and embedded course by year-span of graduation are reported in Table 3.6.

As displayed on the line graph in Figure 1, there was a general trend of a decrease in the percentage of respondents who reported that they took a dedicated course from those who

graduated in 1970 to the mid-1990s, followed by a steady increase until 2015. There was also a general increase in the percentage of the respondents who reported that they took an embedded course from 1970 (20%) until the most current year-span of 2016-2021 (67.0%).

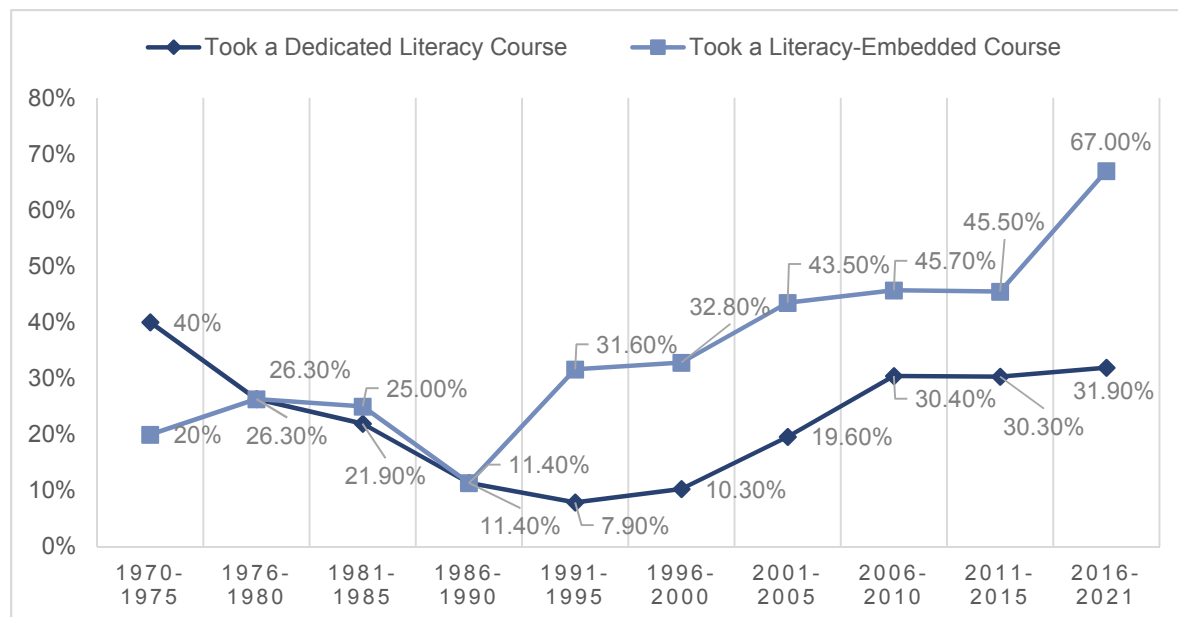
Table 3.6

Percentage (Frequency) of Respondents Within Each 5-Year Span of Graduation Who Took a Dedicated and/or an Embedded Course

Year of Graduation	Dedicated	Embedded	Both
1970–1975 <i>n</i> = 10	40% (4)	20% (2)	20% (2)
1976–1980 <i>n</i> = 19	26.3% (5)	26.3% (5)	15.8% (3)
1981–1985 <i>n</i> = 32	21.9% (7)	25.0% (8)	15.6% (5)
1986–1990 <i>n</i> = 35	11.4% (4)	11.4% (4)	5.7% (2)
1991–1995 <i>n</i> = 38	7.9% (3)	31.6% (12)	2.6% (1)
1996–2000 <i>n</i> = 58	10.3% (6)	32.8% (19)	8.6% (5)
2001–2005 <i>n</i> = 46	19.6% (9)	43.5% (20)	15.2% (7)
2006–2010 <i>n</i> = 46	30.4% (14)	45.7% (21)	13.0% (6)
2011–2015 <i>n</i> = 66	30.3% (20)	45.5% (30)	16.7% (11)
2016–2021 <i>n</i> = 94	31.9% (30)	67% (63)	20.2% (19)

Figure 3.1

Percent of Respondents Within Each Five-Year Span of Graduation Reported to Have Taken a Dedicated Literacy or Literacy-Embedded Course



A visual inspection of the line plot of the year of graduation and completion of a dedicated course revealed a non-linear relationship between the two. This was confirmed by the Hosmer and Lemeshow test result, which was statistically significant at $p < .05$. This indicated that the logistic regression model was not a good fit. However, with embedded courses, the logistic regression model was a good fit (Hosmer and Lemeshow test, $p = 1.0$) and was statistically significant, $\chi^2(9) = 53.99$, $p < .001$. The model explained 17.3% (Nagelkerke R^2) of the variance in the likelihood of having taken an embedded course. An increase in the year of graduation was associated with increased odds of having taken a dedicated course. With the earliest year-span of 1970-1975 as the reference group, the following year-span (1976-1980) had 1.14 times the odds of respondents having taken an embedded course, followed by a general increase in the odds ratio until the final time span of 2016-2021, in which the odds of having taken an embedded course was 7.16 times the likelihood of the 1970-1975 reference group.

Pre-Service Training in Literacy Assessment

In response to the question, “Did you take a course that was not dedicated to literacy alone but included training on literacy assessment?”, 41.4% ($n = 184$) indicated that they did, 46.2% ($n = 205$) indicated they did not, and 12.4% ($n = 55$) indicated they did not remember. Of the respondents who took a dedicated or embedded course that included training literacy assessment ($n = 224$), nearly one-half (49.6%; $n = 111$) indicated that they received training on specific literacy assessments, 37.1% ($n = 83$) indicated that they did not receive training on specific literacy assessments, and 13.4% ($n = 30$) indicated they did not remember.

The literacy assessments respondents learned about in their dedicated or embedded course are listed in Table 3.7. The assessments with the highest percentages were the Oral and Written Language Scales (Carrow-Woolfolk, 2011; 63.06%), Comprehensive Test of

Phonological Processing (Wagner et al., 2013; 48.65%), Test of Written Language (Hammill et al., 2009; 40.54%), and Clinical Evaluation of Language Fundamentals – Fifth Edition’s Reading and Writing Supplement (Wigg et al., 2013; 40.54%). An additional 16 respondents reported that they did not remember and there were 11 “Other” responses (9.91%).

Table 3.7

Literacy Assessments that Respondents Received Pre-Service Training in or Want In-Service Training In

Assessment	% (n) Who Received Pre-Service Training	% (n) Wanting In-Service Training
Clinical Evaluation of Language Fundamentals – Fifth Edition’s Reading and Writing Supplement (Wigg et al., 2013)	40.54% (45)	37.44% (76)
Comprehensive Test of Phonological Processing (Wagner et al., 2013)	48.65% (54)	41.38% (84)
Gray Oral Reading Test (Wiederholt & Bryant, 2012)	35.14% (39)	26.11% (53)
Gray Silent Reading Test (Wiederholt & Blalock, 2000)	10.81% (12)	20.69% (42)
Oral and Written Language Scales (Carrow-Woolfolk, 2011)	63.06% (70)	36.45% (74)
Phonological Awareness Test (Robertson & Salter, 2018)	33.33% (37)	32.51% (66)
Rapid Automatized Naming and Rapid Alternating Stimulus (Wolf & Denckla, 2005)	14.41% (16)	23.15% (47)
Spelling Performance Evaluation for Language and Literacy (Masterson et al., 2002, 2006)	9.91% (11)	32.02% (65)
Test of Integrated Language and Literacy (Nelson et al., 2016)	36.04% (40)	66.01% (134)
Test of Phonological Awareness (Torgensen & Bryant, 2004)	15.32% (17)	26.6% (54)
Test of Reading Comprehension (Brown et al., 2009)	4.5% (5)	30.05% (61)
Test of Silent Contextual Reading Fluency (Hammill et al., 2014)	0% (0)	20.2% (41)
Test of Silent Word Reading Fluency (Mather et al., 2014)	0.9% (1)	20.69% (42)

Assessment	% (<i>n</i>) Who Received Pre-Service Training	% (<i>n</i>) Wanting In-Service Training
Test of Written Language (Hammill et al., 2009)	40.54% (45)	34.98% (71)
Test of Written Spelling (Larsen et al., 2013)	4.5% (5)	20.2% (41)
Word Identification and Spelling Test (Wilson & Felton, 2004)	1.8% (2)	22.17% (45)
Other	4.93% (10)	0%

Pre-Service Training in Literacy Treatment

In response to the question, “Did you take a course that was not dedicated to literacy alone but included training on literacy treatment?”, 42.3% (*n* = 188) indicated they took an embedded course that provided training on literacy treatment, 44.6% (*n* = 198) reported that the embedded course did not address literacy treatment, and 11.7% (*n* = 52) reported they do not remember. Of the respondents who took either a dedicated or embedded course that included training on literacy treatment (*n* = 221), one in five (20.8%, *n* = 46) indicated that they received training on specific literacy programs or approaches, 67.9% (*n* = 150) indicated that they did not receive this specific training, and 11.3% (*n* = 25) indicated they do not remember. The names of the programs or approaches that these respondents learned about through their dedicated or embedded courses and the corresponding percentage and frequency are listed in Table 3.8.

Table 3.8

Literacy Programs or Approaches that Respondents Received Pre-Service Training in or Want In-Service Training in

Literacy Program or Approach	% (<i>n</i>) Who Received Pre-Service Training	% (<i>n</i>) Wanting In-Service Training
<i>Barton Reading and Spelling System</i> (Barton, 2000)	0%	24.52% (64)
<i>Expanding Expression Tool</i> (Smith, 2011)	21.74% (10)	44.83% (117)

Literacy Program or Approach	% (n) Who Received Pre-Service Training	% (n) Wanting In-Service Training
<i>Handwriting Without Tears</i> (Olsen, 1998)	13.04% (6)	20.31% (53)
<i>Lindamood Bell's LiPS</i> (Lindamood & Lindamood, 2011)	56.52% (26)	55.56% (145)
<i>Lindamood Bell's Seeing Stars</i> (Bell, 1997)	10.87% (5)	39.85% (104)
<i>Lively Letters</i> (Telian, 2019)	15.22% (7)	26.05% (68)
<i>Orton-Gillingham</i> (Gillingham & Stillman, 1997)	52.17% (24)	71.65% (187)
Shared reading or dialogic reading	30.43% (14)	N/A ¹
<i>SPELL-Links</i> (Wasowicz et al., 2017)	15.22% (7)	42.15% (110)
Structured literacy	4.35% (2)	36.4% (95)
<i>Wilson Reading System</i> (Wilson, 2002)	19.57% (9)	43.3% (113)
<i>Words Their Way</i> (Bear et al., 2019)	10.87% (5)	34.87% (91)
Other	13.04% (6)	17.62% (46)

¹ The question regarding in-service training was only focused on specific programs, which this was not.

Courses that Embed Training of Literacy Assessment or Treatment

In response to the question about the percentage of the embedded course they took that focused on literacy, they reported that a mean of 31.14% ($SE = 1.69$) of the course focus was on literacy. Choices of names of the embedded courses that may have included training on literacy treatment or assessment were provided in a dropdown menu as part of the survey question. This approach was intended to help respondents recognize courses rather than requiring them to recall a specific course name, especially for those who may have taken the courses many years ago. The corresponding percentages and frequencies of the respondents who reported taking the specific embedded courses are listed in Table 3.9.

Table 3.9

Embedded Literacy Courses and Percentages (n) of Respondents Who Reported That They Took the Following Embedded Courses, by Highest to Lowest Frequency

Course That Embedded Literacy	% of Sample (n)
Language Disorders in School-Age Children and Adolescents	39.9% (177)
Diagnostics/ Assessment of School-Age Children and Adolescents	14.9% (66)
Language Disorders in 0-5 Years Old	8.3% (37)
Schools	5.2% (23)
Diagnostics and Assessment of 0-5 Years Old	4.7% (21)
Phonology	3.8% (17)
Diagnostics and Assessment of Adults	2.0% (9)
Language Disorders in Adults	1.8% (8)
Other	4.05% (18)
Do not remember	6.3% (28)

Clinical Placements with Emphasis on Literacy

Of the respondents, 16.2% ($n = 72$) had clinical placements during graduate school that specifically included an emphasis on literacy assessments and/or treatment, 77.7% ($n = 345$) did not have placements that emphasized literacy, 2.7% ($n = 12$) did not remember, and 3.4% ($n = 15$) did not respond. The placements that included an emphasis on literacy assessments and/or treatment were, in order from highest to lowest frequency in: (a) elementary school (56.94%, $n = 41$), (b) private practice (22.22%, $n = 16$), (c) middle school (16.67%, $n = 12$), and (d) preschool (11.11%, $n = 8$). No respondents indicated that high school or hospital placements provided them with an emphasis on literacy. Eight respondents indicated “other” as a clinical placement and notably, five of those were university clinics.

Pre-Service Preparation in Spoken Versus Written Language

Respondents were asked about their perceptions of the quality of preparation they received in graduate school to assess and treat spoken versus written language. Their responses are reported in Table 3.10. Overall, respondents felt that their graduate programs better prepared them to assess and treat spoken language than written language.

Table 3.10

Likert Scale Responses Regarding the Quality of Graduate Program Preparation to Assess and Treat Spoken and Written Language

How well do you feel that your graduate program prepared you for...	Very Poorly (i.e., no training)	Poorly	Adequately	Well	Very Well (i.e., a lot of training)
Assessing spoken language?	1.0% (n = 4)	6.4% (n = 27)	19.1% (n = 80)	37.0% (n = 155)	36.5% (n = 153)
Treating spoken language?	0.2% (n = 1)	4.8% (n = 20)	24.1% (n = 101)	36.0% (n = 151)	34.8% (n = 146)
Assessing written language?	27.4% (n = 115)	41.3% (n = 173)	22.7% (n = 95)	6.4% (n = 27)	2.1% (n = 9)
Treating written language?	27.9% (n = 117)	42.2% (n = 177)	22.2% (n = 93)	5.7% (n = 24)	1.9% (n = 8)

SLPs' In-Service Training Regarding Literacy

Of the 419 respondents who answered questions about in-service training, 79.6% ($n = 332$) reported participating in literacy training after graduation (e.g., professional development, seminars) and 20.4% ($n = 85$) did not participate in literacy training after graduation. There was a total of 473 written responses (i.e., items) and 162 discrete items to the open-ended question regarding which in-service trainings they felt helped them the most. The vast majority of the items were reported by single respondents ($n = 110$). These responses varied widely and named specific researchers, specific programs or approaches, topics, and learning formats.

The in-service training experiences reported most helpful with the highest frequencies were: (a) *Lindamood Bell* (e.g., Bell, 1997; Lindamood & Lindamood, 2011; $n = 52$); (b) general professional developments and continuing education ($n = 40$); (c) *Orton Gillingham* (Gillingham & Stillman, 1997; $n = 31$); (d) *Wilson Language* (Wilson, 2002; $n = 22$); and (e) ASHA sponsored training sessions ($n = 15$). A complete list of responses is reported in Appendix 3.4.

In-Service Training on Literacy Assessment

Regarding continued training on literacy assessment, 89.1% ($n = 367$) of respondents indicated that if they had the opportunity, they would want to learn more about literacy assessment, with only 10.9% ($n = 45$) indicating they would not want to learn more. Of those who reported that they would want to learn more about literacy assessment ($n = 367$), 82.02% ($n = 301$) reported that they would want training in general, research-based principles of literacy assessment, and 55.31% ($n = 203$) reported that they would want training in the administration of specific, published assessments. Of the respondents who reported that they would want to learn more about general, research-based principles of literacy assessment, the areas of literacy they wanted to learn more about are reported in Table 3.11.

Table 3.11

Percent and Frequency of Respondents Who Wanted More Training in General, Research-Based Principles of Literacy Assessment and Treatment

Area of Literacy	Literacy Assessment	Literacy Treatment
Written Expression	72.43% ($n = 218$)	76.17% ($n = 211$)
Reading Comprehension	69.44% ($n = 209$)	78.34% ($n = 217$)
Decoding/Encoding Words	66.11% ($n = 199$)	67.87% ($n = 188$)
Phonological Awareness	50.83% ($n = 153$)	56.32% ($n = 156$)
Reading Fluency	45.51% ($n = 137$)	50.18% ($n = 139$)
Other	6.31% ($n = 19$) ¹	5.05% ($n = 14$) ²

Of the respondents who indicated that they would want training in the administration of specific, published assessments ($n = 203$), the literacy assessments they would want to learn how to administer are reported in Table 3.7. The highest percentage of respondents indicated wanting training in Test of Integrated Language and Literacy (Nelson et al., 2016; 66.01%), followed by the Comprehensive Test of Phonological Processing (Wagner et al., 2013; 41.38%), the Clinical Evaluation of Language Fundamentals – Fifth Edition’s Reading and Writing Supplement (Wigg et al., 2013; 37.44%), and the Oral and Written Language Scales (Carrow-Woolfolk, 2011; 36.45%).

In-Service Training on Literacy Treatment

Regarding continued training on literacy treatment, 90.5% ($n = 373$) of respondents indicated that if they had the opportunity, they would want to learn more about treatment of literacy. Of the respondents who indicated they would want to learn more about literacy treatment, 74.26% ($n = 277$) indicated that they would want training in general, research-based principles of literacy treatment (see Table 3.11 for details) and 69.97% ($n = 261$) indicated that they would want training in the administration of specific literacy programs or curriculums. Of those who reported that they would want training in the administration of specific literacy programs or curriculums ($n = 261$), the literacy programs or approaches they would want to learn how to administer, and the corresponding percentages and frequencies are displayed in Table 3.8. The programs or approaches that respondent most frequently wanted to receive training on were *Orton-Gillingham* (Gillingham & Stillman, 1997; 71.65%), Lindamood Bell’s *LiPS* (Lindamood & Lindamood, 2011; 55.56%), and the *Expanding Expression Tool* (Smith, 2011; 44.83%). Notably, of the “other” responses (total $n = 46$), there were quite a few respondents ($n = 12$) who

stated that they were unfamiliar with the programs listed in the survey and thus did not indicate a choice.

SLPs' Current Clinical Experiences in Addressing Literacy

Of all respondents, 77.5% ($n = 344$) reported that they currently work with children or adolescents ages 5- to 21-years-old, 11.9% ($n = 53$) reported that they do not currently work with children or adolescents in the age group, and 10.6% ($n = 47$) did not respond to this question. Of those who reported that they currently work with children or adolescents 5- to 21-years-old ($n = 344$), a little more than half (52.33%, $n = 180$) reported that they currently work in an elementary school setting. Of the remaining, 24.42% ($n = 84$) reported that they currently work in a middle school setting, 15.41% ($n = 53$) in a high school setting, 31.69% ($n = 109$) in a private practice or clinic, 4.65% ($n = 16$) in a hospital setting, and 11.63% ($n = 40$) in some “other” setting. Notably, many of the respondents who indicated “other” stated that they currently work in a university setting ($n = 18$).

Assessing and/or Treating Spoken Versus Written Language

Of the respondents who reported that they currently work with 5- to 21-year-old clients or students, 95.64% ($n = 329$) reported that they assess and/or treat spoken language and 4.07% ($n = 14$) reported they do not. Of a total of 339 responses, 59.0% ($n = 200$) reported that they currently assess and/or treat written language and 41.0% ($n = 139$) reported that they do not. The mean percentage of work hours typically devoted to treating or assessing spoken language was 52.19% ($SD = 25.24\%$) and for written language was 31.96% ($SD = 25.63\%$).

Tracking Goals of Spoken Versus Written Language

Among the respondents who reported that they currently assess and/or treat spoken language, 316 (97.23% of 325 respondents) indicated that they write and track spoken language

goals for the students on their caseload, and nine (2.77%) indicated that they do not. Among those who assess and/or treat written language, 163 (81.91% of 199 respondents) reported that they write and track written language goals for the students on their caseload, and 36 (18.09%) reported that they do not write and track written language goals.

Clinical Time Spent on Spoken Versus Written Language Between School-Based and Non-School-Based SLPs

The mean percentage of clinical hours school-based respondents reported devoting to spoken language was 52.71% ($SD = 23.31$, $n = 187$). The mean percentage for non-school-based respondents was 49.47% ($SD = 27.39$, $n = 118$). Given the earlier noted difference in the numbers of respondents who answered “yes” to assessing and/or treating spoken language ($n = 329$) versus those who responded “yes” to assessing and/or treating written language ($n = 200$), only the respondents who responded “yes” to assessing or treating *both* spoken and written language were included in the following analysis of differences. In this sub-group of the sample, the mean percentage of clinical hours devoted to spoken language by school-based SLPs was 51.56% ($SD = 21.78$) and for non-school-based SLPs was 48.51% ($SD = 26.27$). The mean percentage of clinical hours devoted to written language by school-based SLPs was 27.05% ($SD = 21.30$) and by non-school-based SLPs was 37.41% ($SD = 29.33$).

A Welch *t*-test was conducted to determine if there were differences in the percent of clinical time spent on spoken and written language between school-based SLPs ($n = 85$) and non-school-based SLPs ($n = 95$) who reported that they address both spoken and written language in their practice. This non-parametric approach was necessary given that Levene’s test for equality of variances pointed to a violation of the assumption of homogeneity of variances ($p = .03$ for spoken language, $p < .01$ for written language). Inspection of boxplots revealed no outliers in the

data for spoken language, but two outliers were identified in the data for written language. Further, the percentage of clinical time devoted to spoken and written language for both groups were normally distributed, as assessed by QQ plots. The Welch t -test indicated that school-based SLPs spent 3.06% more of their clinical time on spoken language compared to non-school-based SLPs, 95% CI [-4.08 to 10.19]. This was not a statistically significant difference $t(164) = 0.85, p = 0.4$. This pattern was reversed for written language, in which non-school-based SLPs devoted 10.34% more of their clinical time to written language compared to school-based SLPs, 95% CI [-17.79 to -2.92] with the outliers retained. This resulted in a statistically significant group difference, $t(164) = -2.77, p < .001$. Without the outliers, the mean difference was 11.84%, 95% CI [19.04 to 4.67], which was also a statistically significant difference $t(153) = -3.26, p = 0.001$.

SLPs' Self-Efficacy and Perceived Areas of Needed Growth Regarding Spoken Versus Written Language

SLPs' self-efficacy and respondents' self-perceptions of their areas of needed growth in assessing and treating spoken and written language are reported in Tables 3.12 and 3.13.

Table 3.12

Self-Efficacy in Assessing Spoken and Written Language

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<i>I feel proficiently knowledgeable to ASSESS...</i>					
spoken language	4.2%	1.2%	3.0%	30.0%	61.5%
decoding and encoding (reading and spelling of words)	11.5%	25.5%	26.7%	20.9%	15.5%
phonological and phonemic awareness	2.7%	5.8%	12.7%	43.6%	35.2%
reading fluency	14.2%	33.3%	21.8%	21.2%	9.4%
reading comprehension	4.8%	13.9%	23.0%	38.5%	19.7%
written expression	7.3%	23.9%	30.3%	28.8%	9.7%
<i>I feel proficiently knowledgeable to TREAT...</i>					
spoken language	1.2%	0.6%	2.8%	38.4%	57.0%
decoding and encoding (reading and spelling of words)	13.0%	22.0%	30.0%	21.7%	13.3%

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Phonological and phonemic awareness	2.5%	7.7%	13.0%	46.1%	30.7%
reading fluency	16.4%	35.0%	24.8%	16.4%	7.4%
reading comprehension	5.9%	12.4%	24.5%	41.2%	16.1%
written expression	9.3%	24.5%	31.6%	26.6%	8.0%

Table 3.13

Self-Efficacy of Areas of Needed Growth in Assessing and Treating Spoken and Written Language

	A great deal of knowledge needed	A lot more knowledge needed	A moderate amount of knowledge needed	A little bit of knowledge needed	No more knowledge needed
<i>This is how much more knowledge I think I need to proficiently ASSESS...</i>					
Spoken language	0.6%	2.4%	9.1%	61.2%	26.7%
Decoding and encoding	14.8%	18.5%	33.3%	26.4%	7.0%
Phonological and phonemic awareness	4.2%	6.7%	21.2%	48.8%	19.1%
Reading fluency	18.2%	22.1%	30.9%	23.3%	5.5%
Reading comprehension	6.4%	13.3%	30.6%	42.1%	7.6%
Written expression	12.7%	21.8%	32.1%	28.5%	4.8%
<i>This is how much more knowledge I think I need to proficiently TREAT...</i>					
Spoken language	0.3%	1.9%	8.4%	60.1%	29.4%
Decoding and encoding	13.3%	19.2%	33.1%	25.4%	9.0%
Phonological and phonemic awareness	4.3%	7.7%	20.7%	48.3%	18.9%
Reading fluency	14.6%	28.5%	30.3%	21.7%	5.0%
Reading comprehension	7.4%	13.0%	27.9%	44.6%	7.1%
Written expression	12.7%	20.4%	32.8%	30.0%	4.0%

Differences in Self-Efficacy in Assessing and Treating Spoken Versus Written Language

As measured by Likert scales with values one (lowest) to five (highest), the means and medians of SLPs' self-efficacy ($n = 323$) of assessing spoken language were $M = 4.44$ ($SD = .94$) and $Mdn = 5.0$, and in assessing written language were $M = 3.29$ ($SD = .90$) and $Mdn = 3.2$. The means and medians of SLP's self-efficacy in treating spoken language were $M = 4.49$ ($SD = .70$) and $Mdn = 5.0$, and in treating written language were $M = 3.21$ ($SD = .89$) and $Mdn = 3.2$.

A Pearson correlation was conducted to determine whether there was a statistically significant association between respondents' self-efficacy in assessing and treating spoken and written language. There was a statistically significant, small correlation between their self-efficacy in assessing spoken language versus written language, $r(330) = 0.18, p = 0.001$ and treating $r(323) = 0.21, p < .001$ spoken language versus written language.

To determine the difference between respondents' self-efficacy regarding assessing and treating spoken versus written language, a Wilcoxon signed-rank test was conducted. This non-parametric test was used because the assumptions of normality required for the parametric paired samples *t*-test were violated, based on visual inspections of QQ plots. The differences in percentages of self-efficacy were approximately symmetrically distributed, as assessed by visual inspections of histograms. Respondents reported higher rates of self-efficacy in assessing and treating spoken language compared to written language. There were statistically significant differences in the medians, $z = -12.71, p < .001$ for assessing spoken versus written language, and $z = -14.24, p < .001$ for treating spoken versus written language. Using *z*-statistics to compute Cohen's *d* (Lenhard & Lenhard, 2016), the effect sizes were $d = 2.0$ for assessing and $d = 2.6$ for treating spoken versus written language. Both are large effect sizes (Cohen, 1998).

Pre-Service and In-Service Trainings as Predictors of Clinical Literacy Practices:

Workload Percentage, Self-Efficacy, and Tracking Goals

An ANOVA revealed no statistically significant relationship between SLPs having received pre-service training in written language (dedicated or embedded course) and the percentage of their workloads focused on written language, $F(1, 165) = 0.03, p = 0.86$. There were also no significant differences in their self-efficacy in assessing, $F(1, 280) = -0.003, p = 0.96$, or treating, $F(1, 275) = 0.06, p = 0.80$, written language. Having received pre-service

training in written language (dedicated or embedded course) accounted for 0% of the variability in the percentages of the respondents' workloads focused on written language or their self-efficacy in assessing and treating written language.

There was a statistically significant predictive relationship between SLPs having received in-service training in written language (dedicated or embedded course) and the percentage of their workloads devoted to written language, $F(1, 197) = 5.84, p < .05$, and their self-efficacy in assessing, $F(1, 328) = 12.94, p < .05$, and treating, $F(1, 321) = 18.32, p < .05$, written language. Having received in-service training in written language (dedicated or embedded course) accounted for 2.9% of the variability in the percentages of the respondents' workloads focused on written language, with an adjusted $R^2 = 2.4\%$. Having received in-service training in written language (dedicated or embedded course) accounted for 3.8% and 5.4% of the variability in self-efficacy in assessing ($R^2 = 3.5\%$) and treating written language ($R^2 = 5.1\%$).

A logistic regression model revealed no significant relationship between pre-service training in written language (dedicated or embedded course) and the likelihood of writing and tracking written language goals, $\chi^2(1) = 0.11, p = 0.74$ with a Nagelkerke R^2 of 0.1%. There was also no predictive relationship between participation in in-service training and the likelihood of writing and tracking written language goals, $\chi^2(1) = 0, p = 0.96$ with a Nagelkerke R^2 of 0%.

Spoken and Written Language Needs of Students on SLPs' Workloads

The spoken and written language needs of students whose SLPs currently serve are reported in Table 3.14. The needs are represented by the mean percentage of students on SLPs' workloads who struggle with each area.

Table 3.14*Spoken and Written Language Needs of Students on SLPs' Workloads*

What percentage of the students on your workload struggle with the following?	<i>n</i>	Mean %	SD
Spoken language	185	72.75%	23.84
Written expression	177	69.29%	28.53
Reading comprehension	181	65.95%	26.46
Reading fluency	177	57.05%	28.25
Decoding or encoding	181	56.74%	28.64
Phonological or phonemic awareness	181	53.78%	27.56

SLPs' Beliefs About Their Roles and Responsibilities with Literacy

A Mann-Whitney U test was run to determine if there were differences between school-based SLPs and non-school-based SLPs in their beliefs about SLPs' roles and responsibilities with literacy. This non-parametric test was used because the assumptions of normality were not met to use the parametric *t*-test. Distributions of SLPs' beliefs were similar, as assessed by visual inspections. Median scores were all statistically significant between school-based and not-school based SLPs, as displayed in Table 3.15 with the descriptive statistics.

Additional analyses were conducted using linear regression to examine the relationships between having received pre-service training in literacy, either through a dedicated or embedded course, or in-service training in literacy and the extent of respondents' beliefs about their roles and responsibilities with literacy. There was no significant relationship between pre-service training and the extent of respondents' beliefs. However, having received in-service training significantly predicted their beliefs, as displayed in Table 3.16. There was independence of residuals as assessed by the Durbin-Watson statistic. There were no outliers except for the ANOVA analysis of in-service training and the statement that literacy is within the SLP's scope of practice. Both analyses have been reported with and without the outliers and there was no meaningful difference between the two.

Table 3.15

Respondents' Beliefs Regarding SLPs' Roles with Literacy and Differences in Median Percentages of Agreement Between School-Based and Non-School-Based SLPs

To what extent do you agree with these statements?	Mean Percent (SD) [Median]		Differences Between School-Based and Non-school-based SLPs		
	School-Based SLPs (<i>n</i> = 325)	Non-School-Based SLPs (<i>n</i> = 199)	Mann Whitney <i>U</i>	Z score	<i>p</i> -value
Literacy is within the SLP's scope of practice.	81.57% (20.53) [80.0]	92.9% (14.45) [100.0]	7312.0	-4.97	< .001
It is the SLP's role and responsibility to assess reading.	51.16% (28.29) [50.0]	77.19% (21.97) [75.0]	5689.0	-7.03	< .001
It is the SLP's role and responsibility to assess writing.	54.09% (29.22) [50.0]	76.31% (22.41) [75.0]	6333.0	-6.15	< .001
It is the SLP's role and responsibility to treat reading.	54.12% (28.39) [50.0]	78.72% (22.32) [75.0]	5820.5	-6.84	< .001
It is the SLP's role and responsibility to treat writing.	57.18% (27.97) [50.0]	77.52% (22.4) [75.0]	6411.0	-6.04	< .001
It is equally important for SLPs to help clients with their literacy as much as their oral language.	74.72% (26.7) [75.0]	86.3% (19.97) [100.0]	7992.0	-3.96	< .001

Note. School-based SLPs are respondents who reported to work in an elementary, middle, or high school. Non-school-based SLPs are respondents who reported to work in not school-based settings including private practice, hospital or university clinic, and home healthcare.

Table 3.16

The Relationships Between Respondents' Beliefs Regarding SLPs' Roles with Literacy and Having Received Pre-Service or In-Service Literacy Training Using ANOVA

To what extent do you agree with these statements?	Received Pre-Service Literacy Training			Received In-Service Literacy Training		
	Adjusted <i>R</i> ²	ANOVA	<i>p</i> -value	Adjusted <i>R</i> ²	ANOVA	<i>p</i> -value
Literacy is within the SLP's scope of practice.	0.4%	<i>F</i> (1, 274) = 2.24	<i>p</i> = .14	6.6%	<i>F</i> (1, 320) = 23.86	< .001
				8.9% ¹	<i>F</i> (1, 316) = 31.87 ¹	< .001

It is the SLP's role and responsibility to assess reading.	-0.4%	$F(1, 274) = 0.01$	$p = .93$	2.0%	$F(1, 320) = 7.39$	$= .01$
It is the SLP's role and responsibility to assess writing.	-0.2%	$F(1, 274) = 0.42$	$p = .49$	2.8%	$F(1, 320) = 10.32$	$< .001$
It is the SLP's role and responsibility to treat reading.	-0.2%	$F(1, 274) = 0.42$	$p = .52$	2.2%	$F(1, 320) = 8.14$	$= .01$
It is the SLP's role and responsibility to treat writing.	-0.2%	$F(1, 274) = 0.58$	$p = .45$	2.9%	$F(1, 320) = 10.54$	$< .001$
It is equally important for SLPs to help clients with their literacy as much as their oral language.	-0.3%	$F(1, 274) = 0.22$	$p = .64$	4.8%	$F(1, 320) = 17.18$	$< .001$

¹This data is the analysis with 4 outliers removed.

Discussion

SLPs have an important role and responsibility in assessing and treating both spoken and written language (ASHA, 2001), and speech-language pathology graduate programs are expected to provide training in both (Council for Clinical Certification in Audiology and Speech-Language Pathology of ASHA, 2018). The results of this study suggest that there is not enough written language training occurring at the pre-service level though there is evidence of increased attention to written language in courses, especially in the last couple decades since the publication of ASHA's position statement on literacy (2001) and subsequently, the explicit inclusion of literacy in the certification standards (Council on Professional Standards in Speech-Language Pathology and Audiology of ASHA, 2004).

Pre-Service Training

Unfortunately, in this study, only about half of the respondents reported to have received any pre-service training in written language, whether through a dedicated or an embedded course. Only a quarter of the sample reported to have taken a dedicated course. Though there is much room for improvement, this does reflect an increase from Fallon and Katz's (2011) nationwide survey published on this topic, particularly in the past decade. In their study, 51% of

newly graduated clinicians reported to have received some written language pre-service training. In the current study, 78% of those who recently graduated (2016-2021) reported to have received some pre-service training in written language.

However, the pre-service written language training reported in the current study was much more likely to take the form of embedded courses (42% across the time spans, 67% in 2016 - 2021) than dedicated courses (23% across the time spans, 32% in 2016 - 2021). In fact, nearly all the increase in the pre-service training over the past decade occurred in the form of embedded courses (20% increase) rather than dedicated courses. Participants' responses reflect virtually no growth in the number of dedicated courses offered in pre-service training. Further, the amount of attention and the breadth and depth of written language training provided in the embedded courses are generally insufficient. Specifically, less than half of the respondents who took an embedded course reported that the course included training on written language assessment and treatment (41% and 42%, respectively), with an average of less than a third of the course devoted to written language.

Trends in Pre-Service Training Over Time

Interestingly, there was a U-shaped curve through the decades with respect to the percentages of respondents who reported to have taken a dedicated course, with a decreasing trend through the early 1990s, followed by an increase. It is of note that the time period in which the lowest percentage of respondents took a dedicated course, the late-1980s to the mid-1990s, was the same period in which the whole language movement was at its peak as the major reading approach in the United States (Kim, 2008) and by the early 1990s, whole language had quickly "become the standard against which all else was referenced" (Pearson, 2002, p. 451). The whole language movement was characterized by an emphasis on authentic literature, process writing,

and integrated curriculum, and perhaps most relevant to the field of SLP, a move away from the explicit instruction of skills, including phonics instruction, which were replaced with top-down approaches to reading (Pearson, 2002; Pearson & Cervetti, 2015). Perhaps this movement, with its shift away from a direct instruction of skills and phonics, engendered uncertainty regarding SLPs' direct roles with literacy (Chaney, 1990; Shapiro, 1992). It is possible that SLPs perceived their predominant roles with literacy to be on the phonological aspects of reading, given that they align the most with phonics and the least with whole language as their theoretical orientation of reading practice (Wellman, 2006).

Another change that occurred during this time in the field of speech language pathology that might explain the dip in the curve in the early 1990s was a change in the ASHA certification standards in 1993 (ASHA, n.d.-a). At that time, a delineation was put in place between the Certificate of Clinical Competence in Audiology and the Certificate of Clinical Competence in Speech Language Pathology, which was accompanied by an increase in the number of required semester hours and a greater specificity in the types of required courses. Whereas in the previous certification requirements, there were 18 semester hours for pre-service SLPs to take any course in a related topic, there were only 10 such hours with the change. It is possible that prior to 1993, with the greater flexibility, SLP students were using these semester hours to take courses in literacy education in preparation to work in the schools.

This time-based trend was very different for embedded courses, however. Rather than a U-shaped curve, there was a steady increase over time in the percentages of respondents who reported to have taken an embedded course. It started with 20% in 1970-1975 and ended at 69% in the most recent time period with only one, rather sharp, decrease from 1981-1985 (24%) to 1986-1990 (12%), followed by an even larger increase to 29% in 1991-1995. Another movement

that was occurring during this time, in the 1980s, was the rise in the research of and subsequent recommendations regarding the implementation of *emergent literacy* practices (see Van Kleeck & Schuele, 2010). An important component of emergent literacy intervention focuses on encouraging adults to interactively read and discuss books together with their children (Van Kleeck, 2006), and in so doing, bridging spoken and written language. Additionally, the whole language movement focused on integrating spoken and written language domains beyond phonology (e.g., semantics, syntax) in the context of authentic literature and text (Norris & Damico, 1990; Westby, 1990). It may be that these connections resulted in increased embedding of written language into existing child language courses.

Spoken Versus Written Language: Graduate Program Preparation

The reported low percentages of dedicated and embedded courses in graduate programs and the inconsistencies regarding the focus of the training that was provided in the embedded courses are reflected in how well the SLPs feel their graduate programs trained them in spoken versus written language. Whereas 70% felt that their graduate programs prepared them to assess and treat spoken language well to very well, only 9% felt the same about written language. Perhaps because of their dissatisfaction with their pre-service training in written language, the majority of SLPs (80%) seemed to be turning to in-service trainings to compensate. Furthermore, approximately 90% of the respondents reported that if they had the opportunity, they would want to learn more about the assessment and treatment of written language, with a greater leaning towards wanting training in general research-based principles of written language assessment and treatment versus training in specific assessments or programs, curricula, or approaches.

Spoken Versus Written Language: Self-Efficacy to Assess and Treat

Overall, there were stark differences in respondents' self-efficacy about assessing and

treating spoken versus written language: their confidence was much higher with spoken language compared to written language. Approximately 90% agreed or strongly agreed that they were proficiently knowledgeable to assess and treat spoken language. The numbers were much lower with respect to written language with less than a quarter (a mean of 23.5% across all written language skills) reporting the same level of confidence for assessing and treating written language. These significant differences in their self-efficacy between assessing and treating spoken language versus written language had large effect sizes and are concerning. This is especially true given the role that SLPs are expected to play in the literacy development of children and adolescents with language and communication disorders (ASHA, 2001).

Spoken Versus Written Language: Clinical Practice

There was also great disparity between spoken and written language in the clinical practice of the respondents. Almost all (97%) reported that they assessed or treated spoken language, however the rates were far lower of respondents regarding written language (59%). Respondents who reported treating both spoken and written language indicated that they devoted 20% more time each week to treating or assessing spoken language than written language. Among the students or clients on these respondents' caseloads, the written language area with the highest portion of challenge was written expression (69%); however, this was one of the areas SLPs felt the least proficient assessing and treating, with a mean proficiency level percentage of only 37%. Written expression assessment and treatment was also an area that respondents wanted the most training in (72% for assessment, 76% for treatment). On the contrary, the area where their students or clients were least likely to struggle, phonological or phonemic awareness ($M = 53.78\%$), was an area that respondents felt the most proficient in assessing and treating, with a mean proficiency level percentage of 78%. This trend of having

relatively higher rates of confidence with treating phonological awareness and lower rates of confidence with written expression is consistent with previous studies (Fallon & Katz, 2011; Sakowicz, 2009; Shelton, 2018). Nonetheless, these findings suggest that there is an ongoing need for increased focus on training SLPs on aspects of written language beyond phonological or phonemic awareness. Specifically, increased attention should be directed to written expression and reading comprehension, noted as the areas that presented the greatest difficulty for students or clients on respondents' caseloads. Both encompass the integration of multiple domains of language (i.e., phonology, morphology, semantics, syntax, and pragmatics).

Grade Level

Another notable trend was that there was a greater focus on meeting the literacy needs of younger, elementary school students with less attention provided at the higher grades. For example, of the clinical placements that did focus on literacy assessment and/or intervention, none focused on high school students whereas 56% focused on elementary school students. Additionally, SLPs reported that of their workload addressing literacy, 15% was with high school students, whereas 52% was with elementary school students. This pattern of a decrease in speech and language services with grade increase has been well-documented and is problematic since students with language impairment need more support with grade increase due to the rising written and spoken language demands of the curriculum (Stothard et al., 1998; Sun & Wallach, 2014). This trend may again be reflective of SLPs' limited knowledge of how to assess and/or treat written language beyond the domain of phonology.

Effects of Pre-Service and In-Service Trainings on Clinical Practice and Self-Efficacy

Surprisingly, there were no significant effects of pre-service training on clinical practice and self-efficacy in assessing or treating literacy. The lack of a significant relationship between

pre-service training on clinical practice contradicts a previous study by Fallon and Katz (2011), which demonstrated an increase by fivefold in the likelihood of addressing literacy when provided pre-service training. However, the current study confirms a previous study that also found the lack of a significant relationship between pre-service training and self-efficacy (Blood et al., 2010). Perhaps this contradiction is explained by differences in the intensity, methods utilized, or quality of pre-service training and experience.

Though there was no effect of pre-service training in the current study, there was a significant, but small effect (adjusted R^2 of 2% to 5%) of having received in-service training in written language on the percentage of workloads targeting written language and in respondents' self-efficacy in assessing and treating written language. This confirms the finding by Blood et al. (2010). One of the reasons for this might be that SLPs learn about written language through in-service training at much higher rates than through pre-service training (Blood et al., 2010; Sakowicz, 2009; Shelton, 2018). In the current study, it was unclear whether this is because respondents with a prior interest in literacy were more likely to take in-service training, or if the in-service training, regardless of prior interest, truly had an effect on clinical outcomes and confidence. The respondents in the current study reported their own need for increased training, especially regarding research-based practices and principles of literacy intervention rather than specific commercial assessments, programs, or curricula. However, relying on in-service rather than pre-service training, may result in high variability with the breadth of topics and quality of training that practicing SLPs access and then implement. Regardless, these findings point to the importance of evidence-based in-service training for clinical practice and clinician confidence.

Differences Between School-Based and Non-School-Based SLPs' Beliefs

Perhaps the most unexpected findings in the current study were the significant disparities

between school-based and non-school-based SLPs with respect to their beliefs regarding SLPs' roles with literacy and the percentage of time spent addressing written language. Across all statements, there were lower rates of agreement amongst school-based SLPs than non-school-based SLPs. Though there was only a 6% difference between school-based and non-school-SLPs in the extent to which they agree with the overarching, general statement "Literacy is within the SLP's scope of practice", there was a much larger difference between the groups with statements that addressed specific areas of literacy. For example, the percent difference between school-based and not school-based groups for the statement "It is the SLP's role and responsibility to assess [and treat] reading" was around 20%. Though it was expected that the extent of these beliefs would be comparable, if not higher, amongst school-based SLPs since they work in a setting where written language is necessary to access the curriculum and the standards, this was not the case. It is possible that school-based SLPs agree theoretically and generally that literacy is within their scope of practice; in fact, more than 80% of the respondents indicated that they believe it is within their scope of practice. However, the demands and stressors of working in the schools with high workloads (Edgar & Rosa-Lugo, 2007; Ferney Harris et al., 2009) relative to other work settings (Ewen et al., 2020; Kalkhoff & Collins, 2012) may cause them to retract from specific roles and responsibilities (e.g., assessing reading, treating writing) that they believe are addressed by others (e.g., general and special education teachers, reading specialists). It is also possible that school administrators (e.g., lead SLPs, directors of special education) determine roles and responsibilities for SLPs and encourage SLPs to focus on spoken rather than written language. These possibilities are corroborated by the significantly more time spent on written language by SLPs in private practice, with its different working conditions and demands, compared to the schools. These are important questions to address in future research.

Implications and Future Directions

Overall, the findings of the current study suggest that there is simply not enough pre-service training in the assessment and treatment of written language provided to SLPs in the United States. Further, these low rates of pre-service training in written language have negative downstream effects. In light of these findings, there is a need to increase pre-service training through dedicated courses and an increased focus on written language in embedded courses. There is also a need to ensure that both pre-service and in-service written language training encompasses elements of all domains of language, with particular attention to skills involving the integration of multiple domains such as reading comprehension and written expression. Finally, given the fact that the majority of SLPs are school-based and that written language is necessary for students to succeed in school and beyond, there is a need to investigate the reasons why some SLPs do not believe that they have a role and responsibility to address written language even when it is specifically called out as part of their role and responsibility. Once those barriers are identified, it will be important to determine the supports SLPs need to align their theoretical beliefs with their practice.

Limitations

Though this survey was disseminated to various groups, in the end, a level of convenience sampling resulted from depending on existing connections with groups that supported the dissemination. The sample was representative of ASHA-certified SLPs with respect to race and gender, but it was not representative of ethnicity. It is possible that the sample was not representative of other demographic variables that were not obtained. Further, there were differences in the representation of graduates from different time periods. These differences could certainly have impacted the overall findings.

It is also very possible that SLPs were more likely to take the survey if they already had some experience or familiarity with literacy, given the title and topic of the survey. Though an effort was made to make it clear that the survey addressed both spoken and written language in the title of the survey used in recruitment materials (i.e., *Speech Language Pathologists' Training, Clinical Experiences, and Self-Perceptions of Proficiency in Language and Literacy*), the inclusion of literacy likely increased participation among SLPs with particular interests in literacy. This likelihood is supported by the percentage of respondents working with 5- to 21-year-olds who reported that they address written language (59%). This is higher than what is reported in the ASHA survey of school-based SLPs in which 34.5% to 44.3% of SLPs working in schools reported that they address literacy (ASHA, 2020). Therefore, it is likely that the results of the current study inflated the responses regarding the importance of literacy and all other aspects of written language. For these reasons, all findings must be interpreted with some level of caution.

Another limitation of the current study is the lack of giving respondents opportunities to explain their rationale for the responses provided. For example, the differences between school-based and non-school-based SLPs regarding their beliefs of their roles and responsibilities with literacy was surprising, but there were no further questions probing respondents' reasons for their answers. The design of future surveys and other related studies should take this into consideration.

Conclusion

The results of the current study provide important information regarding the field of speech-language pathology. Specifically, the results contribute to understandings of pre-service and in-service literacy training opportunities afforded practicing SLPs. In addition, the study

provided important information regarding current SLPs' clinical experiences and their self-efficacy and perceived needs regarding the assessment and treatment of written language. This study revealed the ongoing inadequacy of pre-service training in the area of written language: specifically, that only half of the responding SLPs received any training in written language through their graduate coursework, and only a quarter received it through a dedicated course. This limited training is reflected in SLPs' clinical practices and self-efficacy with significantly greater attention and confidence in assessing and treating spoken language than written language. Additionally, the findings point to specific areas where SLPs could benefit from more written language assessment and intervention training: written expression and reading comprehension, which require the application and integration of all domains of language. Lastly, there is a difference between SLPs who work in the schools and those who do not, with school-based SLPs devoting less of their clinical time toward written language and less likely to indicate that addressing critical aspects of written language are a part of their role, compared to those who do not work in school settings. There is a need to further investigate potential reasons for this and other unexpected and concerning phenomena.

REFERENCES

- American Speech-Language-Hearing Association (n.d.-a). *A chronology of changes in ASHA's certification standards*. https://www.asha.org/certification/ccc_history/
- American Speech-Language-Hearing Association (n.d.-b). *Implications Common Core state standards*. <https://www.asha.org/slp/schools/implications/>
- American Speech-Language-Hearing Association (n.d.-c). *Language in brief*. <https://www.asha.org/practice-portal/clinical-topics/spoken-language-disorders/language-in-brief/>
- American Speech-Language-Hearing Association (n.d.-d). *Private practice in speech-language pathology*. <https://www.asha.org/slp/Private-Practice-in-Speech-Language-Pathology/>
- American Speech-Language-Hearing Association (n.d.-e). *Reading and writing (literacy)*. <https://www.asha.org/public/speech/development/literacy/>
- American Speech-Language-Hearing Association (n.d.-f). *Written language disorders*. <https://www.asha.org/practice-portal/clinical-topics/written-language-disorders/>
- American Speech-Language-Hearing Association. (2000). *Roles and responsibilities of speech-language pathologists in schools* [Professional Issues Statement]. <https://www.asha.org/policy/pi2010-00317/>
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents* [Position Statement]. <https://www.asha.org/policy/ps2001-00104>
- American Speech-Language-Hearing Association (2016). *Every Student Succeeds Act: Key issues for ASHA members*. <https://www.asha.org/siteassets/uploadedfiles/every-student-succeeds-act-key-issues.pdf>
- American Speech-Language-Hearing Association. (2020). *2020 Schools survey. Survey summary report: Numbers and types of responses, SLPs*. <https://www.asha.org/siteassets/surveys/2020-schools-slp-summary.pdf>
- American Speech-Language-Hearing Association (2021). *Profile of ASHA members and affiliates, year-end 2020*. <https://www.asha.org/siteassets/surveys/2020-member-and-affiliate-profile.pdf>
- Apel, K. (2002). It's in the cards: Serving students with spoken and written language challenges. *The ASHA Leader*, 7, 1. <https://doi.org/10.1044/leader.FTR1.07012002.6>
- Apel, K. (2014). A comprehensive definition of morphological awareness: Implications for assessment. *Topics in Language Disorders*, 34(3), 197-209. <http://dx.doi.org/10.1097/TLD.0000000000000019>

- Baigorri, M., Crowley, C. J., Sommer, C. L., Baquero, J., & Moya-Galé, G. (2021). Graduate students' clinical self-efficacy: impact of an intensive cleft lip and palate clinical practicum. *Communication Disorders Quarterly*, 42(4), 249–256. <https://doi.org/10.1177/1525740120942463>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, 38(1), 9–44. <https://doi.org/10.1177/0149206311410606>
- Barton S. (2000). *Intervention program, an Orton influenced multisensory structured*. Bright Solutions for Dyslexia, LLC.
- Bear, D. R., Invernizzi, M., Templeton, S., & Johnston, F. R. (2019). *Words their way: Word study for phonics, vocabulary, and spelling instruction* (7th ed.). Pearson.
- Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life*. The Guilford Press.
- Bell, N. (1997). *Seeing stars* (2nd ed.). Gander Publishing.
- Beers, S. F., & Nagy, W. E. (2009). Syntactic complexity as a predictor of adolescent writing quality: Which measures? Which genre?. *Reading and Writing*, 22, 185–200. <https://doi.org/10.1007/s11145-007-9107-5>
- Beredsford Research (n.d.). *Survey calculators*. <https://www.beresfordresearch.com/survey-calculators/>
- Blood, G. W., Mamett, C., Gordon, R., & Blood, I. M. (2010). Written language disorders: Speech-language pathologists' training, knowledge, and confidence. *Language, Speech & Hearing Services in Schools*, 41(4), 416-428A. [http://doi.org/10.1044/0161-1461\(2009/09-0032\)](http://doi.org/10.1044/0161-1461(2009/09-0032))
- Bowey, J. A. (1986). Syntactic awareness in relation to reading skill and ongoing reading comprehension monitoring. *Journal of Experimental Child Psychology*, 41(2), 282-299. [https://doi.org/10.1016/0022-0965\(86\)90041-X](https://doi.org/10.1016/0022-0965(86)90041-X)
- Brown, V. L., Wiederholt, J. L., & Hammill, D. D. (2009). *Test of Reading Comprehension* (4th ed.). Pro-Ed.
- Cain, K., & Oakhill, J. V. (1999). Inference making ability and its relation to comprehension failure in young children. *Reading and Writing*, 11, 489–503. <https://doi.org/10.1023/A:1008084120205>
- Carreker, S., & Birsh, J. R. (2011). *Multisensory teaching of basic language skills activity book* (2nd ed.). Paul H. Brookes Publishing Co.
- Carrow-Woolfolk, E. (2011). *Oral and Written Language Scales* (2nd ed.). WPS Publishing.

- Chafe, W., & Tannen, D. (1987). The relation between written and spoken language. *Annual Review of Anthropology*, 16, 383-407.
<https://doi.org/10.1146/annurev.an.16.100187.002123>
- Chaney, C. (1990). Evaluating the whole language approach to language arts: The pros and cons. *Language, Speech, and Hearing Services in Schools*, 21, 244-249.
<https://doi.org/10.1044/0161-1461.2104.244>
- Cohen J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge.
- Colton, D., & Covert, R. W. (2007). *Designing and constructing instruments for social research and evaluation*. John Wiley & Sons, Incorporated.
- Council on Professional Standards in Speech-Language Pathology and Audiology of the American Speech-Language-Hearing Association. (2004). *Background information and standards and implementation for the certificate of clinical competence in speech language pathology*. American Speech-Language-Hearing Association.
- Council for Clinical Certification in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association. (2018). *2020 standards for the certificate of clinical competence in speech-language pathology*.
<https://www.asha.org/certification/2020-SLP-Certification-Standards>
- de Diego-Lázaro, B., Winn, K., & Restrepo, M. A. (2020). Cultural competence and self-efficacy after study abroad experiences. *American Journal of Speech-Language Pathology*, 29(4), 1896–1909. https://doi.org/10.1044/2020_AJSLP-19-00101
- Duchan, J. F. (2010). The early years of language, speech, and hearing services in U.S. schools. *Language, Speech & Hearing Services in Schools*, 41(2), 152-160.
[https://doi.org/10.1044/0161-1461\(2009/08-0102\)](https://doi.org/10.1044/0161-1461(2009/08-0102))
- Edgar, D. L., & Rosa-Lugo, L. (2007). The critical shortage of speech-language pathologists in the public school setting: Features of the work environment that affect recruitment and retention. *Language, Speech & Hearing Services in Schools*, 38(1), 31-46.
[https://doi.org/10.1044/0161-1461\(2007/004\)](https://doi.org/10.1044/0161-1461(2007/004))
- Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). <https://www.congress.gov/bill/114th-congress/senate-bill/1177>
- Ewen, C., Jenkins, H., Jackson, C., Jutley-Neilson, J., & Galvin, J. (2020). Well-being, job satisfaction, stress and burnout in speech-language pathologists: A review. *International Journal of Speech-Language Pathology*, 23(2), 180-190.
<https://doi.org/10.1080/17549507.2020.1758210>
- Fallon, K. A., & Katz, L. A. (2011). Providing written language services in the schools: The time is now. *Language, Speech & Hearing Services in Schools*, 42(1), 3-17A.
[https://doi.org/10.1044/0161-1461\(2010/09-0068\)](https://doi.org/10.1044/0161-1461(2010/09-0068))

- Ferney Harris, S., Prater, M. A., Dyches, T. T., & Allen Heath, M. (2009). Job stress of school-based speech-language pathologists. *Communication Disorders Quarterly*, 30(2), 103–111. <https://doi.org/10.1177/1525740108323856>
- Gibson, J. W., Gruner, C. R., Kibler, R. J., & Kelly, F. J. (1966). A quantitative examination of differences and similarities in written and spoken messages. *Speech Monographs*, 33(4), 444-451. <https://doi.org/10.1080/03637756609375510>
- Gillingham, A., & Stillman, B. S. (1997) *The Gillingham manual: Remedial training for children with specific disability in reading, spelling, and penmanship*. School Specialty, Inc.
- Hogan, T. P., Catts, H. W., & Little, T. D. (2005). The relationship between phonological awareness and reading: Implications for the assessment of phonological awareness. *Language, Speech, and Hearing Services in Schools*, 36(4), 285–293. [https://doi.org/10.1044/0161-1461\(2005/029\)](https://doi.org/10.1044/0161-1461(2005/029))
- Hammill, D. D., & Larsen, S. C. (2009). *Test of Written Language* (4th ed.). Pearson.
- Hulme, C., & Snowling, M. J. (2014). The interface between spoken and written language: Developmental disorders. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1634), 20120395. <https://doi.org/10.1098/rstb.2012.0395>
- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004). <https://sites.ed.gov/idea/>
- Johnson, D. E. (2017). *The perceived roles of speech-language pathologists, reading specialists, and general education teachers in the intervention of reading comprehension and decoding for elementary school students* [Master's thesis, California State University, Long Beach]. *ProQuest Dissertations and Theses*. <https://www.proquest.com/docview/1981229801/abstract/50562266BF414C0DPQ/1>
- Kalkhoff, N. L., & Collins, D. R. (2012). Speech-language pathologist job satisfaction in school versus medical settings. *Language, Speech, and Hearing Services in Schools*, 43(2), 164-175. [https://doi.org/10.1044/0161-1461\(2011/11-0007\)](https://doi.org/10.1044/0161-1461(2011/11-0007))
- Kamhi, A. G., & Catts, H. W. (2012). *Language and reading disabilities* (3rd ed.). Pearson.
- Kim, J. S. (2008). Research and the Reading Wars. *Phi Delta Kappan*, 89(5), 372–375. <https://doi.org/10.1177/003172170808900514>
- Larsen, S. C., Hammill, D., & Moats, L. (2013). *Test of Written Spelling* (4th ed.). Pro-Ed.
- Lee, C., & Schman, F. (1987). Self-efficacy as a predictor of clinical skills among speech pathology students. *Higher Education*, 16(4), 407–416. <https://doi.org/10.1007/BF00129113>
- Lenhard, W., & Lenhard, A. (2016). *Computation of effect sizes*. Psychometrica. http://www.psychometrica.de/effect_size.html

- Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2017). Morphological awareness and reading comprehension: Examining mediating factors. *Journal of Experimental Child Psychology, 160*, 1-20. <https://doi.org/10.1016/j.jecp.2017.02.015>
- Lindamood, P., & Lindamood, P. (2011). *The Lindamood phoneme sequencing program for reading, spelling, and speech* (4th ed.). Pro-Ed.
- Masterson, J. J., Apel, K. A., & Wasowicz, J. (2002, 2006). *Spelling Performance Evaluation for Language and Literacy (2nd ed.): A Multiple-Linguistic, Prescriptive Assessment*. Learning by Design.
- Mather, N., Hammill, D., Allen, E. A., & Roberts, R. (2014). *Test of Silent Word Reading Fluency* (4th ed.). Pro-Ed.
- McBride, E. (2022). The development of clinical self-efficacy in speech-language pathology graduate training: A longitudinal study. *American Journal of Speech-Language Pathology, 1*–20. https://doi.org/10.1044/2021_AJSLP-21-00134
- Melby-Lervåg, M., Lyster, S.-A. H., & Hulme, C. (2012). Phonological skills and their role in learning to read: A meta-analytic review. *Psychological Bulletin, 138*(2), 322–352. <https://doi.org/10.1037/a0026744>
- Nail-Chiwetalu, B., & Ratner, N. B. (2007). An assessment of the information-seeking abilities and needs of practicing speech-language pathologists. *Journal of the Medical Library Association, 95*(2), 182–188, 56-57. <https://doi.org/10.3163/1536-5050.95.2.182>
- Nation, K., Clarke, P., Marshall, C. M., & Durand, M. (2004). Hidden language impairments in children: Parallels between poor reading comprehension and specific language impairment? *Journal of Speech, Language, and Hearing Research, 47*(1), 199–211. [https://doi.org/10.1044/1092-4388\(2004/017\)](https://doi.org/10.1044/1092-4388(2004/017))
- Nation, K., Cocksey, J., Taylor, J. S. H., & Bishop, D. V. M. (2010). A longitudinal investigation of early reading and language skills in children with poor reading comprehension. *Journal of Child Psychology and Psychiatry, 51*(9), 1031–1039. <https://doi.org/10.1111/j.1469-7610.2010.02254.x>
- National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core state standards*. <http://www.corestandards.org/>
- Nelson, N. W., Plante, E., Helm-Estabrooks, N., & Hotz, G. (2016). *Test Of Integrated Language and Literacy Skills*. Paul H. Brookes Publishing Co.
- Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46*(2), 532–566. <https://doi.org/10.3102/0002831208328088>

- Norris, J. A., & Damico, J. S. (1990). Whole language in theory and practice: Implications for language intervention. *Language, Speech, and Hearing Services in Schools, 21*, 212-220. <https://doi.org/10.1044/0161-1461.2104.212>
- O'Connell, A. (1990). *The development of speech pathology in America, 1890-1940*. [Doctoral dissertation], Loyola University of Chicago]. Loyola eCommons. https://ecommons.luc.edu/luc_diss/2744
- O'Donnell, R. C. (1974). Syntactic differences between speech and writing. *American Speech, 49*(1/2), 102–110. <https://doi.org/10.2307/3087922>
- Olsen, J. Z. (1998). *Handwriting without tears*. Fred Sammons, Inc.
- Ouellette, G. (2010). Orthographic learning in learning to spell: The roles of semantics and type of practice. *Journal of Experimental Child Psychology, 107*(1), 50-58. <https://doi.org/10.1016/j.jecp.2010.04.009>
- Pasupathy, R., & Bogschutz, R. J. (2013). An investigation of graduate speech-language pathology students' SLP clinical self-efficacy. *Contemporary Issues in Communication Science and Disorders, 40*, 151–159. <https://doi.org/10.1044/cicsd.40.F.151>
- Pearson, P. D. (2002). American reading instruction since 1967. In N. B. Smith (Ed.), *American reading instruction: Special edition*. International Reading Association.
- Pearson, P. D., & Cervetti, G.N. (2015). Fifty years of reading comprehension theory and practice. In P.D. Pearson & E.H. Hiebert (Eds.), *Research-based practices for teaching common core literacy* (pp. 1-24). Teachers College Press.
- Perfetti, C., & Adlof, S. M. (2012). Reading comprehension: A conceptual framework from word meaning to text meaning. In J. P. Sabatini, E. Albro, & T. O'Reilly (Eds.), *Measuring up: Advances in how we assess reading ability* (pp. 3-20). Rowman Publishing.
- Polit, D. F., & Beck, C. T. (2006). The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health, 29*(5), 489–497. <https://doi.org/10.1002/nur.20147>
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459–467. <https://doi.org/10.1002/nur.20199>
- Power-de Fur, L. (2011). Special education eligibility: When is a speech-language impairment also a disability? *The ASHA Leader, 16*(4). <https://doi.org/10.1044/leader.FTR1.16042011.12>
- Robertson, C., & Salter, W. (2018). *Phonological Awareness Test: Normative Update* (2nd ed.). Pro-Ed.

- Rudolf, S. R., Manning, W. H., & Sewell, W. R. (1983). The use of self-efficacy scaling in training student clinicians: Implications for working with stutterers. *Journal of Fluency Disorders*, 8(1), 55–75. [https://doi.org/10.1016/0094-730X\(83\)90021-9](https://doi.org/10.1016/0094-730X(83)90021-9)
- Sakowicz, J. L. (2009). *School-based speech-language pathologists' involvement with students who have writing difficulties: A statewide survey* [M.S. Thesis, Southern Connecticut State University]. <https://www.proquest.com/docview/305141716/abstract/7366058638624B91PQ/1>
- Schallert, D. L., Kleiman, G. M., & Rubin, A. D. (1977). *Analyses of differences between written and oral language*. University of Illinois at Urbana Champaign, Bolt/Beranek and Newman, Inc. https://www.ideals.illinois.edu/bitstream/handle/2142/17970/ctrstreadtechrepv01977i00029_opt.pdf
- Shapiro, H. S. (1992). Debatable issues underlying whole-language philosophy. *Language, Speech, and Hearing Services in Schools*, 23, 308-311. <https://doi.org/10.1044/0161-1461.2304.308>
- Shelton, M. D. A. (2018). *School-based speech-language pathologists: perspective of literacy and collaboration with classroom teachers* [Ed.D. Dissertation, Sam Houston State University]. <https://www.proquest.com/docview/2173353772/abstract/6607103B412C42CFPQ/1>
- Smith, S. L. (2011). *Expanding expression: A multisensory approach for improved oral and written language* (2nd Ed.). Expanding Expression.
- Stahl, S. A., & Nagy, W. E. (2006). *Teaching word meanings*. Lawrence Erlbaum.
- Stothard, S. E., Snowling, M. J., Bishop, D. V. M., Chipchase, B. B., & Kaplan, C. A. (1998). Language-impaired preschoolers. *Journal of Speech, Language, and Hearing Research*, 41(2), 407–418. <https://doi.org/10.1044/jslhr.4102.407>
- Sun, L. & Wallach, G. P. (2014). Language disorders are learning disabilities. *Topics in Language Disorders*, 34(1), 25–38. <https://doi.org/10.1097/TLD.0000000000000005>
- Swank, L. K. & Catts, H. W. (1994). Phonological awareness and written word decoding. *Language, Speech, and Hearing Services in Schools*, 25(1), 9-14. <https://doi.org/10.1044/0161-1461.2501.09>
- Sylvan, L. (2018). Tiers to communication success. *The ASHA Leader*, 23(8). <https://doi.org/10.1044/leader.FTR1.23082018.44>
- Tannen, D. (1985). Relative focus on involvement in oral and written discourse. In D. R. Olson, N. Torrance, & A. Hildyard (Eds.), *Literacy, Language, and Learning: The Nature and Consequences of Reading and Writing* (pp. 124-147). Cambridge University Press.
- Telian, N. A. (2019). *Lively Letters instruction manual* (4th ed.). Reading with TLC.

- Torgensen, J. K., & Bryant, B. R. (2004). *Test of Phonological Awareness: Plus* (2nd ed.). Pro-Ed.
- Tunmer, W. E., Nesdale, A. R., & Wright, A. D. (1987). Syntactic awareness and reading acquisition. *British Journal of Developmental Psychology*, 5(1), 25–34. <https://doi.org/10.1111/j.2044-835X.1987.tb01038.x>
- Van Kleeck, A. (2006). Cultural issues in promoting interactive book sharing in the families of preschoolers. In A. Van Kleeck (Ed.), *Sharing books and stories to promote language and literacy* (pp. 179–230). Plural Publishing.
- Van Kleeck, A., & Schuele, C. M. (2010). Historical perspectives on literacy in early childhood. *American Journal of Speech-Language Pathology*, 19, 341-355. [https://doi.org/10.1044/1058-0360\(2010/09-0038\)](https://doi.org/10.1044/1058-0360(2010/09-0038))
- van Rijthoven, R., Kleemans, T., Segers, E. & Verhoeven, L. (2021). Semantics impacts response to phonics through spelling intervention in children with dyslexia. *Annals of Dyslexia*, 71, 527–546. <https://doi.org/10.1007/s11881-021-00233-1>
- Wagner, R., Torgesen, J., Rashotte, C., & Pearson, N. A. (2013). *Comprehensive Test of Phonological Processes* (2nd ed.). Pearson.
- Wasowicz, J., Apel, K., Masterson, J. J., & Whitney, A. (2004). *SPELL-Links to reading and writing*. Learning By Design, Inc.
- Wellman, L. L. (2006). *Teachers' and speech-language pathologists' definition of reading and perceived roles of school-based speech-language pathologists: Relationship to teacher referral practices* (UMI No. 3217606). [Doctoral dissertation, University of Cincinnati]. ProQuest Information and Learning Company. <https://www.proquest.com/>
- Westby, C. E. (1990). The role of the speech-language pathologist in whole language. *Language, Speech, and Hearing Services in Schools*, 21, 228-237. <https://doi.org/10.1044/0161-1461.2104.228>
- Wiederholt, J. L., & Blalock, G. (2000). *Gray Silent Reading Test*. Pro-Ed.
- Wiederholt, J. L., & Bryant, B. R. (2012). *Gray Oral Reading Test* (5th ed.). Pro-Ed.
- Wigg, E. H., Semel, E., & Secord, W. A. (2013). *Clinical Evaluation of Language Fundamentals* (5th ed.). Pearson.
- Wilson, B. A. (2002). *Wilson Reading System*. Wilson Language Training Corporation.
- Wilson, B. & Felton, R. H. (2004). *Word Identification and Spelling Test*. Pro-Ed.
- Wolf, M. & Denckla, M. B. (2005). *RAN/RAS: Rapid Automated Naming and Rapid Alternating Stimulus Tests*. Pro-Ed.

Yusoff, M.S.B. (2019). ABC of content validation and content validity index calculation. *Education in Medicine Journal*, *11*(2), 49-54. <https://doi.org/10.21315/eimj2019.11.2.6>

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., & Nikanfar, A. R. (2015). Design and implementation content validity study: Development of an instrument for measuring patient-centered communication. *Journal of Caring Sciences*, *4*(2), 165–178. <https://doi.org/10.15171/jcs.2015.017>

CHAPTER 4: CONCLUSION

Together, the two studies in this dissertation paint a picture of the state of literacy pre-service and in-service training in the field of speech-language pathology and speech-language pathologists' (SLPs') clinical experiences and practices in the United States. Each study contributes to our understanding with two methods – the first, by an analysis of speech-language pathology graduate programs' courses and the second, by a survey of a national sample of speech-language pathologists (SLPs). Across these studies, there are striking similarities and findings that corroborate each other.

First, there has been an overall increase in the provision of pre-service literacy training, especially in the past couple of decades since the publication of the American Speech-Language-Hearing Association's (ASHA) position statement on literacy (2001) and since the most recent national surveys addressing this topic (Blood et al., 2010; Fallon & Katz, 2011). However, the present studies also demonstrate that there is still much work to be done in ensuring that SLPs are well-equipped to address the literacy needs of the clients in the various settings where SLPs work. This is especially true in the schools where SLPs currently have a critical role in supporting the literacy development of students to meet the state grade-level standards (ASHA, n.d.; ASHA, 2016).

Pre-Service Training

Based on the two studies, it is estimated that currently, more than half of SLPs in the United States are receiving some sort of pre-service training in literacy and that the majority of this training is occurring in courses that embed literacy in courses with a broader focus. In the

past few decades, there has been a steady increase in the embedding of literacy in courses that are not dedicated to literacy (e.g., child language courses). In the most recent five-year-span of 2016 – 2021, 67% of respondents reported to have taken an embedded course, which is more than a 20% increase from just a decade ago. However, dedicated courses continue to be the minority medium through which literacy training is provided, with less than one-third of programs offering a dedicated course. This proportion has been relatively stagnant since 2006.

Embedding literacy into other courses, such as courses focused on child language or diagnostics, has its merits considering the interrelationship between written language and spoken language. However, given that the knowledge bases required by SLPs for reading and writing is extensive (ASHA, 2002), it is doubtful that embedded courses alone are sufficient in training SLPs to develop, assess, and treat written language whilst focusing on spoken language. In fact, respondents reported that embedded courses focused on literacy for less than one-third of the course. The insufficiency of embedded courses as the main means for providing literacy training is further reflected in the fact that fewer than ten percent the survey respondents felt that their graduate programs trained them to assess and treat written language well to very well. In contrast, nearly three quarters of the respondents reported that their graduate programs trained them well to very well to assess and treat spoken language.

Another area in which pre-service literacy training falls short is with clinical placements. Although a majority of SLPs (51%) work in the schools and another 11% work full-time in private practice where they most likely work with school-age clients, only 8% of graduate programs in the current study and only 16% of respondents had clinical placements with a focus on literacy. This missed opportunity amongst most of the programs is unfortunate since supervised trainings are an effective means of improving clinical practice and student or client

outcomes (Baigorri, 2021; Brownell, 2017).

In-Service Training

Overall, practicing SLPs continue to rely on in-service training to obtain information on literacy. Though roughly half of respondents reported receiving pre-service training (52%) and a little more than half of the programs sampled offer coursework in literacy (56%), nearly 80% of the sample reported to have received in-service training in literacy. This is aligned with previous survey studies that have found in-service trainings to be the primary means of learning more about literacy or guiding clinical decisions regarding literacy (Blood et al., 2010; Sakowicz, 2009; Shelton, 2018).

Additionally, nearly all of the respondents (i.e., approximately 90%) reported that given the opportunity, they would want to learn more about literacy assessment and treatment. Amongst these respondents, there was an overall preference towards wanting training in general, research-based principles of assessment and treatment, which approximately three-quarters of respondents preferred, versus training on specific assessments or programs (55%, 70%, respectively). This preference for wanting training in general, research-based principles of literacy indicates a need for graduate programs to provide this through their courses and for in-service training to offer this rather than a focus on specific assessments and interventions or programs.

Relying on in-service training is not ideal because there is no peer-review process or requirement that training be research-based (Nail-Chiwetalu & Ratner, 2007); however, in the present reality, these studies demonstrate that in-service training can play an important role. In the current studies, in-service training was found to have a significant, predictive relationship with the percentage of respondents' workloads spent on written language and respondents' self-

efficacy with assessing and treating written language. These relationships were not found with pre-service training. Thus, at present, in-service training can be viewed as an opportunity for language and literacy researchers to effectuate change from research to practice and in the future, as graduate programs increase their provision of literacy coursework, a way to continue to build on a base of knowledge acquired during pre-service training.

Self-Efficacy with Areas of Written Language

As reported, the survey study corroborated previous studies that have shown that SLPs have higher rates of self-efficacy with phonological awareness and lower self-efficacy with decoding and encoding, writing, and the integration of language and literacy skills in intervention (Fallon & Katz, 2011; Sakowicz, 2009; Shelton, 2018). In the current study, almost 80% of responding SLPs agreed and strongly agreed that they felt proficiently knowledgeable to assess and treat phonological and phonemic awareness. However, there were lower rates of self-efficacy, as expressed by agreeing or strongly agreeing that they felt knowledgeable to assess and treat the following: decoding and encoding (approximately 35%), written expression (approximately 36%), and reading comprehension (57%) and reading fluency (approximately 27%).

As important as phonological and phonemic awareness are for literacy (e.g., Stahl & Murray, 1994; Wagner, 1986; Wagner & Torgesen, 1987), there is a need to provide training in other areas and domains of written language as well. Indeed, SLPs seem to recognize this need for training in areas beyond phonological or phonemic awareness, as indicated by high percentages of respondents who wanted training in the assessment and treatment of decoding and encoding words (67%), reading comprehension (74%), and written expression (74%).

Spoken Versus Written Language

Despite the evidence that there has been an increase in pre-service literacy training, particularly with embedded courses, SLPs expressed significantly different levels of self-efficacy regarding spoken versus written language with large effect sizes between the two. However, students are struggling at nearly the same rates with written language as spoken language. For example, the responding SLPs reported that 73% of the students on their workloads struggled with spoken language, and nearly the same amount struggled with written expression (69%) and reading comprehension (66%), respectively. This suggests that SLPs recognize the need to know more about literacy assessment and intervention to meet their clients' needs, and likely explains why they report high rates of completion of in-service training in the area of literacy.

Conclusion

Despite the progress that has been made, particularly with the increase in the number of graduate programs in speech-language pathology that embed literacy training in courses, there is still much work to do to ensure that SLPs are trained to address the literacy needs of clients on their workloads. The discrepancy in focus on spoken versus written language in pre-service training is reflected in SLPs' self-reported self-efficacy and their perceptions of how well they feel their graduate programs prepared them in both areas.

In terms of pre-service training, speech-language pathology graduate programs would do well to invest into dedicated literacy courses since embedded courses appear to be insufficient to meet the knowledge areas required for engaging in reading and writing, across the language domains and the age spans (ASHA, 2002). In addition, speech-language pathology graduate programs should provide trainees with more access to clinical practicums that explicitly target literacy, since they are an effective means for improving graduate students' clinical skills in the

specified areas (Baigorri et al., 2021; de Diego-Lázaro et al., 2020).

Given that in-service training was shown to have uniquely significant effects on clinical practices in the current survey, it seems important for language and literacy researchers to disseminate research-based principles of literacy assessment and treatment through more in-service learning opportunities. These training opportunities should focus on principles and practices rather than specific programs to best address the self-reported needs of SLPs in the current survey. Furthermore, training should address areas of written language beyond phonological and phonemic awareness and focus on ways to integrate multiple domains (e.g., written expression, reading comprehension). Beyond the responses of the SLPs in the current research, there have been calls for decades now, to ensure that the literacy needs of all students are met, including those in the secondary grades (e.g., National Joint Committee on Learning Disabilities, 1990) when many of the written language needs require the integrations of multiple domains. In-service training might address this need and change the decreased focus on literacy reported by respondents in the current survey. Finally, there is a need to ensure that school-based SLPs, in particular, are well-supported to carry out their roles and responsibility with written language, and this should begin with an increased emphasis on written language in speech-language pathology graduate programs.

REFERENCES

- American Speech-Language-Hearing Association (n.d.). *Implications Common Core state standards*. <https://www.asha.org/slp/schools/implications/>
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of SLPs with respect to reading and writing in children and adolescents* [Position Statement]. <https://www.asha.org/policy/ps2001-00104>
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of SLPs with respect to reading and writing in children and adolescents* [Position Statement]. <https://www.asha.org/policy/ps2001-00104>
- American Speech-Language-Hearing Association. (2002). *Knowledge and skills needed by SLPs with respect to reading and writing in children and adolescents* [Knowledge and Skills]. www.asha.org/policy
- American Speech-Language-Hearing Association, Every Student Succeeds Act Analysis (2016). *Every Student Succeeds Act: Key issues for ASHA members*. <https://www.asha.org/siteassets/uploadedfiles/every-student-succeeds-act-key-issues.pdf>
- Baigorri, M., Crowley, C. J., Sommer, C. L., Baquero, J., & Moya-Galé, G. (2021). Graduate students' clinical self-efficacy: Impact of an intensive cleft lip and palate clinical practicum. *Communication Disorders Quarterly*, 42(4), 249–256. <https://doi.org/10.1177/1525740120942463>
- Blood, G. W., Mamett, C., Gordon, R., & Blood, I. M. (2010). Written language disorders: SLPs' training, knowledge, and confidence. *Language, Speech & Hearing Services in Schools*, 41(4), 416-428A. [https://doi.org/10.1044/0161-1461\(2009/09-0032\)](https://doi.org/10.1044/0161-1461(2009/09-0032))
- Brownell, M., Kiely, M. T., Haager, D., Boardman, A., Corbett, N., Algina, J., Dingle, M. P., & Urbach, J. (2017). Literacy learning cohorts: Content-focused approach to improving special education teachers' reading instruction. *Exceptional Children*, 83(2), 143–164. <https://doi.org/10.1177/0014402916671517>
- de Diego-Lázaro, B., Winn, K., & Restrepo, M. A. (2020). Cultural competence and self-efficacy after study abroad experiences. *American Journal of Speech-Language Pathology*, 29(4), 1896–1909. https://doi.org/10.1044/2020_AJSLP-19-00101
- Fallon, K. A., & Katz, L. A. (2011). Providing written language services in the schools: The time is now. *Language, Speech & Hearing Services in Schools*, 42(1), 3-17A. [https://doi.org/10.1044/0161-1461\(2010/09-0068\)](https://doi.org/10.1044/0161-1461(2010/09-0068))
- Nail-Chiwetalu, B., & Ratner, N. B. (2007). An assessment of the information-seeking abilities and needs of practicing speech-language pathologists. *Journal of the Medical Library Association*, 95(2), 182–188, 56-57. <https://doi.org/10.3163/1536-5050.95.2.182>

- National Joint Committee on Learning Disabilities. (2008). *Adolescent literacy and older students with learning disabilities* [Technical Report].
<https://www.asha.org/policy/tr2008-00304/>
- Sakowicz, J. L. (2009). *School-based SLPs' involvement with students who have writing difficulties: A statewide survey* [M.S. Thesis, Southern Connecticut State University]. Proquest Dissertations and Theses Global.
<https://www.proquest.com/docview/305141716>
- Shelton, M. D. A. (2018). *School-based SLPs: Perspective of literacy and collaboration with classroom teachers* (Publication No. 13819696) [Doctoral dissertation, Sam Houston State University]. ProQuest Dissertations and Theses Global.
<https://hdl.handle.net/20.500.11875/2555>
- Stahl, S. A., & Murray, B. A. (1994). Defining psychological awareness and its relationship to early reading. *Journal of Educational Psychology, 86*(2), 221-234.
<https://doi.org/10.1037/0022-0663.86.2.221>
- Wagner, R. (1986). Phonological processing abilities and reading: Implications for disabled readers. *Journal of Learning Disabilities, 19*, 623-630.
<https://doi.org/10.1177/002221948601901009>
- Wagner, R., & Torgesen, J. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Review, 101*, 192-212.
<https://doi.org/10.1037/0033-2909.101.2.192>

APPENDIX 2.1: PROTOCOL OF QUESTIONS TO GUIDE CODING OF GRADUATE SCHOOLS

A Qualtrics survey was created to ensure blinded coding. The questions to guide coding of graduate schools, formatted as a survey on Qualtrics, were as follows.

1. What is the name of the graduate program? *Open-Ended (OE)*
2. Is there a dedicated literacy course in the program? *Yes/No*
3. What is the name of the course that's dedicated to literacy? *OE*
4. What is the course description? *OE*
5. Where did you find this information? (Copy/paste the URL in the text entry.) *Drop-down and OE:*
 - a. Course catalog
 - b. Handbook
 - c. Website
 - d. Other
6. In the course description of the course that mentions literacy, is there mention of training on literacy assessment? *Yes/No*
7. In the course description of the course that mentions literacy, is there mention of training on literacy treatment? *Yes/No*
8. In the course description of the course that includes training on literacy, who is the course geared towards? *Drop-down:*
 - a. Adults
 - b. Children and/or adolescents (i.e., "pediatrics", "school-age", etc.)
 - c. Not stated
9. Is the dedicated literacy course stated to be an elective? *Yes/No*
10. What is the number of credits offered for the dedicated literacy course? *Drop-down:*
 - a. 4 credits
 - b. 3 credits
 - c. 2 credits
 - d. 1 credit
 - e. Other
 - f. Not stated
11. What is the format of the academic year? *Drop-down:*
 - a. Traditional semester: fall, spring, and summer
 - b. Trimester: fall, winter, spring
 - c. Quarter: fall, winter, spring, summer
 - d. Other
 - e. Not stated
12. Is there a course that has evidence of literacy being embedded as a component of it?
Yes/No
13. What is the name of the course that embeds literacy? *OE*
14. What is the course description? *OE*
15. Where did you find this information? (Copy/paste the URL in the text entry.) *Drop-down and OE:*
 - a. Course catalog

- b. Handbook
 - c. Website
 - d. Other
16. In the course description of the course that embeds literacy, is there mention of training on literacy assessment? *Yes/No*
17. In the course description of the course that embeds literacy, is there mention of training on literacy treatment? *Yes/No*
18. In the course description of the course that embeds training on literacy, who is the course geared towards? *Drop-down:*
- a. Adults
 - b. Children and/or adolescents (i.e., “pediatrics”, “school-age”, etc.)
 - c. Not stated
19. Is this course stated to be an elective? *Yes/No*
20. What is the number of credits offered for this course? *Drop-down:*
- a. 4 credits
 - b. 3 credits
 - c. 2 credits
 - d. 1 credit
 - e. Other
 - f. Not stated
21. What is the format of the academic year? *Drop-down:*
- a. Traditional semester: fall, spring, and summer
 - b. Trimester: fall, winter, spring
 - c. Quarter: fall, winter, spring, summer
 - d. Other
 - e. Not stated
22. Is there a course that has evidence of literacy being embedded as a component of it? *Yes/No* [If yes, questions 13-21 were repeated.]
23. GENERAL: Is there a specialty track that focuses on literacy? *Yes/No*
24. GENERAL: What is the name of the specialty track? *OE*
25. GENERAL: What is the description of the specialty track (if any)? *OE*
26. GENERAL: Is there a clinical program/track that focuses on literacy? *Yes/No*
27. GENERAL: What is the name of the clinical program/track? *OE*
28. GENERAL: What is the description of the clinical program/track (if any)? *OE*

APPENDIX 2.2: LITERACY-EMBEDDED COURSES

Course Name	Course Description	Topic	Age Group(s)
Seminar in Preschool Language Disorders and Speech Sound Disorders	Components of communication, language, speech and emergent literacy are discussed in preschool children with various types and severities of disorders. Clinical decision-making processes and evidence-based speech and language interventions are covered	Speech and Language	Early Childhood
Development and Disorders of Articulation and Phonology	This course addresses the physiological, cultural and psychological aspects of articulatory and phonological development and disorders; methods of prevention, assessment and intervention across the range of severity and etiology; impact of phonological disorders on acquisition of pre-literacy; collaboration with teachers in management and instruction.	Speech; Articulation; Phonology	Early Childhood, School-Age
Language Disorders in Children	Language and communication disorders and differences in children from infancy through adolescence, including specific language impairment, pervasive developmental delay, autism, and mental retardation, cognitive and social aspects of communication, variation in severity and type of disorders; management of children requiring special education as mandated by the Federal Law; implications of early language disorders on literacy acquisition, assessment and intervention; cultural diversity issues; interdisciplinary strategies for intervention for children with communication challenges within the home, preschool, school and community settings.	Language	Early Childhood, School-Age
Studies in Bilingualism	This class involves a survey of classical and contemporary psycholinguistic literature as it pertains to bilingual speakers (both children and adults). The ways in which languages can be acquired and be represented will be	Bilingualism	School-Age, Adult

Course Name	Course Description	Topic	Age Group(s)
	<p>reviewed in preparation for understanding how language and communication disorders might manifest in bilingual speakers. Several critical articles on the study of bilingualism will be discussed, under the following headings: (1) psycholinguistics from a cross language perspective, (2) early bilingual development (3) the bilingual brain (4) learning to reading in more than one script and (5) the cognitive impact of bilingualism. In addition, students will be engaged in discussions regarding the nature of bilingual language skills, the role of language in second language learning and how these factors impact assessment and treatment of language and communication disorders.</p>		
<p>Language Disorders in School-Age Children and Adolescents</p>	<p>Language disorders and the cognitive/linguistic processes involved in learning and in-class performance of listening, speaking, reading, and writing; emphasis on the similarities and differences between spoken and written language and the relationship between oral and written language disorders.</p>	<p>Language</p>	<p>School-Age</p>
<p>Theory and Application of Bilingualism to Speech Language Pathology</p>	<p>Theories of bilingualism and language learning; psycholinguistic and sociolinguistic impact of bilingualism, bidialectalism and biculturalism on education, prevention, assessment and treatment of children, adolescents and adults with communication disorders. Emphasis will be placed on academic challenges, methods for assessing and direct teaching English language arts, literacy, and other content areas to English language learners. This course places emphasis on the multicultural and multilinguistic differences in the analysis and application of linguistic theory.</p>	<p>Bilingualism</p>	<p>School-Age, Adults</p>

Course Name	Course Description	Topic	Age Group(s)
Speech Disorders: Articulation and Phonology	Review of current literature on phonological disorders with a view toward assessment and management in the clinic and the classroom. Topics include theories of phonological development; various forms of phonological and articulatory assessment; development of phonological awareness and impact on speech, spelling and reading; impact of culture and heritage on phonological patterns; and remedial techniques.	Speech; Articulation; Phonology	Not Specified
Language and Learning Disorders of Children II	Application of research in normal oral and written language acquisition to the study of language and learning disorders in school-age children and adolescents; emphasis on the assessment of, and intervention with school-age children with language and learning disorders in the clinic and the classroom. Units include perceptual disorders, linguistic diversity; narrative and discourse development; reading acquisition; medication, drug abuse, and language issues related to dyslexia, attention deficit disorder, oppositional behavior and central auditory processing disorder.	Language	School-Age
The Acquisition of Language	Development of language in the normal child; theoretical and empirical issues. The course involves the study of the processes and variations of speech, language, communication and pre-literacy skills in typically developing mono and bi-lingual children. Objectives include an exploration of the impact of cultural, ethnic, gender, socioeconomic and individual variation on the child's acquisition of language; an understanding of the processes involved in language learning, language use and the foundations of literacy from pre-linguistic stages to complex language development.	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
Language Development and Disorders I	This course involves the study of the processes and variations of speech, language, communication and pre-literacy skills in typically developing infants and children. Emphasis will be given on the assessment of and intervention with pre-school children with language and learning disorders. Units include interdisciplinary views of the child with speech, language, and communication challenges; issues in speech, language, communication, social-emotional, culturally diversity and cognitive development.	Language	Early Childhood
Language Development and Disorders II	This course involves study of the processes and variations of speech, language, communication and literacy skills in typically developing children and adolescents. Emphasis will be given on the assessment of and intervention with school-age children and adolescents with language and learning disorders. Units include interdisciplinary views of and issues with the child with speech, language, and communication challenges; social-emotional, cultural diversity and cognitive development.	Language	School-Age
Language Disorders in School Age Children	This course focuses on language disorders in school age children from kindergarten through adolescence. Emphasis is placed on language assessment and intervention principles in school settings, including the relationship between language impairments and reading disorders with specific attention to the impact of these disorders on academic achievement.	Language	School-Age
School Age and Adolescent Language Disorders	This course examines the nature, assessment, and treatment of language disorders in children aged kindergarten through high school. Receptive and expressive language differences and disorders, including reading and writing disorders, will be studied in	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
Communication Development	depth. Course of speech and language development in children who are typically developing, explored from infancy to late adolescence with cultural implications discussed. Includes semantic, syntactic, morphological, phonological, pragmatic and phonetic aspects of communication. Emphasis placed on language, preliteracy and speech in toddlers and preschoolers, and school-age language and literacy.	Speech and Language	Early Childhood, School-Age
Developmental Psycholinguistics	This is an in-depth study of the multiple factors affecting language development. Developmental variation, biological, cognitive, cultural, pragmatic, environmental and familial aspects are explored. Research in developmental psycholinguistics, literacy, bilingualism, and discourse processes is examined. Students are required to complete analyses of child language behavior.	Language	Early Childhood, School-Age
Evaluation and Interpretation of Communication Disorders	This course provides a comprehensive examination of assessment and evaluation of communication disorders across the lifespan. Students learn skills of collection, analysis and interpretation of standardized and non-standardized diagnostic procedures relevant to the evaluation of speech, language, and literacy throughout the lifespan. The impact of sociocultural issues is addressed.	Speech and Language	Early Childhood, School-Age, Adults
Speech and Language Pathology in the Schools	This course explores the culture, research and professional practices that guide decision making in school settings. Topics include: educational laws and regulations, philosophies of education, models of service delivery, individualized educational programming, rights and responsibilities of teachers and other staff, establishing entry and exit criteria	Schools	School-Age

Course Name	Course Description	Topic	Age Group(s)
	for speech-language services, family education, language and curriculum development, relating oral language to written expression, multicultural and bilingual considerations.		
Communication Assessment and Intervention for Bilingual Students	Graduate students develop knowledge about methods and tools for assessment, and methods and materials for teaching language and communication skills with students who are bilingual or who have limited English proficiency. Assessment and intervention issues focus on language and literacy, parent education, and the language arts in relation to one's native language. This class involves a survey of classical and contemporary psycholinguistic literature as it pertains to bilingual speakers (both children and adults). The ways in which languages can be acquired and be represented will be reviewed in preparation for understanding how language and communication disorders might manifest in bilingual speakers. Several critical articles on the study of bilingualism will be discussed, under the following headings: (1) psycholinguistics from a cross language perspective, (2) early bilingual development (3) the bilingual brain (4) learning to reading in more than one script and (5) the cognitive impact of bilingualism. In addition, students will be engaged in discussions regarding the nature of bilingual language skills, the role of language in second language learning and how these factors impact assessment and treatment of language and communication disorders.	Bilingualism	School-Age
Seminar in Child Language Disorders II	Course in normal language development. Students will develop an understanding of the etiologies of language delay and disorders in	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
	<p>children, and the impact of language impairment on the learning process. Formal and informal assessment and intervention strategies as well as treatment outcomes will be discussed. Students will develop awareness of issues pertinent to service delivery including cultural diversity, preparation of individualized educational programs, literacy, assessment of progress, behavior management, collaboration and infusion of technology. Various group processes and structures required for successful service delivery will be recognized. Legislation and policies impacting services to school aged children will be explored.</p>		
Seminar in Aural Rehabilitation	<p>This course is an advanced exploration of the critical role of hearing in normal language, speech and psychosocial development. The effects of hearing loss on communication across the life span, and the importance of early intervention and counseling will be investigated. Assessment of oral, signed and written language, speech and voice production, auditory discrimination and perception, and speech reading skills will be discussed. Scales used to assess specific communication breakdown and resultant attitudes will be identified. Treatment options and communication strategies, including the use of amplification systems, assistive listening devices, sensory aids and cochlear implants will be explored. Pertinent legislative and multicultural issues will be reviewed. Assessment and management of auditory processing disorders will be addressed.</p>	Aural Rehabilitation	Early Childhood, School-Age, Adult
Language Learning Disabilities in School-Age	<p>This course focuses on language learning disabilities in school-age children and adolescents and the cognitive/linguistic processes involved</p>	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
Children and Adolescents	in the classroom performance of listening, speaking, reading, and writing. It explores the role of the speech-language pathologist in the evaluation and treatment of students with language learning disabilities.		
Language Disorders in Young Children	This course offers a theoretical and applied approach to childhood language disorders from birth through six years. It provides an overview of language development and early assessment and intervention in the field of child language pathology within and across the domains of semantics, pragmatics, syntax, morphology, and phonology. Clinical applications and controversies in case management are emphasized through case presentations, article reviews, and research presentations. Diagnostic information including language sampling, stages of emergent literacy, and stages of play are discussed in relation to early intervention.	Language	Early Childhood
Language Disorders in School Age Children	The class considers the acquisition of language and its impairments in school aged children and the impact of language impairment on literacy, academic performance, and social interaction. Assessment and treatment approaches are discussed within an evidence-based practice perspective.	Language	School-Age
Language Assessment and Intervention: Elementary School to High School	Current issues and approaches relative to assessment and treatment of later elementary through high school grade students with language and literacy disorders.	Language	School-Age
Pediatric Language Disorders	Overview of potential etiologies and characteristics of language disorders in children from infancy through adolescence. Focus on assessment, diagnosis, and effective treatment of children with specific language impairments, autism spectrum disorders, and cognitively based	Language	Early Childhood, School-Age

Course Name	Course Description	Topic	Age Group(s)
	language impairments as well as the interplay between language, learning, and literacy. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.		
Language Science	Introduction to theories and supporting experimental evidence regarding human recognition and understanding of written and spoken language. Discussion regarding psycholinguistic, neurolinguistic, and cognitive neuropsychological research focused on understanding the neurocognitive mechanisms supporting lexical-semantic and syntactic processes. Emphasis on relevance of lexical-semantic and syntactic theories, models and data to understanding both developmental and acquired language disorders.	Language	Not Specified
Language and Learning Disorders in School-Age Children and Adolescents	This course addresses the etiology, diagnosis, and treatment of language learning delay/disorders (including developmental and acquired disorders), affecting school-age children through adolescence. Emphasis will be placed on a communication process model of evaluation and intervention with the implications of this integrated approach to facilitate reading, writing, speaking, listening, and thinking. The importance of the functional interrelationships among linguistic, cognitive, and affective functions and the social contexts within which they occur will be stressed. A variety of assessment and treatment procedures for use with this diverse clinical population will be discussed. Presentation of the paradigm shift from a traditional deficit model to an emergent literacy model with collaborative strategies to design and conduct curriculum-based assessment and interventions will be covered.	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
Augmentative and Alternative Communication in Educational Settings	This course focuses on the implementation of augmentative and alternative communication (AAC) in educational settings. Learners will gain an understanding of the legal foundations of providing AAC devices and services in school settings. The course addresses strategies for AAC services that can be used to provide access to the general education curriculum for students with significant communication challenges. Language assessment and intervention strategies for AAC communicators are discussed. Issues and strategies to teach reading and writing skills are presented along with strategies for facilitating the development of social skills and friendships.	AAC	School-Age
Applied Phonology: Development and Disorders	Critical review and discussion of clinical and developmental phonology research and phonological theories. Study of the bases for normal and disordered phonological development from birth through age twelve. Study of procedures for assessment and treatment of children with phonological disorders including the development of individualized remediation plans for expediting intelligibility gains. Course will include information regarding second language acquisition and oral and written language as these relate to phonological systems.	Speech; Articulation; Phonology	Early Childhood, School-Age
Child Language Development & Assessment	Theories and sequential stages of language and literacy development in children, from birth through adolescence. Assessment of language across different stages of development.	Language	Early Childhood, School-Age
Language Assessment and Intervention for School-Age Children and Adolescents	Theoretical perspectives, research, and clinical issues concerning disorders of language, literacy, and learning in the school-age population (elementary through high school) considering contributing factors, special	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
	populations and basic assessment and intervention principles.		
Language Disorders in School-Age Children	This course focuses on the relationship between spoken and written language and its role in language-based learning disabilities in school-age students. It addresses the characteristics of language and reading impairments; the subtypes of these disorders including dyslexia; and the different diagnostic strategies, assessment tools, and intervention approaches used with them. Various models of language and reading as they relate to development and disorders will be reviewed.	Language	School-Age
Normal Language Development During School Years	Normal syntactic, semantic, and pragmatic language development in school-age children and youth. Complex syntax, semantic development, pragmatic development, using language to learn, language-literacy relations, and abstract language development.	Language	School-Age
Language Disorders - ages 5 to 21	Demonstrate critical thinking and application of knowledge about language disorders, literacy, and curriculum; address disorders and intervention across the age and ability span; integrate all aspects of language disorders including the relationship and interaction of language and literacy, service delivery options (MTSS), responsiveness to intervention (RTI), and the connection among language, literacy and curriculum; introduce functional communication assessment and intervention strategies for developmental language/communication disorders across the age and ability span; develop Interprofessional Practice (IPP) intervention approaches that take into account school, linguistic, and cultural considerations.	Language	School-Age

Course Name	Course Description	Topic	Age Group(s)
Linguistic Needs of Bilingual and Culturally Different Students	Theoretical and applied information about situational factors which have an impact on spoken and written language; addresses how individual differences due to gender, handicapping conditions, socio-economic status, and cultural-ethnic background contribute to diversity in communication patterns and often act as a barrier to successful interactions in learning and social settings.	Bilingualism	School-Age
School-Aged Language Disorders	This course covers assessment and intervention approaches for school-age language disorders, children beyond age 5 years. Topics include speech-language services at the discourse level; the relationship between language and literacy; service delivery models including integration; educational laws and policies.	Language	School-Age
Language Disorders in School Age Children and Adolescents	Impact of language-based disorder and effect on literacy development and academic success. Includes information processing, memory, word finding, nonliteral language, problem-solving abilities using various assessments and curriculum-based intervention techniques that facilitate academic and social development.	Language	School-Age
Early Childhood Language and Communication Disorders	Assessment of and intervention with infants, toddlers, and pre-school-aged children with language and communication disorders. Emphasis on multicultural and multilinguistic differences, the role of families and caregivers, interdisciplinary views of children with language and communication challenges, and social-emotional and cognitive development related to early childhood language and communication disorders. Focus on communicative processes, phonology, syntax, semantics, narrative skills, pragmatics, emergent literacy, and the environmental effects on language	Language	Early Childhood

Course Name	Course Description	Topic	Age Group(s)
	development. Assessment and intervention for children, including autism spectrum, intellectual disabilities, and specific language impairment.		

APPENDIX 3.1: SURVEY REVIEW FEEDBACK FORM

Please consider the following in addressing any areas to clarify or improve:

- Are the questions clear?
- Does the order make sense?
- Is the layout easy to read/understand?
- How is the ease of survey completion?
- Do the questions seem essential?

You do not have to complete all the rows. Also, if there are no areas of confusion or improvement that you observed, feel free to leave the table blank.

Question #:	Areas to clarify/improve	Suggestions on approaches to clarification/improvement (optional)
Q:		
Q:		
Q:		
Q:		
Q:		
Q:		

APPENDIX 3.2: QUESTIONNAIRE

Speech Language Pathologists' Training, Clinical Experiences, and Self-Perceptions of Proficiency in Language and Literacy

University of North Carolina at Chapel Hill

IRB Study #: 21-0666

Principal Investigator: Julia J. Yi

The purpose of this research study is to examine speech language pathologists' training in, clinical experiences of, and self-perceptions of proficiency in: (a) language and literacy assessment and (b) language and literacy treatment. You are being asked to take part in this survey study because you are a speech-language pathologist in the U.S. This survey is open to ALL speech-language pathologists (SLPs) who: (a) work in the U.S. and (b) received training at a SLP graduate program in the U.S. or its territories.

The estimated time to complete this survey is **3-10 minutes**. We expect that at least 383 speech-language pathologists will take part in this research study. Being in a research study is completely voluntary. You can choose not to answer any question you do not wish to answer. You can also choose to stop taking the survey at any time. You must be at least 18 years old to participate. If you are younger than 18 years old, please stop now. The possible risks involved in completing this survey are minimal and no greater than those encountered in everyday life. To protect your identity as a research subject, no identifiable information will be collected. Your responses will be anonymous. To this end, there are no foreseen risks of breaches of confidentiality since no identifiable information will be collected from the participants and no IP address or location address will be collected through Qualtrics though there is a small, but possible risk.

If you have any questions about this research, please contact Julia Yi by emailing juliayi@med.unc.edu. If you have questions or concerns about your rights as a research subject, you may contact the UNC Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu. **Your time and participation are greatly appreciated!**

Q1.2 Do you understand and agree with the following?

My responses are confidential and my participation with this survey is voluntary.

Yes

No

Q1.3 Are you a speech-language pathologist who received a Master's degree in speech language pathology from a program in the United States?

Yes

No

Skip To: End of Survey If Are you a speech-language pathologist who received a Master's degree in speech language pathology... = No

Q1.4 Are you a speech-language pathologist currently working in the United States?

Yes

No

Skip To: End of Survey If Are you a speech-language pathologist currently working in the United States? = No

Q1.5 What is the name of the university where you received your graduate degree in speech/language pathology or communication disorders?

- Adelphi University
- Alabama A&M University
- Andrews University
- Appalachian State University
- Arizona State University
- Arkansas State University
- Auburn University
- Baldwin Wallace University
- Ball State University
- Baylor University
- Bloomsburg University of PA
- Boston University
- Bowling Green State University
- Brigham Young University
- Buffalo State College
- California State University, Chico
- California State University, East Bay
- California State University, Fresno
- California State University, Fullerton
- California State University, Long Beach
- California State University, Los Angeles
- California State University, Northridge
- California State University, Sacramento
- California State University, San Marcos
- California University of Pennsylvania

- Calvin University
- Carlos Abizu University
- Case Western Reserve University
- Central Michigan University
- Chapman University
- Clarion University of Pennsylvania
- Cleveland State University
- College of Saint Rose
- CUNY, Brooklyn College
- CUNY, Hunter College
- CUNY, Lehman College
- CUNY, Queens College
- Duquesne University
- East Carolina University
- East Stroudsburg University
- East Tennessee State University
- Eastern Illinois University
- Eastern Kentucky University
- Eastern Michigan University
- Eastern New Mexico University
- Eastern Washington University
- Edinboro University of Pennsylvania
- Elmhurst University
- Emerson College
- Florida Atlantic University
- Florida International University

- Florida State University
- Fontbonne University
- Fort Hays State University
- Gallaudet University
- George Washington University
- Georgia Southern University
- Georgia State University
- Governors State University
- Grand Valley State University
- Hampton University
- Harding University
- Hofstra University
- Howard University
- Idaho State University, Pocatello
- Illinois State University
- Indiana State University
- Indiana University of Pennsylvania
- Indiana University, Bloomington
- Iona College
- Itaca College
- Jackson State University
- Jacksonville University
- James Madison University
- Kansas State University
- Kean University of New Jersey
- Kent State University

- La Salle University
- Lamar University
- LIU Brooklyn
- LIU Post
- Loma Linda University
- Longwood University
- Louisiana State University - Health Science Center, New Orleans
- Louisiana State University - Health Science Center, Shreveport
- Louisiana State University & A&M College
- Louisiana Technical University
- Loyola University Maryland
- Marquette University
- Marshall University
- Maryville University
- Marywood University
- Mercy College
- MGH Institute of Health Professions
- Miami University
- Michigan State University
- Midwestern University, Arizona
- Midwestern University, Illinois
- Minnesota State, Mankato
- Minnesota State, Moorhead
- Minot State University
- Misericordia University
- Mississippi University for Women

- Missouri State University
- Molloy College
- Monmouth University
- Montclair State University
- Murray State University
- Nazareth College
- New Mexico State University
- New York Medical College
- New York University
- North Carolina Central University
- Northeastern State University
- Northeastern University
- Northern Arizona University
- Northern Illinois University
- Northwestern University
- Nova Southeastern University
- Ohio State University
- Ohio University
- Oklahoma State University
- Old Dominion University
- Our Lady of the Lake University
- Pacific University
- Pennsylvania State University
- Portland State University
- Purdue University
- Radford University

- Rockhurst University
- Rush University
- Sacred Heart University
- Saint Louis University
- Saint Mary's College
- Salus University
- Samford University
- San Diego State University
- San Francisco State University
- San Jose State University
- Seton Hall University
- South Carolina State University
- Southeast Missouri State University
- Southeastern Louisiana University
- Southern Connecticut State University
- Southern Illinois University, Carbondale
- Southern Illinois University, Edwardsville
- Southern University and A&M College
- St. Ambrose University
- St. Cloud State University
- St. John's University
- St. Xavier University
- Stephen F. Austin State University
- Stockton University
- SUNY at Buffalo
- SUNY at Cortland

- SUNY at Fredonia
- SUNY at New Paltz
- SUNY at Plattsburg
- Syracuse University
- Teachers College, Columbia University
- Temple University
- Tennessee State University
- Texas A&M University, Kingsville
- Texas Christian University
- Texas State University
- Texas Tech University Health Sciences Center
- Texas Women's University
- The University of Texas Rio Grande Valley
- Touro College
- Towson University
- Truman State University
- University of Akron
- University of Alabama, Tuscaloosa
- University of Arizona
- University of Arkansas for Medical Sciences
- University of Arkansas, Fayetteville
- University of Central Arkansas
- University of Central Florida
- University of Central Missouri
- University of Central Oklahoma
- University of Cincinnati

- University of Colorado, Boulder
- University of Connecticut
- University of Delaware
- University of Florida, Gainesville
- University of Georgia
- University of Hawaii at Manoa
- University of Houston
- University of Illinois, Urbana-Champaign
- University of Iowa
- University of Kansas
- University of Kentucky
- University of Louisiana, Lafayette
- University of Louisiana, Monroe
- University of Louisville
- University of Maine, Orono
- University of Maryland, College Park
- University of Massachusetts, Amherst
- University of Memphis
- University of Minnesota Duluth
- University of Minnesota, Minneapolis
- University of Mississippi
- University of Missouri
- University of Montana
- University of Montevallo
- University of Nebraska, Kearney
- University of Nebraska, Lincoln

- University of Nebraska, Omaha
- University of Nevada, Reno
- University of New Hampshire
- University of New Mexico
- University of North Carolina, Chapel Hill
- University of North Carolina, Greensboro
- University of North Dakota
- University of North Texas
- University of Northern Colorado
- University of Northern Iowa
- University of Oklahoma- Health Sciences Center
- University of Oregon
- University of Pittsburgh
- University of Puerto Rico, San Juan
- University of Redlands
- University of Rhode Island
- University of South Alabama
- University of South Carolina
- University of South Dakota
- University of South Florida
- University of Southern Mississippi
- University of Tennessee Health Sciences Center
- University of Texas at Dallas
- University of Texas, Austin
- University of Texas, El Paso
- University of the District of Columbia

- University of the Pacific
- University of Toledo
- University of Tulsa
- University of Utah
- University of Vermont
- University of Virginia
- University of Washington
- University of West Georgia
- University of Wisconsin, Eau Claire
- University of Wisconsin, Madison
- University of Wisconsin, Milwaukee
- University of Wisconsin, River Falls
- University of Wisconsin, Stevens Point
- University of Wisconsin, Whitewater
- University of Wyoming
- Utah State University
- Valdosta State University
- Vanderbilt University
- Washington State University
- Wayne State University
- West Chester University
- West Texas A&M University
- West Virginia University
- Western Carolina University
- Western Illinois University
- Western Kentucky University

- Western Michigan University
 - Western Washington University
 - Wichita State University
 - William Paterson University of New Jersey
 - Worcester State University
 - Other
-

Display This Question:

If What is the name of the university where you received your graduate degree in speech/language pat... = Other

Q1.6 Since you clicked on *other*, please specify the name of the university where you received your graduate degree in speech/ language pathology or communication disorders:

Q1.7 What year did you graduate from graduate school in speech/language pathology or communication disorders?

- | | |
|---------------------------------|---------------------------------|
| <input type="radio"/> 1970-1975 | <input type="radio"/> 2001-2005 |
| <input type="radio"/> 1976-1980 | <input type="radio"/> 2006-2010 |
| <input type="radio"/> 1981-1985 | <input type="radio"/> 2011-2015 |
| <input type="radio"/> 1986-1990 | <input type="radio"/> 2016-2021 |
| <input type="radio"/> 1991-1995 | |
| <input type="radio"/> 1996-2000 | |

Q1.8 What race do you identify with?

- American Indian or Alaska Native
- Asian American
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White American, European American, or Middle Eastern American
- Other _____
- Two or more races
- Would rather not state

Q1.9 What ethnicity do you identify with?

- Hispanic or Latino
- Non-Hispanic or Latino
- Would rather not state

Q1.10 What gender do you identify with?

- Female
- Male
- Non-binary
- Other (please self describe): _____
- Would rather not state

End of Block: Demographics

Start of Block: Section 1

Q2.1 Section 1: This section will ask you questions about your training experiences and preparation in language and literacy.

Q2.2 Please consider these definitions when completing the survey:

- Literacy is the ability to read and write.
- Oral language is the system involved with speaking and listening.

Q2.3 Did you take a course specifically dedicated to **literacy** in graduate school?

- Yes
- No
- I don't remember

Q2.4 Did you take a course that was not dedicated to literacy alone but included training on literacy **assessment** (e.g., a child language course that included teaching on literacy assessments)?

- Yes
- No
- I don't remember

Display This Question:

If Did you take a course that was not dedicated to literacy alone but included training on literacy... = Yes

Or Did you take a course specifically dedicated to literacy in graduate school? = Yes

Q2.5 In the dedicated literacy course or the course that included training on literacy assessment, did you receive training on any specific literacy assessments (e.g., OWLS, TILLS)?

- Yes
- No
- I don't remember

Display This Question:

If In the dedicated literacy course or the course that included training on literacy assessment, did... = Yes

Q2.6 What were the names of the assessments you learned about? Please check all that apply.

- CELF-5's Reading and Writing Supplement
- CTOPP: Comprehensive Test of Phonological Processing
- GORT: Gray Oral Reading Test
- GSRT: Gray Silent Reading Test
- OWLS: Oral & Written Language Scales
- PAT: Phonological Awareness Test
- RAN/RAS: Rapid Automatized Naming and Rapid Alternating Stimulus
- SPELL: Spelling Performance Evaluation for Language and Literacy
- TILLS: Test of Integrated Language and Literacy Skills
- TOPA: Test of Phonological Awareness
- TORC: Test of Reading Comprehension
- TOSCRF: Test of Silent Contextual Reading Fluency
- TOSWRF: Test of Silent Word Reading Fluency
- TOWL: Test of Written Language
- TOWS: Test of Written Spelling
- WIST: Word Identification and Spelling Test
- Other (please specify): _____
- I don't remember

Q2.7 Did you take a course that was not dedicated to literacy alone but included training on literacy treatment (e.g., a child language course that included teaching on literacy treatment)?

- Yes
- No
- I don't remember

Display This Question:

If Did you take a course specifically dedicated to literacy in graduate school? = Yes

Or Did you take a course that was not dedicated to literacy alone but included training on literacy ... = Yes

Q2.8 In the dedicated literacy course or the course that included training on literacy treatment, did you receive training in any specific literacy programs or approaches (e.g., Lindamood-Bell, Orton-Gillingham)?

- Yes
- No
- I don't remember

Display This Question:

If In the dedicated literacy course or the course that included training on literacy treatment, did... = Yes

Q2.9 What were the names of the programs or approaches that you learned about? Please check all that apply.

- Barton Reading & Spelling System
 - Expanding Expression Tool
 - Handwriting Without Tears
 - Lindamood-Bell's Seeing Stars
 - Lindamood-Bell's LiPS
 - Lively Letters
 - Neuhaus
 - Orton-Gillingham
 - Shared Reading/ Dialogic Reading
 - SPELL-Links
 - Structured Literacy
 - Wilson Reading System
 - Words Their Way
 - Other (please specify): _____
 - I don't remember
-

Display This Question:

If Did you take a course that was not dedicated to literacy alone but included training on literacy... = Yes

Or Did you take a course that was not dedicated to literacy alone but included training on literacy ... = Yes

Q2.10 What was the course that included training on literacy treatment/ assessment but wasn't dedicated only to literacy?

- Language Disorders in 0-5 Years Old
- Language Disorders in School-Age/ Children/ Adolescents
- Language Disorders in Adults
- Diagnostics/ Assessment of 0-5 Years Old
- Diagnostics/ Assessment of School-Age/ Children/ Adolescents
- Diagnostics/ Assessment of Adults
- Schools
- Phonology
- Other (please specify): _____
- I don't remember

Skip To: Q2.12 If What was the course that included training on literacy treatment/ assessment but wasn't dedicated... = I don't remember

Display This Question:

If Did you take a course that was not dedicated to literacy alone but included training on literacy... = Yes

Or Did you take a course that was not dedicated to literacy alone but included training on literacy ... = Yes

Q2.11 Approximately what percentage of that course was focused on literacy?

0 10 20 30 40 50 60 70 80 90 100



Q2.12 Did you have any clinical placements during graduate school that specifically included an emphasis on literacy assessments and/or treatment?

- Yes
- No
- I don't remember

Display This Question:

If Did you have any clinical placements during graduate school that specifically included an emphasis... = Yes

Q2.13 What was the setting of the placement that included an emphasis on literacy assessments and/or treatment?

- Preschool
- Elementary School
- Middle School
- High School
- Private Practice/ Clinic
- Hospital
- Other (specify): _____

Q2.14 How well do you feel that your graduate program prepared you for assessing and treating oral language and literacy?

	Very Poorly (No Training)	Poorly	Adequately	Well	Very Well (A lot of Training)
My graduate program prepared me to assess ORAL LANGUAGE .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My graduate program prepared me to treat ORAL LANGUAGE .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My graduate program prepared me to assess LITERACY .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My graduate program prepared me to treat LITERACY .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2.15 Have you received any training in literacy after graduating (e.g., professional development, seminars)?

Yes

No

Display This Question:

If Have you received any training in literacy after graduating (e.g., professional development, semi... = Yes

Q2.16 What training(s) that you received after graduating do you feel helped you the most?

Q2.17 If you had the opportunity, would you want to learn more about assessment of literacy?

Yes

No

Q2.18 If you had the opportunity, would you want to learn more about the treatment of literacy?

Yes

No

Display This Question:

If you had the opportunity, would you want to learn more about assessment of literacy? = Yes

Or If you had the opportunity, would you want to learn more about the treatment of literacy? = Yes

Q2.19 Please consider these definitions when completing the next few questions:

- **Phonological awareness:** an awareness of the units of oral language including recognizing rhymes, words in sentences, syllables in words, and sounds in words
- **Decoding/ encoding of words:** reading and spelling of words
- **Reading fluency:** the ability to read with accuracy, speed, and expression
- **Reading comprehension:** the reader's ability to understand the text they read
- **Written language:** the text that the writer produces to communicate thought (i.e., written sentences/ paragraphs)

Display This Question:

If you had the opportunity, would you want to learn more about assessment of literacy? = Yes

Q2.20 Which aspect(s) of literacy **assessment(s)** would you want training in? (Select one or both as they apply.)

General, research-based principles of literacy assessment

Administration of specific, published assessments

Display This Question:

If Which aspect(s) of literacy assessment(s) would you want training in? (Select one or both as they... = General, research-based principles of literacy assessment

Q2.21 Which area(s) of literacy would you want to learn more about assessing? (Select all that apply.)

- Phonological awareness
- Decoding/ encoding (reading/ spelling) of words
- Reading fluency
- Reading comprehension
- Written language
- Other (please specify): _____
- None of the above

Display This Question:

If Which aspect(s) of literacy assessment(s) would you want training in? (Select one or both as they... = Administration of specific, published assessments

Q2.22 Which literacy assessment(s) would you want to learn how to administer? (Select all that apply.)

- | | |
|---|--|
| <input type="checkbox"/> CELF-5's Reading and Writing Supplement | <input type="checkbox"/> TOPA: Test of Phonological Awareness |
| <input type="checkbox"/> CTOPP: Comprehensive Test of Phonological Processing | <input type="checkbox"/> TORC: Test of Reading Comprehension |
| <input type="checkbox"/> GORT: Gray Oral Reading Test | <input type="checkbox"/> TOSCRF: Test of Silent Contextual Reading Fluency |
| <input type="checkbox"/> GSRT: Gray Silent Reading Test | <input type="checkbox"/> TOSWRF: Test of Silent Word Reading Fluency |
| <input type="checkbox"/> OWLS: Oral & Written Language Scales | <input type="checkbox"/> TOWL: Test of Written Language |
| <input type="checkbox"/> PAT: Phonological Awareness Test | <input type="checkbox"/> TOWS: Test of Written Spelling |
| <input type="checkbox"/> RAN/RAS: Rapid Automatized Naming and Rapid Alternating Stimulus | <input type="checkbox"/> WIST: Word Identification and Spelling Test |
| <input type="checkbox"/> SPELL: Spelling Performance Evaluation for Language and Literacy | <input type="checkbox"/> Other (please specify):
_____ |
| <input type="checkbox"/> TILLS: Test of Integrated Language and Literacy Skills | <input type="checkbox"/> None of the above |

Display This Question:

If you had the opportunity, would you want to learn more about the treatment of literacy?
= Yes

Q2.23 Which aspect(s) of literacy **treatment** would you want training in? (Select one or both as they apply.)

- General, research-based principles of literacy treatment
- Specific literacy programs/ curriculums

Display This Question:

If Which aspect(s) of literacy treatment would you want training in? (Select one or both as they app... = General, research-based principles of literacy treatment

Q2.24 Which area(s) of literacy would you want to learn more about treating? (Select all that apply.)

- Phonological awareness
- Decoding/ encoding (reading/ spelling) of words
- Reading fluency
- Reading comprehension
- Written language
- Other (please specify): _____
- None of the above

Q2.25 Which literacy programs/ curriculum(s) would you want to receive training in? (Select all that apply.)

Barton Reading & Spelling System

Expanding Expression Tool

Handwriting Without Tears

Lindamood-Bell's Seeing Stars

Lindamood-Bell's LiPS

Lively Letters

Neuhaus

Orton-Gillingham

SPELL-Links

Structured Literacy

Wilson Reading System

Words Their Way

Other (please specify): _____

None of the above

End of Block: Section 1

Start of Block: Section 2

Q3.1 Do you currently work with school-age children or adolescents ages 5-21 years old?

Yes

No

Skip To: Q3.3 If Do you currently work with school-age children or adolescents ages 5-21 years old? = Yes

Skip To: End of Survey If Do you currently work with school-age children or adolescents ages 5-21 years old? = No

Q3.2 Section 2: This section will ask you about your clinical experiences pertaining to literacy.

Q3.3 Which setting do you work in currently? Please check all that apply.

- Elementary School
- Middle School
- High School
- Private Practice/ Clinic
- Hospital
- Other (specify): _____

Q3.4 In which state or territory do you currently work?

- Alabama (AL)
- Alaska (AK)
- Arizona (AZ)
- Arkansas (AR)
- California (CA)
- Colorado (CO)
- Connecticut (CT)
- Delaware (DE)
- District of Columbia (DC)
- Florida (FL)
- Georgia (GA)
- Hawaii (HI)
- Idaho (ID)
- Illinois (IL)
- Indiana (IN)
- Iowa (IA)
- Kansas (KS)
- Kentucky (KY)
- Louisiana (LA)
- Maine (ME)
- Maryland (MD)

- Massachusetts (MA)
- Michigan (MI)
- Minnesota (MN)
- Mississippi (MS)
- Missouri (MO)
- Montana (MT)
- Nebraska (NE)
- Nevada (NV)
- New Hampshire (NH)
- New Jersey (NJ)
- New Mexico (NM)
- New York (NY)
- North Carolina (NC)
- North Dakota (ND)
- Ohio (OH)
- Oklahoma (OK)
- Oregon (OR)
- Pennsylvania (PA)
- Rhode Island (RI)
- South Carolina (SC)
- South Dakota (SD)

- Tennessee (TN)
 - Texas (TX)
 - Utah (UT)
 - Vermont (VT)
 - Virginia (VA)
 - Washington (WA)
 - West Virginia (WV)
 - Wisconsin (WI)
 - Wyoming (WY)
 - American Samoa (AS)
 - Guam (GU)
 - Northern Mariana Islands (MP)
 - Puerto Rico (PR)
 - Virgin Islands (VI)
-

Q3.5 Do you assess and/or treat **oral language** currently?

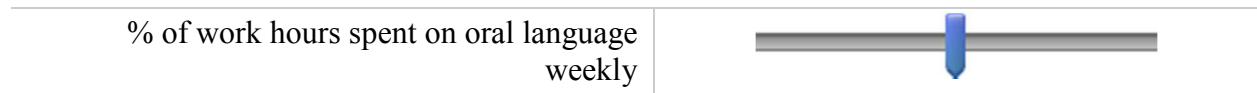
- Yes
 - No
-

Display This Question:

If Do you assess and/or treat oral language currently? = Yes

Q3.8 What percentage of your work hours do you typically spend on treating or assessing oral language weekly?

0 10 20 30 40 50 60 70 80 90 100



Display This Question:

If Do you assess and/or treat oral language currently? = Yes

Q3.7 Do you write and track **oral language** goals for the students on your caseload?

Yes

No

Q3.9 Do you assess and/or treat **literacy** currently?

Yes

No

Display This Question:

If Do you assess and/or treat literacy currently? = Yes

Q3.12 What percentage of your work hours do you typically spend on treating or assessing **literacy** weekly?

0 10 20 30 40 50 60 70 80 90 100



Display This Question:

If Do you assess and/or treat literacy currently? = Yes

Q3.11 Do you write and track **literacy** goals for the students on your caseload?

Yes

No

Q3.13 Just a few questions left!

End of Block: Section 2

Start of Block: Section 3

Q4.1 Section 3: This section will ask you about your perceived proficiencies and areas of needed growth pertaining to the knowledge of assessment and treatment of language and literacy.

Q4.2 As a reminder, the definitions of literacy concepts as used in this survey are:

- **Phonological awareness:** an awareness of the units of oral language including recognizing rhymes, words in sentences, syllables in words, and sounds in words
- **Decoding/ encoding of words:** reading and spelling of words
- **Reading fluency:** the ability to read with accuracy, speed, and expression
- **Reading comprehension:** the reader's ability to understand the text they read
- **Written language:** the text that the writer produces to communicate thought (i.e., written sentences/ paragraphs)

Q84 The next 2 tables are about ASSESSING.

Q4.3 Complete this statement with one of the choices.

I feel proficiently knowledgeable to ASSESS:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
oral language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
decoding and encoding (reading and spelling of words)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
phonological / phonemic awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading fluency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading comprehension	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
written language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4.4 Complete this statement with one of the choices.

This is how much more knowledge I think I need to proficiently ASSESS:

	A great deal of knowledge needed	A lot more knowledge needed	A moderate amount of knowledge needed	A little bit of knowledge needed	No more knowledge needed
oral language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
decoding and encoding (reading and spelling of words)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
phonological / phonemic awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading fluency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading comprehension	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
written language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4.5 The next 2 tables are about **TREATING**.

Q4.6 Complete this statement with one of the choices.

I feel proficiently knowledgeable to TREAT:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
oral language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
decoding and encoding (reading and spelling of words)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
phonological / phonemic awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading fluency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading comprehension	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
written language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4.7 Complete this statement with one of the choices.

This is how much **more** knowledge I think I need to proficiently TREAT...

	A great deal of knowledge needed	A lot more knowledge needed	A moderate amount of knowledge needed	A little bit of knowledge needed	No more knowledge needed
oral language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
decoding and encoding (reading and spelling of words)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
phonological / phonemic awareness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading fluency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reading comprehension	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
written language	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4.8 To what extent do you agree with these statements?

	Never 0	Sometimes 50	Always 100
Literacy is within the SLP's scope of practice.			
It is the SLP's role and responsibility to assess reading .			
It is the SLP's role and responsibility to assess writing .			
It is the SLP's role and responsibility to treat reading .			
It is the SLP's role and responsibility to treat writing .			
It is equally important for SLPs to help clients with their literacy as much as their oral language.			

Display This Question:

If Do you assess and/or treat literacy currently? = Yes

Q4.9 Section 4: This section will ask you about the language and literacy profiles of the students on your current workload.

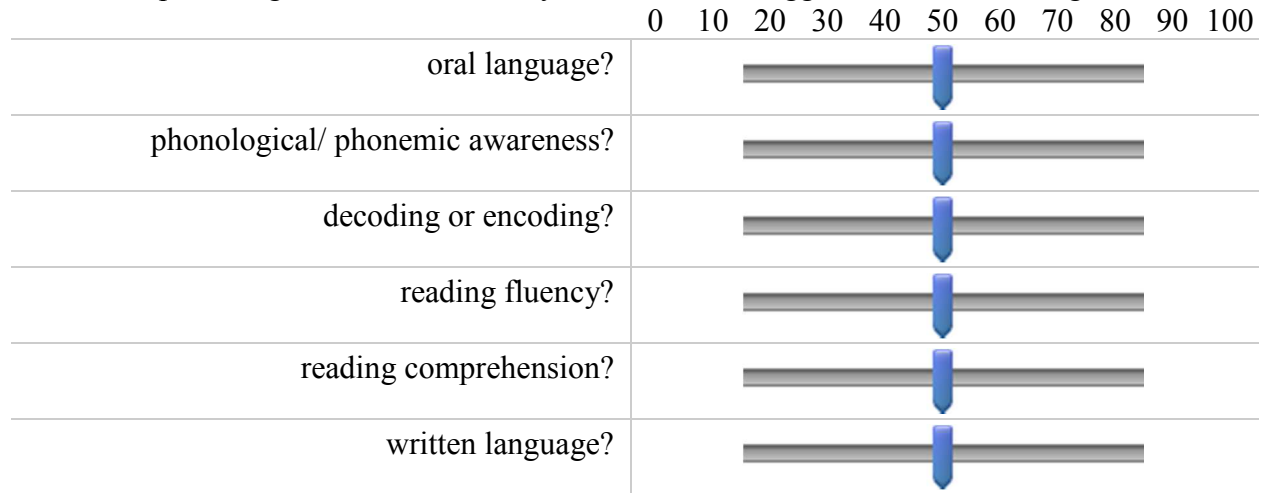
Please note that the total percentage of the following questions do not have to equal 100% since there may be students who struggle in multiple areas.

End of Block: Section 3

Start of Block: Section 4

Display This Question:
If Do you assess and/or treat literacy currently? = Yes

Q5.1 What percentage of the students on your workload struggle with the following:



End of Block: Section 4

APPENDIX 3.3: CONTENT VALIDITY QUESTIONNAIRE

The survey is organized by sections that relate to separate topics. Please read the topic for each section and review the associated RQ. Then rate from 1-4 how relevant each item is to the topic and the RQs using the rating scale below:

Relevancy:	Clarity:
1 = This item is <i>not relevant</i> .	1 = This item is <i>not clear</i> .
2 = This item is <i>somewhat relevant</i> and needs some revision.	2 = This item is <i>somewhat clear</i> and needs some revision.
3 = This item is <i>quite relevant</i> but needs minor revision.	3 = This item is <i>quite clear</i> but needs minor revision.
4 = This item is <i>very relevant</i> .	4 = This item is <i>very clear</i> .

Section 1's Topic: Literacy trainings and preparation being provided in SLP graduate programs

Section 1's RQ: What are SLPs' pre-service and in-service training experiences and preparation in literacy assessment and treatment?

	Relevancy: Rate 1-4	Clarity: Rate 1-4
Did you take a course specifically dedicated to literacy in graduate school?		
Did you take a course that was not dedicated to literacy alone but included training on literacy assessment (e.g., a child language course that included teaching on literacy assessments)?		
In the course that addressed literacy assessment, did you receive training in any specific literacy assessments (e.g., OWLS, TILLS)?		
What were the names of the assessments?		
Did you take a course that was not dedicated to literacy alone but included training on literacy treatment?		
In the course that addressed literacy treatment, did you receive training in any specific literacy programs or approaches (e.g., Lindamood-Bell, Orton-Gillingham)?		
What were the names of the programs or approaches that you learned?		
In the course that included training on literacy but wasn't dedicated only to literacy, what was the name of the course?		
Approximately what percentage of that course was focused on literacy?		
Did you have any placements during graduate school that specifically included an emphasis on literacy assessments and/or treatment?		
What was the setting of the placement that included an emphasis on literacy assessments and/or treatment?		
How well do you feel that your graduate program prepared you for assessing and treating language and literacy?		
Have you received any training in literacy after graduating (e.g., professional development, seminars)?		

What training(s) that you received after graduating do you feel helped you the most?		
If you could attend any training(s) on literacy, what would they be (e.g., a certain topic or specific training)?		

Section 2's Topic: SLPs' current clinical experiences in addressing literacy

Section 2's RQ: What are SLPs' current clinical experiences in addressing literacy?

	Relevancy: Rate 1-4	Clarity: Rate 1-4
Which setting do you work in currently?		
Which state or territory do you work in currently?		
Do you assess and/or treat literacy currently?		
What percentage of your current workload is related to literacy (e.g., assessing literacy, treating students on literacy goals, providing literacy support through RTI)?		
Do you write and track literacy goals for the students on your caseload?		
What is the average number of hours in a week that you spend on treating or assessing literacy?		
Do you assess and/or treat oral language currently?		
What percentage of your current workload is related to oral language (e.g., assessing oral language, treating students on oral language goals, providing oral language support through RTI)?		
Do you write and track oral language goals for the students on your caseload?		
What is the average number of hours in a week that you spend on treating or assessing oral language?		

Section 3's Topic: SLPs' self-perceptions of competencies and areas of needed growth pertaining to the knowledge of assessment and treatment of oral language and literacy

Section 3's RQ: What are SLPs' self-perceptions of their: (a) competency and (b) areas of needed growth regarding assessment and treatment of literacy?

	Relevancy: Rate 1-4	Clarity: Rate 1-4
Complete this statement with one of the choices (Likert scale): This how I feel about assessing...		
(a) oral language.		
(b) decoding and encoding.		
(c) phonological/phonemic awareness.		
(d) reading fluency.		
(e) reading comprehension.		
(f) writing.		
Complete this statement with one of the choices (Likert scale): This how I feel about treating...		
(a) oral language.		

(b) decoding and encoding.		
(c) phonological/phonemic awareness.		
(d) reading fluency.		
(e) reading comprehension.		
(f) writing.		
Complete this statement with one of the choices (Likert scale): This how much more knowledge I think I need to competently assess...		
(a) oral language.		
(b) decoding and encoding.		
(c) phonological/phonemic awareness.		
(d) reading fluency.		
(e) reading comprehension.		
(f) writing.		
Complete this statement with one of the choices (Likert scale): This how much more knowledge I think I need to competently treat...		
(a) oral language.		
(b) decoding and encoding.		
(c) phonological/phonemic awareness.		
(d) reading fluency.		
(e) reading comprehension.		
(f) writing.		
Which of these statements do you agree with? (Select all the statements that you agree with.)		
<input type="checkbox"/> Literacy is within my scope of practice as a speech language pathologist.		
<input type="checkbox"/> It is my role and responsibility to assess and treat reading and writing.		
<input type="checkbox"/> My responsibility in helping clients with written language/literacy is equally important as helping them with oral language.		

Section 4's Topic: Language and literacy profiles of the students on SLPs' workloads

Section 4's RQ: What are the literacy profiles (i.e., challenges in phonological awareness, decoding, reading fluency, and/or reading comprehension) of the students that SLPs currently serve?

	Relevancy: Rate 1-4	Clarity: Rate 1-4
What percentage of the students on your workload struggle with:		
(a) oral language.		
(b) decoding and encoding.		
(c) phonological/phonemic awareness.		
(d) reading fluency.		
(e) reading comprehension.		
(f) writing.		

Adapted from:

- Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., & Nikanfar, A. R. (2015). Design and implementation content validity study: Development of an instrument for measuring patient-centered communication. *Journal of Caring Sciences*, 4(2), 165–178. <https://doi.org/10.15171/jcs.2015.017>
- Yusoff, M. S. B. (2019). ABC of content validation and content validity index calculation. *Education in Medicine Journal*, 11(2), 49-54. <https://doi.org/10.21315/eimj2019.11.2.6>
https://eduimed.usm.my/EIMJ20191102/EIMJ20191102_06.pdf

APPENDIX 3.4: IN-SERVICE TRAINING RESPONSES

These were the responses to the open-ended question, “What training(s) that you received after graduating do you feel helped you the most?”

Response Items	<i>n</i>
A Crash Course in Literacy-Based Therapy for Teletherapists	1
A Team Approach to Improving Reading Comprehension (Dr. Shelley Grey, ASU)	1
AAC and literacy	1
AAC in the Desert	1
ABAI Seminars	1
Adapted materials	1
Adolescent language and literacy	1
Alan Kamhi	1
Anita Archer	2
Arizona State University PD on literacy	1
ASHA	15
Association Method	1
Barton	2
Basic Language Skills	1
Beth Poss AAC and Literacy course	1
Binguistics trainings	1
Bonnie Singer	1
Building the Brain for Literacy	1
Camp ALEC	2
Carol Westby	1
Caroline Musselwhite	2
CAS Language and Literacy	1
CBM	1
Certification (for reading)	10
Clinical Fellowship	3
Code Red (Reading Fluency)	1
College course on literacy	1
Components of reading	1
Comprehensive Literacy for All (Erickson & Koppenhaver) workshops, seminars, book	7
Conferences	10
Connection between oral language and literacy, especially reading comprehension	1

Response Items	<i>n</i>
CORE phonological awareness	1
Credential: teaching for Learning Handicapped	1
Decoding and encoding	1
DIBELS	1
District reading curriculum	1
Doctoral coursework (PhD, SLPD)	11
Don't remember	5
DTI webinars	1
Dysgraphia	1
Dyslexia, Dyslexia Assessment and Treatment	5
Early literacy	1
EmPower	5
Equipped for Reading Success (David Kilpatrick)	1
Exchange of collegial information and interactions (e.g., learning from reading specialists, working with reading teachers)	5
Expanding Expression Tool (Sara Smith)	1
Foundations of Reading	1
Fountas and Pinnell	1
Four Blocks	1
Fundamentals	1
General literacy training	2
Graduate coursework (post Masters)	10
Graduate school practicum	2
Gretchen Hanser	1
Guided reading and assessment	1
Hands on at work	2
Handwriting without Tears	2
Heggerty	1
Hill Center reading intervention training	1
IDA	4
In-service trainings: employer provided trainings; professional developments; continuing education	40
International Dyslexia Association	2
Jane Green - training in language program	0
Judy Montgomery	1
Karen Erickson and/or David Koppenhaver work, seminars and webinars	7

Response Items	<i>n</i>
Katz: literacy and APD	1
Kilpatrick	2
KLICC	1
Language and literacy connection	1
Language!	1
Late elementary/ adolescent written language	1
Learning by Design	1
LETRS (Louisa Moats)	6
Lexercise	1
Lindamood Bell	52
Linguistics course on dyslexia	1
Link between speech sound errors and reading concerns	1
Literacy curriculums	1
Literacy Speaks	1
Literacy through Unity	1
Literacy treatment and assessment	2
Lively Letters	14
Louisa Moats	2
Many	5
Martha Burns	1
Medbridge courses	1
Morphological awareness	2
Multisensory approaches	2
Narrative assessment and training	1
Neuhaus	2
None, N/A	2
Norming new tests (e.g., narrative language/ writing, listening, etc.)	1
Ones specific to certain disabilities	1
Orton Gillingham	31
Pathways to Reading (AIM Institute)	1
Phonics	2
Phonics Boost/ Phonics Blitz	1
Phono-Graphix	1
Phonological/ phonemic awareness	8
Predictive Chart Writing	1

Response Items	<i>n</i>
Presented by SLPs with experience in literacy	1
Process writing	1
Project Core	1
Read Naturally	1
Reading Assist for Primary Students (RAPS)	1
Reading comprehension strategies	2
Reading development	1
Reading League workshops	1
Reading Rockets	1
Reading rope	1
Readtopia	1
Rewards	2
Riggs	1
RISE	1
Ron Gillam	1
Sally Shaywitz's <i>Overcoming Dyslexia</i>	1
Science of Reading (courses)	3
Self-study/ review of research literature and books	12
Slingerland	1
SLP and literacy PD	1
SLP Now literacy course	2
SLP Summit course	1
SLPs' role in literacy, narrative, language, preschool, academic talk	1
Smarter Intervention (Aurora, CO)	1
Smile	1
Social Thinking	1
Sound Reading	1
Sounds in Motion	2
Speech Retreat Course	2
speechpathology.com	1
Spell-2	1
SPELL-Links	14
Spell-Talk discussion group	3
Steve from readingresource.net presentation	1
Steven Feifer	1

Response Items	<i>n</i>
Story Grammar Marker	1
Structured Word Inquiry	1
Supporting Emotional, Social, and Academic Growth	1
Syntax	1
TarHeel Shared Reader	1
The Source Dyslexia and Dysgraphia	1
Theresa Ukrainetz	1
TILLS	7
TLC	2
Tobii Dynavox	1
Training in literacy through PRC	1
Training in literacy through SLP Summit	1
Training in literacy through Speech Retreat	1
Treating students with severe phonological disorders	1
TSHA Conference/ trainings	2
Use of graphic organizers	1
Virginia Berninger	1
Visual Phonics	1
Ways with Words	1
Whole language	1
William Van Cleave	1
Wilson	22
Word Torque	1
Workshop on informal literacy assessments	2
Workshops	1
Writing instruction	1
Writing Revolution	1