Information needs regarding cleft lip and palate: A survey

THESIS

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Abstract

**Introduction:** The purpose of this survey was to determine the training, continuing education experiences and interests, and perceptions of research needs on issues related to cleft lip and palate among speech scientists and speech-language clinicians with interests in the cleft lip and/or palate (CL/P) population.

**Methods:** An online survey was completed by a sample of 53 members of the American Speech-Language-Hearing Association’s (ASHA) Special Interest Group 5 (SIG 5), Speech Science and Orofacial Disorders. The survey consisted of 36 questions specific to speech scientists, and 34 specific to SLPs. At intervals of 15 and 30 days, reminders requesting participation were posted to increase the response rate. A final request to participate was posted at 60 days. Reliability and validity were increased by implementing survey piloting with two experts from each profession, as well as a test-retest with a third party. In the test-retest procedure, questions were also slightly reworded to compare the consistency of answers to similar items. None of these individuals participated in the final survey. All data was analyzed using descriptive analyses.

**Results:** Forty-seven SLPs and 4 speech scientists participated in this survey. There were three subgroups of SLPs who participated—generalists interested in CL/P (n
= 12), specialists in the area of CL/P (n = 30), and generalists or specialists interested in an area other than CL/P (n = 3). The results of generalists and specialists interested in the area of CL/P were compared for several sets of questions. Subgroups of SLPs who graduated before and after the time of the 1993 changes in ASHA’s certification standards were also compared. The results indicated that SLPs who graduated after the changes had fewer academic training experiences available to them, and clinical training experiences continue to be limited. To complete continuing education, specialists preferred CL/P journals and textbooks as written sources of information, and conferences as additional sources of information. Generalists preferred informational websites for written information, but did not have a clear preference for an additional source of information. Whereas a third of specialists (n = 9) reported an hour or less per month to research CL/P, 52% (n = 14) reported having at least one hour each week. In comparison to the sources of information preferred by SLPs, speech scientists preferred textbooks above other written sources of information. Other conclusions about speech scientists’ perspectives were limited due to a low response rate.

**Discussion:** Suggestions for improving the information available for use by speech scientists and speech language pathology clinicians are discussed. These include ways to incorporate academic and clinical training experiences into graduate training, such as in-class laboratory experiences or focused education experiences in classes that include information on CL/P. The resources that are more likely to be useful to clinicians are also discussed. Replications of this study should implement strategies to increase the response rate from both groups, but especially speech scientists to gain more information.
about their perspectives. Future research could expand on the specialists’ perspectives of what generalists should know to provide effective treatment.
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Chapter 1: Literature Review

Introduction

Cleft lip and cleft palate are birth defects that occur during pregnancy when a baby’s mouth or lips do not develop properly. The baby may have a cleft lip, cleft palate, or both cleft lip and cleft palate (CDC, 2014). Cleft lip and/or palate (CL/P) refers to the possible combinations of these defects. CL/P is relatively rare: about 2,650 babies with cleft palate and 4,440 babies with cleft lip with or without a cleft palate are born each year in the United States. In addition to its rarity, CL/P is often a complex disorder that speech language pathologists (SLPs) may find challenging to treat. CL/P has a low incidence rate, and it is common for SLPs to complete their graduate and clinical training, perhaps even their entire career, without ever encountering a child with this congenital defect. This is not true, of course, for the relatively few SLPs who have specialized in CL/P or work as part of a cleft team. However, SLPs with a generalist background tend to have limited knowledge of how to diagnose and treat these children. If a child with CL/P is added to such a SLP’s caseload, the SLP must uphold the ethical responsibility to provide services that will have the greatest benefit for that child (ASHA, 2010). In this scenario, it will be necessary for the SLP to gain the needed information. Depending on the situation, the SLP may need to access this information very quickly.

There are various means of gaining information for treating CL/P. For example, the SLP may consult a textbook, access online information and speech samples provided
by the American Cleft Palate-Craniofacial Association (ACPA), or he or she may consult with a SLP who specializes in cleft palate to gain more information. SLPs who work in a hospital setting with a cleft team may contact an SLP on the team and establish a mentoring relationship (Mandulak & Baylis, 2014). With many ways of gaining more information, yet possible time limits to gaining this knowledge (Zipoli & Kennedy, 2005), it is important to assess which sources will be the most beneficial for a speech-language clinician who needs to establish an effective treatment plan.

Because of their intimate knowledge of CL/P, the perspectives of specialists may show the sources of information that may be most helpful to generalists. It may also be valuable to identify the sources and types of information recommended by speech scientists because they may reflect the most recent and thorough understanding of the research available regarding CL/P. At the same time, knowing the topics that speech scientists believe should be pursued and comparing these to what clinicians find most beneficial may expose gaps where the perspectives of the two groups differ. Bedwinek (2007) surveyed school SLPs on their informational needs for treating CL/P. She noted a paradox between the types of information that school SLPs found to be most helpful, and the use of instruments with “parameters that can be measured” that tend to be the focus of research (Bedwinek, 2007). For example, school SLPs desired practical information that could be used in clinical settings, including specific techniques for assessing and treating articulation disorders and information on language disorders associated with CL/P. They found information on instrumental assessment less helpful (e.g., aerodynamics, nasometry, nasendoscopy, and fluoroscopy). Examining the preferences of specialist
SLPs and speech scientists may reveal a similar gap in the types of information that are helpful in clinical settings other than schools and those that are frequently the focus of research. Overall, this comparison of emphases between the two groups should offer valuable insight on the informational needs regarding CL/P and how resources may be better developed in the future. This is especially important for the treatment of a population that can present with many complexities, including learning disabilities and other factors that heighten the need for methods that are proven and can be provided in a direct and concerted manner.

The survey developed for this thesis examines the ways that speech scientists and speech clinicians complete training in CL/P. ASHA’s SIG 5 was selected. This group was chosen for this study to increase the likelihood that participants with an interest in CL/P would participate. Members of this group include SLPs and speech scientists, as well as students from both professions. Members were invited to complete the survey to allow a comparison of the training and informational needs of the two groups. This survey examines which resources and types of information have been most helpful to clinicians in the past, and which of these they would most likely use again in the future. It offers a comparison to the types and sources of information most valued by speech scientists. The results and discussion of this thesis may be helpful in the development of sources of information in the future, and will hopefully facilitate open communication between all professionals involved in diagnosing and treating CL/P.

To fully emphasize the importance of these resources, the following topics will be examined in depth in this introduction: (a) the history of SLP training on issues of CL/P
and its changes over time, (b) the current state of limited SLP training on issues of CL/P, and (c) the issues that can complicate the services provided to children with CL/P. The ultimate goal of this thesis is to show why it is so important to continue developing quality sources of information related to CL/P as well as ways that experiences with CL/P can be incorporated more frequently into graduate training and continuing education.

**SLP and speech scientist training**

Because the effects of CL/P on the physiology of speech mechanisms can be complex and very individualized (Kuehn & Moller, 2000), and because CL/P often occurs as part of a broader syndrome (Baylis, Munson, & Moller, 2008), children with this disorder can present complex challenges to both clinicians and speech scientists interested in this population. Specifically, children with CL/P often present with difficulties in resonance, articulation, language, and hearing (Kuehn & Moller, 2000). Evaluation and treatment of speech and language for a child with CL/P requires special training in cleft palate disorders.

Grames (2008) summarized the history of training for SLP student clinicians and doctoral students regarding CL/P. Grames noted that with the formation of the first cleft palate team in 1938, the need for cleft training began to be better recognized by mid-20th century. Coursework regarding the treatment of CL/P was included in the training provided to student clinicians. However, the number of disorders treated by SLPs continued to grow over the years, and with this expanding scope of practice for the SLP, training programs had to adjust their curricula to adequately instruct on all types of disorders SLPs could encounter. Thus, according to Grames, training on CL/P was
minimized to allow for training on other topics. Later in the century, fewer programs offered courses that were dedicated to issues of CL/P, resulting in further limiting of opportunities for academic training in cleft palate for graduate students. Cleft teams at tertiary medical centers offered few training programs for doctoral students, decreasing their opportunities for conducting research on CL/P. According to Grames (2008), “fewer doctoral students in this area resulted in fewer dedicated courses offered by seasoned researchers and clinicians and less-abundant published literature in the area by SLPs (Grames, 2008, para. 4).” Therefore, not only was the available training for student clinicians and doctoral students diminished over recent decades, but so were the available resources from which all professionals could study issues and treatment of CL/P (Grames, 2008).

Following ASHA’s changes in certification standards for SLPs in 1993, training in any specific speech disorder was no longer required; instead rather programs were required to offer less highly specified courses in speech, language and hearing disorders that affect children and adults. This generic requirement can result in coursework on specific disorders being removed from curriculum (Vallino et al., 2008).

Knowledge and Skills Acquisition (KASA) requirements were established in 2003 to specify categories of knowledge that must be obtained through coursework and skills that must be obtained through practica. Voice and resonance disorders were grouped together in required coursework, which means that a course could focus entirely on voice disorders and never touch on issues of CL/P, and students would still be regarded as having attained the required knowledge by ASHA's standards (Bedwinek,
Voice and resonance disorders are also grouped together in required skills in practica (Bedwinek, 2007), meaning that a graduate clinician could complete a voice rotation and be viewed as having extensive experience in the area of voice and resonance disorders, but never encounter an actual client whose primary problem was a resonance disorder. Consequently, it is has become possible for master’s students to graduate with little to almost no clinical or academic training on this population. One training program to the next may vary greatly in which course includes this information and how much of this content is included. A study by Vallino et al. (2008) surveyed 127 accredited graduate programs and found that 33.1% did not offer dedicated courses on CL/P, and that 45.7% did not offer clinical practica devoted to CL/P (Vallino, Lass, Bunnell, & Pannbacker, 2008). The results of this study are consistent with a decline of training opportunities in CL/P following ASHA’s change in certification standards.

Given this changing pattern of clinical and academic training during graduate school preparation, clinicians may find themselves underprepared and needing to obtain knowledge about CL/P in other ways. Mandulak and Baylis (2014) describe alternative pathways that clinicians can use to gain this information. For example, the use of continuing education is one suggested means to fill this gap in knowledge. This is a route that should be available to all SLPs, unlike opportunities for more in-depth academic and clinical training and clinical fellowships, which may not be attainable.

School clinicians are a particular group who may need to access alternative pathways of learning about CL/P. These clinicians must serve a generalist role to treat the wide range of speech and language disorders on their caseloads. If a child with CL/P is
added to the caseload, they may turn to continuing education or other available resources. Bedwinek (2007) conducted a survey to examine which types of information were considered most helpful by school clinicians in this situation. She found that specific treatment techniques and treatment of articulation disorders of children with velopharyngeal disorders were rated as the most helpful information. In discussion, she noted a “paradox” between what clinicians find helpful and the kinds of information that researchers seek. In order to best serve the cleft palate population, Bedwinek argued that researchers and clinicians must collaborate to examine, identify, and provide evidence based practices to clients with CL/P (Bedwinek, 2007). The present survey was intended to further examine the different perspectives regarding informational needs on CL/P to continue discussion of Bedwinek's noted "paradox" between research and the information most helpful to speech clinicians. It can also be used to compare the resources recommended by members of the SIG-5 with those recommended by the school clinicians who participated in Bedwinek's survey.

The role of the SLP: Cleft team and local SLPs

One of the most important reasons that we need to examine the informational needs of SLPs is their need to interact with very knowledgeable professionals from cleft palate teams, which are considered the state-of-the-art service delivery model for diagnostic and overall treatment planning for children with cleft palate (Smith, 2013).

The care for the problems associated with CL/P are best handled by a multidisciplinary cleft team because of the associated risks of medical problems including diseases of the hearing mechanism, speech disorders, dental abnormalities, and
psychosocial issues (Smith, 2013). Cleft teams can openly communicate and discuss relevant issues, which facilitates the diagnosis and treatment recommendations for children with CL/P that can range from simple to complex. In handling cases with additional complexities, SLPs and other professionals who treat cleft palate will find the opportunity to collaborate with other members of a cleft team beneficial to improving the services they provide.

The principal role of the SLP who works as part of a cleft team is the evaluation of people with CL/P for speech, language, and perhaps feeding disorders. If a client who needs services lives nearby, the SLP may also be involved in providing therapy for patients in addition to diagnostic and counseling services. However, treatment provided by the cleft team SLP is an ideal scenario, and will not be possible for many clients; instead, the cleft team SLP may need to make specific recommendations that can be implemented by an SLP who practices near the client’s area of residence.

The local SLP must then assume the task of initiating or adapting in-place treatment plans with the updated diagnostic information and recommendations provided by the cleft team SLP. The cleft team SLP should communicate with the client’s guardians about obtaining consent to contact this local SLP directly, as this will allow personal communication between the two professionals and will enhance the quality of services provided. It will then be the local SLP’s responsibility to obtain further education as needed to provide the specific treatment techniques that will be most beneficial to the client.
Because the local SLP has typically received limited experiences with clients with CL/P, it will be necessary for the SLP to locate quality resources to gain adequate training before providing intervention. The ASHA Certificate of Clinical Competence indicates that the holder has the basic knowledge and expertise to begin independent practice, not the competencies to practice in all areas of speech-language pathology in the ASHA scope of practice (Mandulak & Baylis, 2013). This means that to provide treatment to clients with CL/P, SLPs will need to seek additional training to that obtained for certification and licensure. According to the ASHA Code of Ethics, Principle of Ethics II: "Individuals shall honor their responsibility to achieve and maintain the highest level of professional competence” (ASHA, 2015). SLPs must assess their own competence for providing treatment for disorders that can be quite complex. Finally, Rule B of this Principle states that "individuals shall engage in only those aspects of the professions that are within the scope of their competence, considering their level of education, training, and experience (ASHA, 2015). Ethically, the SLP should not begin treatment before completing extra training on CL/P to ensure that children with complicated needs get adequate intervention services.

**Complexities of CL/P**

The complexity of interventions for CL/P also means that speech-language pathologists must have access to quality information in order to serve that population. CL/P is a disorder that requires services from many different professionals. According to Moller (2009), “it is not uncommon for a person with a cleft palate or another craniofacial anomaly to be evaluated and/or treated by as many as 10-20 medical, dental,
speech, hearing and other behavioral and social specialists” (p. 4). However, clefting of the lip and palate is very treatable (Moller, 2009).

Several factors introduce complexity in diagnosis and treatment of cleft palate: (a) the resonance and speech sequelae that frequently occur even after a repaired cleft, (b) learning problems that may predispose children to learning disabilities (Strauss, 2004), and (c) multi-anomaly disorders involving complicating factors that can prolong treatment.

**Resonance and speech sequelae.** Abnormal speech and resonance characteristics are typically the most salient sequelae of CL/P, due to the affected velopharyngeal structure and function, dental-occlusal deviations, and high frequency of fluctuating middle ear disease and associated conductive hearing loss. The severity of these speech and resonance sequelae can greatly vary (Kuehn & Moller, 2000). Clefting of the primary palate only (i.e., primary palate, lip and alveolar process) tends to affect speech less, although malocclusion can cause speech sounds to be distorted and articulatory placement to be altered. The effects of malocclusion are often transient (Kuehn & Moller, 2000), and are treatable with orthodontic intervention (Peterson-Falzone et al., 2010).

Hypernasality is an abnormal resonance sequela that is often characteristic of CL/P. Even after a cleft repair, a child may still have hypernasality due to structural insufficiency (e.g., short velum or deep velopharynx). As explained by Kummer (2011a), hypernasality occurs “when there is an abnormal proportion of sound energy in the nasal cavity during the production of vowels and other voiced oral consonants” (p. 144). This can give a muffled sound that can be mild, moderate or severe in quality (Peterson-
Falzone et al., 2010). Hypernasality can also be accompanied by audible or inaudible nasal air emissions (NAE) (Kummer 2011a) which is air leaking out the nose during the production of pressure consonants (stops, fricatives, affricates) (Peterson-Falzone et al., 2010). Hypernasality may be due to oronasal fistula or velopharyngeal incompetence secondary to a neurogenic cause (Kummer, 2011a).

Children with velopharyngeal inadequacy (VPI) cannot achieve adequate closure, despite how intentional the child is being to produce the sound correctly. Sounds that the child cannot accurately produce due to structure and/or physiology of the musculature involved with the velopharyngeal port are referred to as obligatory speech errors (Kummer, 2011a). It is important for a SLP to recognize and base treatment plan decisions on this understanding of obligatory errors. Attempts to treat them with therapy, rather than the required surgical intervention, will be fruitless and frustrating for the child. However, this is a common mistake for well-meaning SLPs who do not fully understand the nature of the problem. As a result of a lack of adequate training, clinicians may turn to ineffective treatment, such as blowing or oral-motor exercises (OMEs) to treat issues related to CL/P and VPI (Vallino et al., 2008).

Speech sound production can be dramatically affected by VPI. The affected speech sounds typically include those requiring intraoral pressure, such as pressure consonants. Consonants are marked with weak pressure and often with ANEs. Speech sound errors tend to increase with phonetic complexity. Nasal consonants and semivowels are usually the least affected sounds. There are also compensatory articulation sounds that are unique to speakers with cleft palate, such as overuse of glottal
stops, pharyngeal stops, pharyngeal fricatives, (Kuehn & Moller, 2000) and nasal fricatives (Peterson-Falzone et al., 2010). Compensatory articulation sounds are particularly undesirable because of their negative effect on speech intelligibility, as well as making imaging via nasendoscopy more difficult. Compensatory errors also have a tendency to become habituated, requiring much time and effort to un-train (Kuehn & Moller, 2000). These resonance and speech sequelae put children at a greater risk for psychosocial difficulties (Eliason, 1991), making well-implemented, effective treatment of significant importance.

**Learning difficulties.** Cognitive dysfunction has long been documented in children with CL/P (Eliason, 1990), and must be considered in treatment planning because learning difficulties may affect a client’s prognosis and the delivery of treatment. Many studies have hypothesized that abnormal craniofacial development associated with CL/P influences cognitive and behavioral function (Strauss, 2004). Research has shown that children with CL/P have a greater risk of having learning disabilities than the general population (Broder, Richman, & Matheson, 1998; Richman, 1990), and are at a greater risk for developing behavioral problems when they begin school (Speltz, Armsden, & Clarren, 1990; Speltz, Endriga, Wilson, & Clarren, 1992; Speltz, Morton, Goodell, & Clarren, 1993). Studies involving preschool-aged children with CL/P have indicated deficits in the development of verbal language skills (Eliason & Richman, 1987; Goodstein, 1961; Lamb, Wilson, & Leeper, 1972) and social skills (Krueckeberg, Kapp-Simon, & Ribordy, 1993). Language deficits may be due to issues of hearing loss or speech delays (McWilliams & Musgrave, 1972). Environmental factors such as altered
social and verbal stimulation must also be considered (Strauss, 2004) as possible contributors to cognitive deficits. It is also possible that the genetic etiology that results in clefting also affects brain development (Strauss, 2004). More research is needed to examine the relationship between clefting and neuropsychological development (Eliason, 1990).

Cognitive delays also appear to depend on the type of clefting defect (Richman & Eliason, 1984). Cases of cleft lip and palate were determined to be associated with mild expressive delays, and isolated cleft palate was found to be associated more with general language delays (Richman, 1980). According to Strauss (2004), “although all children with CL/P should be screened periodically for cognitive delays and learning disabilities, particular attention should be placed on the behavioral and cognitive evaluation of children with isolated cleft palate” (p. 170). Overall, the SLP must be on the lookout for issues related to cognitive and behavioral difficulties as these could greatly affect a child’s progress in treatment.

**Multi-anomaly disorders.** Cleft lip and palate usually occurs as an isolated craniofacial anomaly, meaning that thorough physical examinations will not reveal additional primary physical abnormalities (Gorlin & Baylis, 2009). However, a child with a cleft has an increased chance of having additional anomalies than peers without a cleft (Peterson-Falzone et al., 2010). Clefting occurs in more than 250 syndromes (Shprintzen, Siegel-Sadewitz, Amato, & Goldberg, 1985). Therefore, SLPs must also be cognizant of the fact that clefting can occur as part of a syndrome, perhaps one that has not yet been identified in a child who is undergoing an initial screening or evaluation for speech and
language problems. It is a common experience for the SLP to be the first professional whom parents contact as speech and language delays become apparent when the child is compared to peers.

Additional anomalies are more often associated with cleft palate only (CPO) (20-50%) than with isolated cleft lip (7-13%) or cleft lip and palate (2-11%). The rate of one or more additional anomalies accompanying all types of clefting is 28% (Gorlin & Baylis 2009; Emanuel et al., 1972). Additional physical anomalies are more frequent in patients with bilateral cleft lip. Congenital velopharyngeal inadequacy (VPI) without clefting is more frequently associated with other anomalies, and may suggest an underlying syndromic cause (Gorlin & Baylis, 2009).

Anomalies associated with clefting of the lip and/or palate may be mild. Other anomalies are more visible and easily noticed (e.g., micrognathia). More severe anomalies may fit the description of a particular syndrome, such as Pierre Robin sequence, Stickler syndrome, and velocardiofacial syndrome (VCFS) or 22Q11.2 deletion syndrome (Peterson-Falzone et al., 2010). These syndromes have certain characteristics that are beyond the scope of this thesis; these characteristics typically complicate the prognosis and recommendations for speech-language services for a child, and demonstrate why specific cleft training is necessary when dealing with such cases.

In addition to Pierre Robin, Stickler’s syndrome, and VCFS, other syndromes do not have phenotypical clefting, however clefting frequently occurs as an associated disorder (Bzoch, 2004). This means that clefting may or may not occur with the syndrome. Though these syndromes are even rarer than VCFS, Stickler’s, and Pierre
Robin sequence, they will present complex challenges in terms of communication abilities, and the SLP must be knowledgeable about them in order to provide effective treatment.

It is important for the SLP to have the background knowledge of the syndromes that can include cleft in the phenotype. They should recognize the chance that a child may display the signs of multiple anomalies consistent with a syndrome that have been overlooked in previous examinations (Peterson-Falzone et al., 2010; Shprintzen et al., 1985). Furthermore, it is necessary for the SLP to have familiarity with the relevant characteristics of syndromes when writing recommendations and providing treatment, because these characteristics can affect learning abilities and treatment prognosis (Bedwinek, 2007). As the usual first contact for a child presenting with problems, all SLPs must also be familiar with these syndromes with the ability to recognize red flags and make appropriate referrals.

**Surveys on topics related to CL/P**

Following the changes to SLP training (Bedwinek, 2007; Vallino et al., 2008), and due to the related disorders as well as service delivery (i.e., cleft team interactions) complexities that can occur with CL/P, it is of great importance to examine how professionals gain information on issues of CL/P. Surveys are a tool that is especially useful for gaining information on the perspectives of a group.

Surveys offer an efficient and economical way to collect data (Pattern, 2011). Not surprisingly, therefore, they have proved to be a viable means of gathering information on topics related to speech-language pathology in the United States (Brumbaugh & Smit,
Numerous surveys have also provided quality information on topics related to CL/P (D’Antonio, Achauer, & Vander Kam, 1993; Kummer, Clark, Redle, Thomsen, & Billmire, 2011; Middleton, Lass, Starr, & Pannbacker, 1986; Noar, 1992; Pannbacker, Lass, Scheuerle, & English, 1992; Strauss et al., 1998). A survey is an appropriate tool to implement to examine the attitudes of a group of people to assemble an overall perspective, and the use of a survey was chosen to answer the research questions listed below.

To date, the only studies that have examined questions about the training experiences of needs of SLPs with regard to CL/P were those conducted by Vallino et al. (2008), Pannbaker et al., (1992) and Bedwinek (2007). More research is clearly needed to help us understand how best to advance the knowledge of these very important groups of professionals serving individuals with CL/P. This study seeks to fill the gap in our understanding of training and research needs for professionals working in the area of CL/P. In particular, it is intended to obtain information about clinicians’ and researchers’ past training (during pre-professional training and in-place continuing education), interests in future training, and perceptions of research needs in this area. The answers obtained by this survey could be used to fill this gap in our information thereby helping educational and professional organizations to support better practices in services provided to children and adults with CL/P. It could also be used to guide the development of future resources on issues of CL/P.
**Rationale for this survey and research questions**

Although CL/P is a relatively rare disorder given the broad scope of disorders that SLPs treat, this disorder can present complex challenges. Clinicians need to complete additional training to that completed in graduate programs to provide adequate assessment and treatment services to children with CL/P. It would be helpful to examine clinicians’ and speech scientists’ training experiences to gain more information to shape future training and resources.

The purpose of this survey is to examine the professional training, continuing education experiences and interests, and perceptions of research needs in cleft lip and palate among speech scientists and speech-language clinicians with interests in this population. Therefore, the research questions examined in this survey are the following: (1) What do speech clinicians and speech scientists believe are the major research needs in CL/P? (2) What academic and clinical training have these groups received prior to their current roles? (3) What sources of information for CL/P did they find to be the most helpful? (4) How much time is generally available to them for researching issues related to CL/P? (5) What sources of information do they believe would be helpful in the future?

Research questions specific to clinicians were: (1) how helpful did they find collaboration with cleft team SLPs to be? (2) What information do they believe generalist SLPs need to provide effective treatment? Research questions specific to speech scientists were: (1) What information do they believe generalist and cleft team SLPs need to provide treatment? (2) What research questions do they believe need to be examined in the future?
Chapter 2: Methods

Survey

A survey was constructed to examine the perceived needs of non-student speech clinicians and speech scientists within SIG-5 regarding the training they completed on the evaluation and treatment of people with CL/P.

A preliminary version of the survey was developed from discussions with speech scientists and practicing clinicians, and following a review of the literature regarding SLP training and continuing education opportunities related to issues of cleft lip/palate. The survey used in this investigation was modeled from several other surveys in order to enable comparisons from those designed by Vallino et al. (2008) and Bedwinek (2007).

The preliminary version of the survey consisting of 70 questions was modified after review by two expert professionals who, respectively, represented each of the professional groups of interest. These individuals were asked to review and comment on the clarity and appropriateness of individual items from the survey. Subsequently, their recommendations were discussed and incorporated into the final version. During this process, 11 items were rewritten. Upon recommendation, these questions were clarified in terms of wording to more accurately reflect the experiences of both professional groups. Finally, one new item was added to gather information on the courses taught by the speech scientists participating in the survey.
Survey content

Specific topics that were examined between both groups included: their perceived major areas of research needs, the academic and clinical training received prior to their professional roles, the most helpful sources of information for CL/P, future resources for CL/P that would be helpful, and available time for researching issues related to CL/P. Topics that were examined within the speech scientists group only included: information that speech clinicians should know to provide evaluation and treatment for people with CL/P, and research questions that should be examined in future. The topics addressed to the speech clinicians group only included: collaboration with cleft team SLPs, and information that community/local SLPs need to successfully treat people with CL/P. The questionnaire was administered within SIG 5 as a means of studying the experiences of professionals that might specialize in the area of CL/P to provide insight that might guide how resources can be shaped to improve the information available to both specialist and generalist SLPs. SIG 5 was also selected as the sample for this survey as means to compare the different emphases between the two groups, speech clinicians and speech scientists, to examine any possible differences of perspectives between them.

Survey questions consisted of yes/no questions, open-ended questions, and Likert-type formats. Several different 4-point rating scales were used to rate different types and sources of information. The different scales examined: (a) helpfulness of topics, with ratings of not helpful at all, somewhat helpful, helpful, and very helpful, (b) interest in topics, with ratings of not interested, slightly interested, somewhat interested, and very
interested, (c) frequency of use, with ratings of never used, used once, used several (2-3) times, and used more frequently (>3 times), and (d) likeliness of use, with ratings of not very likely, somewhat likely, likely, and very likely. The different scales were used to assess these different elements to offer insight on why these sources of information may be preferred. In addition, participants were asked several open-ended questions in order to offer additional sources of information that could be triangulated with the more constrained-format questions. The final survey in electronic format is available upon request (Appendix C).

Multiple questions were adapted from the survey conducted by Bedwinek (2007) to allow a comparison with the present survey. These included questions 5, 19, 26, 27, 28, 30, 31, 32, 33, 34 posed to speech scientists and questions 48, 50, 59, 60, 61, 64, 65, 66, 67. Questions 30, 41 and 63 regarding the equipment available for use (e.g., aerodynamics or pressure-flow testing, nasometry, and videosendoscopy or nasopharyngoscopy), and the helpfulness of more information on these instruments were adapted to offer a comparison between the perspectives of generalists and specialists on the use of these instruments. Similarly, questions 31 and 64 regarding the topics of interest (e.g., assessment and treatment of resonance disorders, assessment and treatment of articulation disorders related to velopharyngeal function) were expanded to offer comparison between these two groups. Questions 7, 9, 20, 50, and 52 were also adapted from the survey conducted by Vallino et al. (2008). For example, questions 7 and 50 examined the amount of time devoted to different issues of CL/P to allow a comparison with the results of the survey by Vallino et al. (2008).
Reliability and validity

The following measures were taken to promote the reliability and validity of this survey. First, the survey was modeled after similar surveys on the topics of clinician training and use of resources by Vallino et al. (2008) and Bedwinek (2007). Following the piloting of the survey by two experts, the survey was given and then re-administered after a length of time to a third individual who also represents a potential participant in the final study. Multiple questions were presented with slightly different wording to assess how similar answers were when the wording of the questions changed. This test-retest procedure was completed to assess how similar the two sets of answers were to assess the reliability of the survey. The initial administration was also timed to approximate the time needed to complete the survey (10-15 minutes). Each of the three professionals who helped in the revision and this reliability study were asked not to respond to the final survey, despite their membership in SIG 5.

Administration of the survey

All questionnaires were administered in an online format via the SIG-5 communication listserv. A link was provided in posts to this listserv, allowing professionals to access the 71-item survey (36 questions specific to speech scientists, 34 specific to SLPs), which was completed through the survey-hosting site, SurveyMonkey. At intervals of 15 and 30 days, reminders requesting participation in the survey were posted to increase the response rate. A final request to participate was posted at 60 days. Copies of the post used for recruitment and the survey are provided in Appendix C.
Analysis

An item-by-item analysis was conducted after all data was collected. Descriptive statistics were used to summarize the data. The analyses used included measures of central tendency (e.g., mean and mode) and frequency (e.g., counts and percentages). These measures were then visually presented with pie charts and bar graphs.
Chapter 3: Results

A majority of the participants were SLPs (n = 47; 77.78%), with a smaller number of speech scientists (n = 4; 7.55%) and participants who were determined to be ineligible (n = 2; 3.77%; that is, individuals who were neither a non-student SLP nor speech scientist participant (one assistive technology specialist, one incomplete survey).

Six questions were presented with slightly different wording to assess how consistent answers were when questions were reworded. The agreement between these questions was 88%. A test-retest was also completed, with 78% agreement.

Speech-language pathologists

Demographics. Of the participating SLPs, most classified their primary roles as clinicians (n = 30; 63.83%), with the remainder as researchers (n = 10; 21.28%) or having other roles (n = 6; 12.77%). The other roles noted by the last of these groups included instructors, supervisors, or roles that were equally divided among these duties.

Over two thirds (n = 30; 67.44%) of respondents identified themselves as specialists in the area of CL/P, and roughly one quarter identified themselves as generalists (n = 12; 26.67%). There were 3 respondents who identified as specialists on other areas within the scope of SIG-5—speech perception and motor speech. The 41 states in which respondents work are listed in Appendix B (Table 1). The average length of practice for clinicians was 20 years (Table 2). There was a significant difference between the average length of practice of specialists (29 years) and generalists (12 years).
When questioned for more specifics about duties involved in their role, a majority indicated that they are clinicians who provide treatment/evaluation services (n = 36; 80.00%) or who supervise (n = 22; 48.89%). Fewer SLPs identified themselves as researchers (n = 17; 37.78%) or administrators (n = 9; 20.00%). These roles exceeded 100% because the options for responses accounted for the multiple roles that one clinician may assume.

Participants worked at one or more of these sites: preschools (n= 6; 13.33%), elementary (n = 6; 13.33%) or secondary schools (n =2; 4.44%), hospitals (n = 19; 42.22%), private clinics (n = 6; 13.33%), university clinics (n = 18; 40.00%), outpatient facilities (n = 12; 26.67%), private practices (n = 7; 15.56%), home health visits (n = 3; 6.67%) and early intervention home visits (n = 2; 4.44%).

Caseloads and equipment available for use. Question 41 asked, “Please indicate all of the following equipment that are readily available for your use.” There was a clear difference between generalist and specialist subgroups. Most specialists had the equipment necessary for use of videonasendoscopy or nasopharyngoscopy (n =22; 73.33%), but most generalists did not (n = 2; 16.67%). Most specialists also had nasometry available to them (n = 21; 70.00%), whereas generalists did not (n = 2; 16.67%). Some specialists also had pressure-flow testing (n = 8; 26.67%) and one had electropalatography available for use (n = 1; 3.33%), but none of the generalists indicated this equipment was available. Most of the generalists reported that none of these instrumental assessments were available (n = 9; 75.00%).
Question 45 asked, “How many clients with cleft lip/palate do you have on your current caseload?” Many clinicians had 6-10 clients (n = 19; 42.22%), and fewer clinicians had 3-5 (n = 8; 17.78%), 1-2 (n = 9; 20.00%), and 0 current clients (n = 9; 20.00%). When asked about age ranges, clinicians’ averaged responses showed that 29% were 6-10 years, 29% were 3-5 years, and 21% were 2-3 years. Sixteen percent were 19-24 months, and 19% were 18 months and younger. Question 47 asked, “During therapy and parent education, approximately how much time do you devote to discussing the following issues with your current clients with cleft lip/palate?” Respondents were given a closed set of answer choices and asked to estimate percentages between them. Averaged responses showed that SLPs spent roughly twice as much time discussing with parents the issues related to VPD (39%) and articulation (36%) than language (19%), voice disorders (10%), and other unspecified issues (10%).

**Academic training.** Question 48 asked, “During your academic training experiences, how did you gain information about cleft lip/palate?” Respondents were given the option to select multiple choices from a closed set of answer choices. Based on the responses about length of service, there was a clear difference between clinicians who had graduated before the ASHA certification changes in 1993 and those who graduated after these changes. Of the clinicians who graduated before 1993: (a) most indicated a course *devoted* to CL/P (n = 12; 80.00%), (b) some clinicians (n = 2; 13.33%) had taken a course that *included* information on CL/P, but was not devoted to the subject, and (c) one participant (6.67%) had not had any academic training on CL/P. Of the clinicians who graduated after 1993: (a) some had taken a course *devoted* to CL/P (n = 11; 44.00%), (b)
some clinicians (n = 10; 40.00%) had taken a course that included information on CL/P, but was not devoted to the subject, and (c) four participants had not had any academic training on CL/P (16.00%). When examining the responses of all clinicians, these four generalists represented the majority of those who had not received any academic training (n = 5; 11.63%). This suggests a decline in academic training experiences that has been influenced by the 1993 certification changes.

Question 50 asked, “Within these courses, please estimate the percentage of time these topics were addressed.” Within all courses that included or were devoted to CL/P, fairly equal amounts of time was devoted to the following topics: (a) assessment of speech disorders (22%), (b) treatment of speech disorders (22%), (c) anatomy/physiology of the palate (18%), and (d) the assessment of resonance disorders (16%). Less time was given to the treatment of resonance disorders (13%), surgical interventions to repair clefting of the lip or palate (9%) or to improve velopharyngeal closure and resonance for speech (9%).

**Clinical Training.** Question 51 asked, “During your clinical training/CFY, which was your greatest source of information about cleft lip/palate?” A closed set of answer choices was given. Six clinicians (14.29%) indicated that their greatest source of information was at a site devoted to CL/P. Five clinicians (11.90%) had a graduate clinical placement that included clients with CL/P. An equal percentage of clinicians had a clinical fellowship year (CFY) devoted to CL/P (n = 6; 14.29%), or a CFY that included clinical experience with clients with CL/P (n = 6; 14.29%). However, many clinicians did not have any of these clinical experiences during their CFY (n = 19; 45.24%).

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Question 52 asked, “In your clinical training/CFY, please estimate the percentage of hours in which you gained experience.” The averaged responses indicated that clinicians had completed more clinical training on the treatment of speech and resonance disorders (54%) than on the assessment of these disorders (46%).

Cleft teams. Question 53 asked, “Are you or have you been a SLP on a cleft team?” A majority of respondents had participated on a cleft team at some point during their careers (n = 29; 70.73%). Question 54 asked, “Have you given treatment based on recommendations from a cleft team SLP’s report?” A majority had also given treatment based on a cleft team’s recommendations (n = 29; 70.73%). Question 56 asked, “How helpful were the following sections of these reports?” Respondents were present with a 4-point Likert type scale with the options of not helpful at all, somewhat helpful, helpful, and very helpful. Clinicians reported that the diagnostic information and treatment recommendations were helpful (n = 14; 48.28%), and that information on specific treatment techniques was very helpful (n = 10; 34.48%), although the ratings for this category showed only a marginal difference between helpful and very helpful.

Continuing education. Question 59 asked, “During your career, how helpful were the following WRITTEN sources of information on cleft lip/palate?” Respondents selected answers on another 4-point Likert type format with ratings of helpfulness. There were noticeable differences between the generalist and specialist subgroups. Most specialists rated textbooks and CL/P journals/newsletters equally as the top very helpful source (n =19; 70.37%), followed by information in reports from the cleft team (n = 17; 62.96%). Many specialists also reported the ACPA Core Curriculum as very helpful (n =
11; 48.15%) (Figure 1). Generalists, however, only rated informational websites as a very helpful resource (n = 5; 50.00%) (Figure 2). Many specialists selected CL/P journals as their top choice when asked to choose one source to gain information (n = 12; 44.44%) (Figure 3), but generalists chose informational websites as their one source (n = 6; 54.55%) (Figure 4). Another Likert-type format was presented to clinicians to rate how likely they were to use resources. When asked which written sources they would likely use in the future, most specialists and generalists indicated that they were very likely to use all the sources mentioned, but specialists indicated CL/P journals/newsletters (n = 20; 74.07%) and information from the cleft team more than other sources (n = 19; 73.08%) (Figure 5), and generalists indicated informational websites (n = 6; 54.55%) as well as information from the cleft team (n = 6; 54.55%) (Figure 6).

Question 60 asked, “Throughout your career, how helpful have the following ADDITIONAL resources been for topics of cleft lip/palate?” Another Likert-type format was used with ratings of helpfulness. Most specialists indicated conferences as the top very helpful resource (n = 19; 73.08%) (Figure 7). Generalists did not rate any resources as very helpful. Instead, the mode of responses rated online professional boards and forums as somewhat helpful, and were the generalists’ top rated resource (n = 9; 81.62%) (Figure 8). When asked which additional sources they would likely use in the future, most specialists indicated that they were very likely to use conferences (n = 24; 88.89%) (Figure 9). Generalists’ responses were varied, and did not indicate one particular resource that was likely to be used over others in the future (Figure 10). When clinicians were asked to choose the one preferred resource they would use for additional
information on CL/P, specialists (Figure 11) and generalists (Figure 12) both chose conferences (n = 13; 48.15%; n = 6; 54.55%).

Regarding questions about the meetings and tools offered by professional associations, respondents indicated: (a) most respondents frequently used the SIG-5 community board (n = 26; 63.41%) and publications from the ACPA (n = 25; 60.98%), (b) most had never used ASHA’s Clinicians and Researchers Collaborating (CLARC) tool (n = 34; 82.93%), and (c) many had never been able to attend ACPA annual meetings (n = 17; 41.46%), but almost an equal number indicated attending several of these meetings (n = 15; 36.59%).

Another Likert-type format was used to examine the types of instrumental assessments for which clinicians think it would be useful to have more information. There was a notable difference between specialist and generalist subgroups regarding the use of videoendoscopy or nasopharyngoscopy. Most specialists indicated they felt that more information would be very useful (n = 22; 81.48%), however generalists gave the lower rating of useful as the mode (n = 5; 45.45%).

Question 64 asked for clinicians to rate their level of interest in several topics. Most SLPs were very interested in more information on these topics: assessment of resonance disorders (n = 28; 68.29%), treatment of resonance disorders (n = 25; 62.50%), assessment of articulation disorders related to velopharyngeal dysfunction (n = 33; 80.49%) and treatment of articulation disorders related to velopharyngeal dysfunction (n = 29; 72.50%). Many SLPs were somewhat interested in more information on the common language problems of children with CL/P (n = 19; 46.34%).

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**Time available for research.** When asked about available time for researching CL/P, over 40% of the specialists indicated more than one hour each week was available to them (n = 11). The mode amount of time for generalists was about an hour each month (n = 5; 45.45%). Of all participating clinicians, eight indicated they did not have time available to devote to this topic (15.79%). Most specialists stated that researching CL/P was a high priority (n = 22; 81.48%), whereas the mode of generalists’ responses showed that it was a low priority compared to other areas (n = 5; 45.45%).

**Speech scientists**

Unfortunately, there were only four speech scientists who completed the survey, even after multiple reminders on the SIG-5 board/listserv. Three of the four speech scientists indicated articulation and resonance associated with CL/P as their primary research interest.

Two of the four respondents indicated the issues of CL/P were not instructed in academic training experiences, while one respondent had completed a course devoted to CL/P and another had completed a course that included information on CL/P. None of the four respondents indicated they had ever completed clinical training or CFY positions on CL/P.

All of the speech scientist’ responses indicated that textbooks were the one preferred written source of information. When asked to select the one preferred additional source of information, one respondent indicated conferences and another indicated online professional boards and forums. Regarding questions about the use of meetings and tools offered by professional associations, two of the three responses
indicated frequent use of ACPA publications and attendance at ACPA annual meetings. All three responses indicated they had used the SIG-5 community board at least several times. Regarding the use of instrumentation, all three responses unanimously indicated that more information on the following would be *useful*: aerodynamics or pressure-flow testing, nasometry, and videonasendoscopy or nasopharyngoscopy.
Discussion

This survey examined the informational needs of SLPs on CL/P. Several sets of questions were included in the survey to provide information on the training, continuing education experiences and interests, and perceptions of research needs in CL/P among SLPs who specialize in this population. Questions on these topics were also posed to speech scientists to offer a comparison of perspectives between the two groups.

Academic training

One topic examined in this survey was the educational experiences of SLPs. Results showed that almost 12% of all participating SLPs had not received any academic training on CL/P, and that most of these SLPs had graduated after ASHA’s changes to certification standards in 1993. This suggests the decline in academic training experiences was influenced by the changed standards. In Bedwinek’s survey of school SLPs (2007), 100% of respondents had received some educational training on CL/P—either in a course devoted to the subject or in a course that combined the subject with other subject material. This comparison is surprising, because the majority of respondents from SIG-5 identified themselves as specialists, but some had less academic training than generalists who were surveyed eight years before. This highlights the influence that these standards have over the academic experiences available during professional training.

Academic training experiences could be incorporated in graduate curriculum in several ways. A course could include this information by dedicating a week of classes to
topics of CL/P, and this would ensure that clinicians receive some guided training on
resonance issues with feedback from a knowledgeable instructor. Similarly, assignments
could be completed outside the classroom and graded with feedback and guidance toward
helpful resources. This would equip clinicians with some foundational knowledge and
resources to use after they graduate.

**Clinical training**

Similarly to decreased academic training experiences, clinical training
experiences during their professional training period were not available to all clinicians
who participated in the survey. Over 45% of the SLPs did not receive any clinical
training during their graduate program or CFY. Clinical training experiences can be
crucial for students to learn, especially because clinician specific techniques and client-
specific responses can lend an “artistic” side to providing treatment (Bedwinek, 2007).
Having more clinical experiences under the guidance of a supervisor would offer SLPs
additional enriched experiences, however, such experiences are limited due to the low
incidence rate of this population (Vallino et al., 2008; Bedwinek, 2007) and the limited
clinical training experiences are unlikely to change.

Mandulak and Baylis (2014) suggest the use of laboratory experiences to
incorporate clinical training experiences into the graduate curriculum. Though the
suggested laboratory experiences (e.g., working with instrumental evaluation tools and
practicing resonance and NAE ratings, and ACPA Core Curriculum voice samples) are
more geared toward assessing CL/P disorders, having these experiences would educate
generalists to recognize when a referral to a cleft team would be necessary and provide a
framework for discussing diagnostic information and treatment recommendations with cleft team SLPs. Other experiences, such as guided observations of treatment sessions from DVDs, could be completed in class. This would serve as a model of specific treatment techniques to use with children with CL/P, giving graduates some previous guided experience to use when they receive the first child with CL/P on their caseloads.

SLPs also completed questions about continuing education experiences. When asked about resources for future use, specialists showed the greatest preference for CL/P journals and newsletters over other written resources, and conferences over other additional resources. Other highly rated resources were textbooks and the ACPA Core Curriculum, as well as ASHA short courses and videotapes/DVDs. Further development of these preferred resources in the future over less preferred resources may increase the amount and quality of continuing education completed by SLPs on issues of CL/P. Because SLPs frequently used ACPA publications and the SIG-5 board and listserv, these may be good avenues for spreading information about CL/P. However, the use of the SIG-5 board to distribute this survey may have increased the number of responses indicating frequent use of SIG-5, so this sampling bias must be considered.

When asked about future research needs, SLPs indicated their preferences to have more information on the assessment and treatment of articulation disorders related to VPI, and the assessment and treatment of resonance disorders. They also showed interest in more information on videonasendoscopy or nasopharyngoscopy. This interest was greater than that demonstrated by school SLPs in the Bedwinek (2007) survey. This finding is influenced by the large number of specialists, of whom the majority were cleft
team SLPs. Overall, the implications of these findings are that future research on videonasendoscopy or nasopharyngoscopy would be most helpful for cleft team SLPs, and information on these instrumental evaluations may not be as important to include in resources geared toward school SLPs.

Many specialists indicated a relatively large amount of time to research CL/P. Generalists, however, indicated less time available. Generalists also indicated a low priority for researching CL/P compared to other areas. These findings are unsurprising due to the number of specialists on cleft teams and the number of generalists serving in other roles. Those working on cleft teams may be allotted extra time to research CL/P in recognition of their need to continuously update knowledge, but generalists must stay up-to-date on a broad scope of disorders. The implication is that resources geared toward generalists should be streamlined to present information in an efficient timeframe. Since generalists indicated a preference for informational websites, publishing information online when possible is another suggestion to improve the resources geared toward generalists.

The perspectives of speech scientists were more limited due to the low response rate. Those that did participate preferred textbooks for written information on CL/P. They also frequently attended ACPA annual meetings and read ACPA publications for new information on CL/P. These may be useful avenues for spreading new information on CL/P to speech scientists, but more information is needed to better examine the perspectives of speech scientists on the informational needs regarding CL/P.
Study limitations and future research

The main limitation of this survey was the low response rate from both speech scientists and SLPs, considering the SIG 5 membership is at least 845 members to date. Information on the SIG 5 speech scientist and SLP demographics would have been helpful for interpreting the response rate, but this information could not be obtained at this time.

Future replications should consider strategies to increase the response rate. These may include directly contacting participants rather than using an indirect method of posting on a listserv. While the response rates to questionnaires are often low, they typically have a higher response rate if potential participants are contacted by phone (Patten, 2011). Even a mailed survey is more direct than the use of a listserv, and may receive more responses. Other groups might also be considered, such as the ACPA. This group is a multinational, multi-disciplinary group that represents more than 30 disciplines, including speech-language pathology. The speech scientist and SLP members of this group offer expert knowledge of CL/P, and may be inclined to participate in a survey to improve the resources available on CL/P if contacted directly.

Another limitation was the wording of questions in the survey. When given the option to provide open-ended comments/feedback, one participant noted that some questions were difficult to answer due to the way they were stated. Perhaps future replications of this survey could implement a piloting study with more participants and identify any questions that may be clarified or re-worded to make it quite clear which questions would target research needs, etc. The 78% test-retest agreement may have been
affected by this noted unclear wording of questions and different interpretations of what the questions were asking.

Another consideration is the feedback from several participants that videofluoroscopy is a significant instrumental assessment that is used to assess children who are too young to participate with a nasendoscopy evaluation. This should be included in questions regarding equipment available for use in future replications. Other feedback was given regarding the limited understanding of SLPs who work on cleft teams of the limitations that constrain the services provided by school SLPs (e.g., eligibility mandates, treatment frequency, etc.), and that more communication and understanding of the limitations of school settings is needed.

Future research could include replicating this survey with a group of generalists to gain more responses and offer a comparison to this group mostly comprised of specialists. It appears that the “research paradox” continues—generalists indicated a need for more information on practical information for the clinical setting, such as the treatment of articulation disorders of children, rather than for more information on the instruments that provide “measurable parameters” (Bedwinek, 2007). A replication with more participants is needed to explore this fully.

Future research could also expand on several themes that were introduced in the questions that allowed open-ended comments/feedback. One example included the collaboration between SLPs on cleft teams and SLPs in school settings. There is research in the literature about effective models of communication between these groups, but future research could be beneficial as participants indicated that this is still an area of
need. Research could also expand on the question that asked what information generalists need to know to provide treatment. A survey with a set of focused questions on this topic could offer helpful guidance to generalists who are in the process of searching for information on CL/P.

Conclusions

Despite the study’s limitations, it appeared that SLPs have less academic training experiences available to them since ASHA’s 1993 certification changes, and clinical training experiences continue to be limited. Specialists prefer CL/P journals as written sources of information, and conferences as additional sources of information, whereas generalists prefer informational websites. This was in agreement with the differences in time available to each subgroup for researching CL/P. Specialists indicated a relatively large amount of time, as well as high priority to research issues of CL/P, but generalists had less time available to them and other research needs took precedence over CL/P. With the limited data from speech scientists, only one difference regarding the preference of textbooks was clearly demonstrated between the perspectives of SLPs and speech scientists. Overall, academic and clinical experiences can be enriched by incorporating focused education or in-class laboratory experiences. Resources for continuing education can be streamlined to allow clinicians to use time efficiently. The results of this study offer guidance on the informational needs of SLPs that may guide how these resources are developed in the future.
References


## Appendix A: Tables

Table 1. States in which SLPs work

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<th>State</th>
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Table 2. SLP length of service in years

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Appendix B: Figures

Figure 1. Specialists’ ratings of helpfulness of *written* sources of information on cleft lip and/or palate
Figure 2. Generalists’ ratings of helpfulness of *written* sources of information on cleft lip and/or palate
Figure 3. Specialists’ ratings of the one preferred *written* source of information on cleft lip and/or palate
Figure 4. Generalists’ ratings of the one preferred *written* source of information on cleft lip and/or palate
Figure 5. Specialists’ ratings of how likely they would use written sources of information on cleft lip and/or palate in the future
Figure 6. Generalists’ ratings of how likely they would use written sources of information on cleft lip and/or palate in the future.
Figure 7. Specialists’ ratings of helpfulness of additional sources of information on cleft lip and/or palate
Figure 8. Generalists’ ratings of helpfulness of additional sources of information on cleft lip and/or palate
Figure 9. Specialists’ ratings of how likely they would use additional sources of information on cleft lip and/or palate in the future
Figure 10. Generalists’ ratings of how likely they would use additional sources of information on cleft lip and/or palate in the future.
Figure 11. Specialists’ ratings of the one preferred *additional* source of information on cleft lip and/or palate
Figure 12. Generalists’ ratings of the one preferred *additional* source of information on cleft lip and/or palate
Appendix C: Copies of the survey and recruitment letter

Survey

To obtain a PDF of the survey, please send an email to:

meyer.620@buckeyemail.osu.edu or mccauley.90@osu.edu.

Recruitment letter

The following letter was posted on the SIG 5 board/listserv to invite members to participate in the survey:

Request to participate in survey

Hello,

I am a M.A. speech-language pathology student who is working with Professor Rebecca McCauley to complete a thesis on the informational needs of speech scientists and clinicians on issues of cleft lip/palate. My goal is to assess what types and sources of information both groups are most likely to be helpful in the future. Your participation will help inform us and serve as a basis for a publication on this topic.

Go to __(web link)_________ to participate. Your clicking on this link will serve as your statement of consent. Please note that participation in this survey is voluntary and at any time you may choose not to finish it. This survey should only take 10-15 minutes, and your responses are completely anonymous.
You can only take the survey once, and the link will be close on XX, 2015. Any questions marked with an asterisk (*) require an answer to help determine appropriate follow-up questions.

Please be sure to carefully read the questions and to choose answers that best represent your experiences. If you have any questions about the survey, please email me at meyer.620@buckeyemail.osu.edu or my advisor, Dr. Rebecca McCauley (mailto:mccauley.90@osu.edu).

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Thank you so much for taking your valuable time to provide feedback.

Shaina Meyer, M.A. Student

Rebecca McCauley, Ph.D., Professor