

**UPDATE ON DIDACTIC AND CLINICAL EDUCATION IN FLUENCY DISORDERS:
2013-2014**

by

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Submitted to the Graduate Faculty of
Health and Rehabilitation Science in partial fulfillment
of the requirements for the degree of
M.S. in Communication Science and Disorders

University of Pittsburgh

2014

UNIVERSITY OF PITTSBURGH
SCHOOL OF HEALTH AND REHABILITATION SCIENCES

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This study is a follow-up survey study about didactic and clinical education in fluency disorders in higher education. Two previous survey studies (Yaruss, 1999 and Yaruss & Quesal, 2002) indicated that there have been reductions in didactic and clinical requirements in education in fluency disorders following revisions in the American Speech-Language-Hearing Association (ASHA) Certification of Clinical Competence (CCC) standards for speech-language pathology. The current study investigated trends and continuing changes in fluency disorders education since ASHA introduced new revised CCC standards in 2014. The study surveyed 282 undergraduate and graduate schools and asked about their didactic and clinical curriculum, as well as their faculty's interest in and knowledge about the field of fluency disorders. Findings indicate that programs have tried to accommodate the changes in the field by increasing their academic coursework and including more practical sessions and competency-based testing in class. The number of faculty teaching courses and supervising clinical practicum who possess extensive clinical experience has decreased. An increase in clinical requirements in fluency disorders was detected, but the number of programs providing insufficient clinical practicum in fluency disorders is still high. In order to raise students' confidence and competence level in fluency disorders, extra efforts beyond graduate work or systemic changes in the field may be necessary.

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1.0 INTRODUCTION

The prevalence of fluency disorders is reported to be between 0.72% and approximately 1% of the population. (Craig, Hancock, Tran, Craig, & Peters, 2002), and the incidence of childhood fluency disorders by 4 years of age is reported to be as high as 11.2% (Reilly et al., 2013). The fact that approximately 3 million people in the United States alone (U.S. Census Bureau, 2014) experience fluency disorders suggests that there is a high demand for appropriate evaluation and effective treatment of fluency disorders. Speech-language pathologists (SLPs) must therefore be well-educated, both clinically and academically, in order to meet this high demand and provide optimal services to people with fluency disorders. Despite the necessity of providing adequate intervention for this population, it is not clear whether graduate speech-language pathology programs equip entry-level clinicians to meet these needs (Brisk, Healey, & Hux, 1997; Cooper & Cooper, 1996; Cooper & Rustin, 1985). For example, in a survey of school clinicians, Brisk et al. (1997) reported that more than 40% of the respondents indicated that they did not feel confident providing treatment for school age children who stutter.

Intensive and focused education about fluency disorders has become more challenging as the scope of practice for speech-language pathologists (SLPs) has expanded. Since the first formal speech correction classes were offered in 1895, the scope of practice for SLPs has expanded from correcting speech sounds to more medically based areas (Duchan, 2010). As a consequence of the rapid changes in the field, SLP programs have changed their curricula,

including and excluding some subjects in an attempt to help their students acquire the minimum knowledge for clinical practice. For example, studies about didactic and clinical education in voice disorders and cleft palate showed that numerous schools reduced their educational requirements in those areas in order to allow students to have more comprehensive knowledge of a wider variety of communication disorders (Mersbergen, Ostrem, & Titze, 2001; Vallino, Lass, Bunnell, & Pannbacker, 2008). Similar results have been shown in studies about didactic and clinical education in fluency disorders. Yaruss (1999) showed that one-half of the 127 accredited programs responding to a detailed questionnaire had reduced or eliminated their requirement for didactic and clinical education in fluency disorders due to the rapid changes in the field in the early 1990s. A follow-up survey by Yaruss and Quesal (2002) revealed that there was a continuing decline in didactic and clinical education provided to students in the area of fluency disorders as programs sought to accommodate changes in the standards for the American Speech-Language-Hearing Association (ASHA)'s Certification of Clinical Competence (CCC) implemented in 2005.

Most recently, ASHA has introduced further changes to the CCC standards, affecting those applying for their CCC beginning in 2014. These new standards include requirements of demonstrating knowledge of assessment and treatment strategies for an even wider variety of communication and swallowing disorders than prior standards. While there have already been documented reductions in clinical and didactic education in fluency disorders in many programs, it is conceivable that even more programs may respond to the new standards with reductions in their educational offerings in fluency disorders. Such a reduction might have a negative effect on clinicians' competence and quality of services; however, it is not yet known how programs are responding to the new standards. Therefore, this survey study is designed to investigate any

continuing changes and trends in education in the field of fluency disorders over the years following the Yaruss (1999) and Yaruss & Quesal (2002) surveys. To accomplish this goal, the current study examined the following areas: how coursework has been laid out for fluency disorders, what has been taught in the course for fluency disorders, how much clinical practice for education in fluency disorders has been devoted in clinical education, and faculty's research and clinical interest in fluency disorders. This information was compared to the two previous studies to see any trends in how programs have implemented the changes in the CCC standards over nearly 15 years as well as what further changes would be anticipated following the newly revised standards.

2.0 LITERATURE REVIEW

2.1 CLINICIANS' LACK OF COMPETENCE AND CONFIDENCE WITH FLUENCY DISORDERS

Adequate higher education in fluency disorders is needed in order for clinicians to develop clinical competence in the assessment and treatment of individuals who stutter. Unfortunately, clinicians face challenges in acquiring the necessary knowledge due to the complex nature of the disorder. Ingham and Riley (1998) suggested that the treatment of fluency disorders is one of the most difficult and complicated aspects of the broad field of communication disorders due to difficulty in selecting an appropriate treatment approach. Many SLPs have reported that they encounter challenges in providing services in an effective manner (Kelly et al., 1997). In part, this is due to the fact that there are conflicting theories with differing explanations about the cause(s) of stuttering (Bloodstein & Bernstein Ratner 2008; Manning, 2010), and this can lead to confusion for clinicians and clients alike. Also confusing is the wide range of treatment approaches, some of which are controversial or in conflict with one another. According to Cooper and Cooper (1996), the clinicians who participated in their study generally believed that there were not appropriate therapeutic techniques for them to use in treatment. Respondents also reported that they felt inadequately prepared to address emotional or cognitive aspects of the disorder (Cooper & Cooper, 1996). Several other studies have confirmed clinicians' overall lack

of competence and comfort in treatment of fluency disorders (Brisk et al, 1997; Mallard, Gardner, & Downey, 1988; Kelly et al., 1997). According to Mallard et al. (1988), three-quarters of the 87 master's-level clinicians who participated in the study reported that they had little confidence in treating fluency disorders. Brisk et al.'s (1997) study of 500 school-based clinicians revealed that clinicians felt ill-prepared to provide treatment as compared to evaluation. Kelly et al. (1997) also indicated that when clinicians were asked about their readiness for working with people with communication disorders, they preferred working with articulation and language disorders, followed by fluency disorders. St. Louis and Durrenberger (1993) showed that fluency disorders are among the least preferred disorders for SLPs to treat.

One of the reasons for clinicians' lack of competence and confidence is that many clinicians harbor misconceptions about fluency disorders. Although the view that stuttering is caused by psychological and emotional problems has become less pervasive (Cooper & Cooper, 1996), this view is still debated in the literature. For example, pervasiveness of personality disorders for people who stutter compared to the general population is inconsistent in the literature (Manning, 2013). This inconsistency may confuse clinicians' conception about people who stutter. Tellis and Barone (2011) indicated that 42.6% of the 246 SLPs who took graduate courses in fluency disorders could not differentiate the main treatment approaches. Their study also indicated that 83.0% of the 428 responding SLPs did not know about the latest research indicating the role of genetics in the etiology of stuttering. Such misconceptions may lead clinicians to inappropriate reactions to stuttering and ineffective treatment approaches, which will keep clients from benefiting from treatment.

2.2 IMPORTANCE OF EDUCATION ABOUT FLUENCY DISORDERS

A clinician's competence in fluency disorders treatment is closely related to clients' satisfaction and success with therapy. According to a study of the National Stuttering Association (NSA) members' experiences in speech therapy conducted by Yaruss et al. (2002), clients' satisfaction with treatment was associated with their perceptions of their clinicians' competence. Clinicians who were perceived to be more competent were judged to have provided more successful treatment. Even though clinicians become more competent with more experience, higher education is the foundation where students gain fundamental knowledge allowing them to become actual clinicians. Thus, the value of a greater emphasis on didactic and clinical education should not be underestimated.

Rudolf, Manning, & Sewell (1983) investigated how student-clinicians' self-efficacy, gained by clinical experience, is related to their clinical performance. The experimental group consisted of 31 student clinicians who took a fluency disorders class and had some clinical experience with people who stutter. The control group consisted of 11 student clinicians who had no experience working with people who stutter. The Self-Efficacy Scales (Gouvier, Manning, & Rudolf, 1979) were administered to the experimental group after ten weeks of clinical contact and the control group after ten weeks of no contact to assess any changes in their self-efficacy. The results showed that the experimental group exhibited a significantly higher mean score of self-efficacy as they gained more experience, while the control group did not show any significant change in self-efficacy. The main factor contributing to the group differences was the amount of didactic and clinical education they received. According to Bandura, Adams, and Beyer (1977), higher self-efficacy increases the likelihood of approaching avoided behaviors and lowers anticipatory fear. In this sense, as student clinicians' self-efficacy increases and they gain

more experience, they have less fear treating stuttering and are more likely to approach the treatment. This finding has direct implications for how the amount of didactic and clinical education can have an effect on clinicians' comfort level in providing therapy. Completion of fluency disorders' classes and sufficient clinical experiences is one clear way to minimize clinicians' lack of competence.

2.3 CHANGES IN THE SLP CCC STANDARDS

In the nineteenth century, the profession that would become speech-language pathology concentrated on the pediatric population and was involved primarily in speech sound correction, and stuttering (Duchan, 2010). Since then, the scope of practice has expanded dramatically, with clinicians now providing services in many settings, across all ages, for a wide range of communication disorders, including swallowing, speech, language, and cognitive communication disorders associated with neurological dysfunction (CFCC, 2012). The standards for obtaining the SLP CCC established by ASHA have gone through several revisions to reflect the expansion of the scope of practice. Over time, more academic knowledge and clinical skills for students to acquire have been added to the standards. The most recently revised CCC standards affect students applying for the CCC starting in 2014. These standards indicate that a wide range of science and medical background is required, including biological, neurological, acoustic, psychological, developmental, and linguistic knowledge (CFCC, 2012). The specific areas of communication disorders for students to demonstrate knowledge about include articulation, fluency, voice and resonance, receptive and expressive language, hearing, swallowing, cognitive aspects of communication, social aspect of communication, and augmentative and alternative

communication modalities (CFCC, 2012). In addition, through clinical experiences, students are required to achieve necessary knowledge and skills for prevention, assessment, and intervention for these areas. As with the 1993 revision, the 2014 standards do not specify how the knowledge and skills are to be obtained. Requirements for acquiring comprehensive knowledge about various disorders, combined with the elimination of the specific coursework or clinical requirements for individual communication disorders, may diminish opportunities for students to gain necessary academic knowledge and clinical skills in some areas. This phenomenon was programs observed following the CCC standards revisions in 1993. Due to the extensive range of knowledge and skills that schools need to teach potential clinicians within a limited time, there has been a reduction of time allocated for teaching each area of speech language pathology.

Some areas, such as voice, cleft palate, and fluency disorders, have experienced notable reductions in emphasis. Mersbergen et al. (2001) conducted a repeated survey study about educating graduate students in voice disorders in 1999 following an initial survey in 1994. It revealed a trend that educational institutions reduced their academic course requirements in voice production and voice disorders, as well as clinical practice with voice problems. Almost one-third of the graduate schools allowed the students to graduate without any clinical experience in voice. Similarly, Vallino et al. (2008) investigated a trend of educating prospective clinicians in cleft palate by comparing the survey results obtained by Pannbacker et al. (1990), so that the educational changes could be detected after the revision of the CCC standards. While most participating schools in 1990 required students to take a cleft palate course, class offerings declined by 30% in 2006. In addition, less than 10% of the programs allowed students to gain zero contact hours in cleft palate in 1990, but in 2006, more than 70% of the programs allowed zero contact hours in this area.

A similar phenomenon was noted in the field of fluency disorders. Yaruss (1999) indicated alarming concerns about didactic and clinical education since the changes of the CCC standards in 1993. A survey questionnaire was distributed to the ASHA accredited graduate schools in 1997 in order to examine didactic and clinical education in fluency disorders provided for potential clinicians. There were a significant number of schools that allowed students to graduate without completing any fluency disorders course (17.8% out of 129 responding) or clinical experiences (59%). Also, the survey examined academic and clinical faculty members' area of expertise, with a high percentage of academic instructors and clinical supervisors indicating that fluency disorders was not their primary area of expertise. It reported that 65% of the schools had faculty teaching the fluency disorders course who considered fluency disorders as their area of expertise. It also reported that 73% of the schools had clinical supervisors who considered fluency disorders as their area of expertise. Another finding was that there were significant modifications for the schools' program requirements following the revision of the ASHA CCC regulation in 1993 - 50.5% of the schools indicated that they made changes in their program requirements.

A follow-up study by Yaruss and Quesal (2002) documented changes and a trend in education in fluency disorders. A comparison of the results from the 1999 and 2002 studies is presented in Table 1. The 2002 survey questionnaire was developed in a similar manner to the 1997 survey, but it contained additional questions asking about: how much time was spent on didactic and clinical education, whether faculty were members of ASHA's Special Interest Division (now Group) – 4, if they held a certificate of Specialty Recognition, what changes their programs had made since the 1993 revisions and what changes they anticipated making in preparation for the 2005 revisions. As shown in Table 1, a comparison of the results from the

Yaruss (1999) and Yaruss & Quesal (2002) studies reveals several things: First, an increased number of schools reduced their didactic education requirement. Although there was an increased emphasis on clinical application, including practical sessions, few of the schools conducted formal evaluation of students' clinical competence. Second, schools required students to have less clinical practicum in fluency disorders prior to graduation. Third, there was a decreased number of faculty members and supervisors who reported that their academic or clinical expertise was in fluency disorders. Fourth, there was an increase in the number of programs that reported changes to their didactic and clinical education programs following the 1993 changes to the ASHA CCC regulations. Overall, it is clear that the 3 years from 1997 to 2000 saw numerous changes in coursework and clinical practicum experiences that ultimately provide less opportunity for students to gain necessary knowledge and clinical skills needed for helping people who stutter.

Table 1.

Changes in Education in Fluency Disorders Detected from 1997 Survey and 2000 Survey

Selected features	1997 Survey	2000 Survey
Programs with no required fluency courses	17.8% (23/129)	22.6% (36/159)
Programs with no required clinical hours in fluency disorders	59% (76/128)	65.1% (97/149)
Programs with faculty teaching fluency courses whose area of expertise was fluency disorders	65% (87/134)	58.1% (90/155)
Programs with clinical supervisors whose area of expertise was fluency disorders	73% (98/134)	50% (48/96)
Programs that made changes of their requirements following the CCC revision in 1993	50.4% (64/127)	57% (91/159)

2.4 IMPORTANCE AND GOALS OF THE CURRENT STUDY

Since the survey in 2000 by Yaruss and Quesal, there have not been any reports that track whether further changes have occurred in didactic and clinical education practices in higher education. The 2000 survey revealed that a high number of schools anticipated reducing or eliminating their requirements in fluency disorders following the CCC revision in 2005; the present study can therefore determine whether those anticipated changes actually occurred. Moreover, the profession of speech-language pathology has continued to evolve and the scope of practice now includes a wider range of communication disorders. Therefore, further changes are likely to happen with the transition to the 2014 standards.

The current study was a follow-up study designed to examine the current state of academic and clinical education in fluency disorders and to evaluate whether changes occurred since the last survey in 2000. In order to track the changes, the current study gathered specific information about: a) how academic curriculum was laid out and what contents were taught, b) the amount of clinical experience students were required to have, c) the level of interest faculty members held in fluency disorders, d) whether there was any relationship between program size and amount of education student receive, and f) whether there were modifications in the schools' requirements to accommodate the 2005 and 2014 revisions to the CCC standards.

3.0 METHODS

3.1 RESPONDENTS

The study surveyed 282 undergraduate and graduate programs in Speech Language Pathology listed on the ASHA website as of March, 2013. Of the schools surveyed, 31 were undergraduate only, 29 were graduate only, and 222 were both undergraduate and graduate. Contact names and email addresses were obtained from each school's official website. Graduate programs with different types of accreditation status (i.e., "accredited," "accreditation candidate," "accreditation review in process," and "in pre-accreditation") were included in order to gather more comprehensive data about education in fluency disorders than the previous surveys. Four programs were accreditation candidates, seven programs were in accreditation review in process, and one was in pre-accreditation.

This study was reviewed by the University of Pittsburgh Institutional Review Board and has grant exempt status because there were no foreseeable risks associated with this project. A cover letter sent by email to each institution explained that the survey had been developed in order to collect information about how didactic and clinical education in fluency disorders was provided. The letter stated that all the collected information would be kept anonymous, including the names of the schools and respondents' names.

3.2 QUESTIONNAIRE

The questionnaire used in this study is shown in Appendix A. It included questions similar to those used in the 2000 questionnaire; however, in-depth questions about the contents taught in class were added (e.g., types of fluency disorders and specific content areas about theory/background, assessment, treatment, and professional and multicultural issues covered in class, and names of the text books and courses). Another difference from the previous surveys was that the current survey included questions about undergraduate-level coursework for required and elective courses and questions about how many students took the various courses.

The survey gathered information about the following topics: (1) didactic coursework, including academic content, required/elective course, practical sessions, and competency testing, (2) the individual(s) teaching the fluency disorders class(es), including certification status and clinical/research interest and experiences, (3) clinical practicum experiences, including the amount of clinical experience for assessment and treatment received by students, (4) the individual(s) supervising the fluency disorders practicum, including their certification status and clinical experiences, (5) changes in didactic and clinical education regarding fluency disorders since the CCC regulation revision, including reductions or increases in coursework and clinical requirements, and (6) demographic questions, such as program size, degrees offered, and the typical duration of the programs. The demographic questions were used to characterize the programs that participated in the survey and to compare results to the previous surveys.

3.3 SURVEY DISTRIBUTION

A willing chairperson/program director or a faculty member who is knowledgeable about the fluency course of each program participated in an online survey in October, 2013. Respondents were not required to provide the name of their academic institutions to maintain anonymity and minimize non-participation due to possible identification. To maximize a response rate, the online survey was distributed to the programs for the second time 5 weeks after the initial distribution and for a third time 5 weeks after that.

3.4 DATA ANALYSIS

Data collected in this study were analyzed descriptively, to examine the following areas: the number of programs requiring a fluency disorders class or clinical experience, whether specific content was covered in class, the average hour of clinical experience students received, the extent of clinical and research experience faculty had (on a 5-point scale), the changes the academic institutions had made due to the 2005 standards revision, and the changes academic institutions planned or made in order to align with the 2014 revised standards. A Chi-square analysis examined the potential relationship between the program size and the amount of academic and clinical education that programs offered.

Data were compared descriptively to that obtained from the 1997 survey (Yaruss, 1999) and the 2000 survey (Yaruss & Quesal, 2002) to identify changes in educational practices and to observe any trend of changes in education since the 2000 study. The use of similar types of questions to the 1997 and 2000 surveys made the data from the current study comparable to the

data from the previous studies. The questionnaires were not identical, however, as the survey questionnaires were enhanced with additional details each time the study was conducted. Thus, comparisons between specific items were completed only where possible due to the similarity of the questions. Changes in the educational and clinical offerings for individual programs were impossible to discern due to the confidentiality of the schools' names.

4.0 RESULTS

4.1 DEMOGRAPHIC INFORMATION

A total of 109 programs participated in the survey following the first distribution (response rate = 38.7%). The initial response rate was lower than the 1997 survey (51.0%) and 2000 survey (47.3%). Following the second distribution, 49 additional programs responded, yielding a response rate of 56.0%. A third distribution, 5 weeks later yielded an additional 34 respondents, for a total response rate of 67.8%, which is very close to the figure from the 2000 survey (67.4%) and greater than the rate from the 1997 survey (56.1%). The 192 responding programs answered a different number of questions because sometimes they provided incomplete information or marked more than one choice for certain questions. Therefore, throughout the following analysis sections, the number of responding programs is reported for each item. Demographics for the programs that participated in the survey is presented in Table 2 and Table 3.

Table 2.

Demographic Information

Program size and duration	Total responding programs	Average	<i>SD</i>	Range
Average number of students				
Undergraduate	148	145.5	104.3	17 – 700
Graduate	148	59.6	27.8	12 – 200
Average number of faculty				
Full-time	160	9.8	6.3	1 - 45
Part-time	142	4.5	4.7	0 - 30
Average number of faculty solely in an academic role				
Full-time	158	4.9	5.1	0 – 33
Part-time	123	1.8	2.7	0 – 16
Average number of faculty solely in a clinical role				
Full-time	141	2.6	3.4	0 – 20
Part-time	127	3.0	3.6	0 – 25
Average number of faculty both in academic and clinical role				
Full-time	153	4.4	3.3	0 – 15
Part-time	122	0.9	1.4	0 – 7
Average number of either full-time or part-time clinical faculty specialized in fluency disorders				
	156	1.0	1.0	0 – 4
Duration of completion of their degree programs				
Semesters	138	5.3	2.7	2 – 10
Quarters	8	6.9	0.6	6 – 8

Table 3.

Percentage of Schools Offering Different Degree Levels

Degrees	Number of programs	Percent of programs
B.A.	56	33.7
B.S.	101	60.8
Post-Bacc.	19	11.5
M.A.	55	33.1
M.S.	98	59.0
PhD.	39	23.5
Total	166	

Out of 160 programs that provided information about undergraduate enrollment, 148 (92.5%) reported that they did enroll undergraduates. It can be assumed that the programs that did not answer the question about whether they enroll undergraduates are graduate-only programs. Thus, of the 192 programs that provided any responses to the survey, 77.1% enrolled undergraduates. The average program size for these programs was 145.5 students. Out of 158 programs that provided information about graduate enrollment, 148 (93.7%) programs reported that they did enroll graduates. Of the 192 programs that provided any responses to the survey, 77.1% are graduate-only or both graduate and undergraduate level programs. The average program size for these programs was 59.6 students.

The 160 programs that provided information about the number of full-time faculty indicated an average of 9.8 individuals, and 142 responding programs indicated an average of 4.5 part-time faculty. The 158 programs that provided information about the number of full-time faculty solely in an academic role indicated an average number of 4.9 individuals, and 123 programs indicated an average number of 1.8 part-time faculty in this role. Also, the 141

programs that provided information about the number of full-time faculty in a clinical role indicated an average of 2.6 individuals, and 127 programs indicated an average of 3.0 part-time faculty in this role. The 153 programs that provided information about the number of full-time faculty in both roles indicated an average of 4.4 individuals, and 122 programs indicated an average of 0.9 part-time faculty in these roles. The 156 programs that responded to the question about the number of either full-time or part-time clinical faculty specializing in fluency disorders indicated an average of 1 person ($SD = 0.9$ person; range = 0 – 4 people) who was board-certified as a specialist in fluency disorders.

4.2 DIDACTIC EDUCATION

4.2.1 Required and elective coursework

Out of 147 programs responding, 30 (20.4%) reported that they have a required undergraduate course exclusively devoted to fluency disorders, for an average of 2.7 of credits ($SD = 0.7$ credit; range = 1 – 4 credits). When asked about whether it *is* possible for undergraduate students to graduate without having taken any class devoted to fluency disorders, 111 programs (out of 115 responding, 96.5%) reported that it *is* possible. Responding programs indicated that approximately 96.1% of students graduate this way ($SD = 16.0%$; range = 15% – 100%).

Only 16 programs (out of 185 responding, 8.7%) reported that they have an elective course devoted to fluency disorders. The respondents reported that their elective course is worth an average of 2.1 of credits ($SD = 1.2$ credits; range = 1 – 4.5 credits) and that approximately 34.7% of students take the elective course ($SD = 33.0%$; range = 1% – 100%). Two of these

programs (12.5%) indicated that the course is at the undergraduate level. A total of 109 programs (out of 150 responding, 72.7%) reported neither a required nor an elective undergraduate course in fluency disorders.

Out of 148 programs responding, 104 (70.3%) reported that fluency disorders are covered as part of other undergraduate courses, and approximately 16.2% of time in those courses is spent on fluency disorders ($SD = 16.4\%$; range = 5% – 50%). Some examples of those courses are Introduction to Communication Disorders, Introduction to Speech-Language Pathology, Speech Disorders, and Neurogenic Communication Disorders.

Out of 148 programs responding, 138 (93.2%) reported that they have a required graduate course exclusively devoted to fluency disorders for an average of 2.8 of credits ($SD = 0.6$ credit; range = 1- 4 credits). Only 6 programs (out of 140 responding, 4.3%) reported that it is possible for graduate students to complete the program without having taken any class devoted to fluency disorders and, for those programs, approximately 90.0% of students graduate this way ($SD = 20.0$ students; range = 50 – 100 students). Thirteen programs (out of 16 responding, 81.3%) indicated a graduate elective course and 1 program (6.3%) indicated an elective course at both graduate and undergraduate levels.

Nine programs (out of 149 responding, 6.0%) reported neither a required nor an elective graduate course in fluency disorders (these nine programs do not include the one program that reported that it is possible for graduates to complete the program without having taken any fluency course, but indicated offering an elective course). Also, out of 146 programs responding, 64 (43.8%) reported that fluency disorders are covered as part of other graduate courses, with approximately 11.5% of the time in those courses spent on fluency disorders ($SD = 9.8\%$; range

= 2% – 60%). Some examples of those courses are Motor Speech Disorders, Adult Neurogenic Disorders, Voice Disorders, and Aphasia.

4.2.1.1 Comparison of the current and previous surveys

Fig. 1 shows a comparison of the results from this survey with those of the previous surveys. An increased percentage of programs reported that they have a required graduate course in fluency disorders in the current survey, while fewer programs reported an elective graduate course. A similar percentage of programs indicated that they have neither a required nor an elective graduate course devoted to fluency disorders, compared to the figures from the previous surveys. A decreased percentage of programs (4.3%) indicated that it is possible for graduate students to graduate without having taken any class devoted to fluency disorders compared to the percentage from the 2000 survey (22.6%). In addition, the current survey indicates that an increased percentage of programs (43.4%) cover fluency disorders as part of other graduate courses compared to the percentage from the 2000 survey (35.7%).

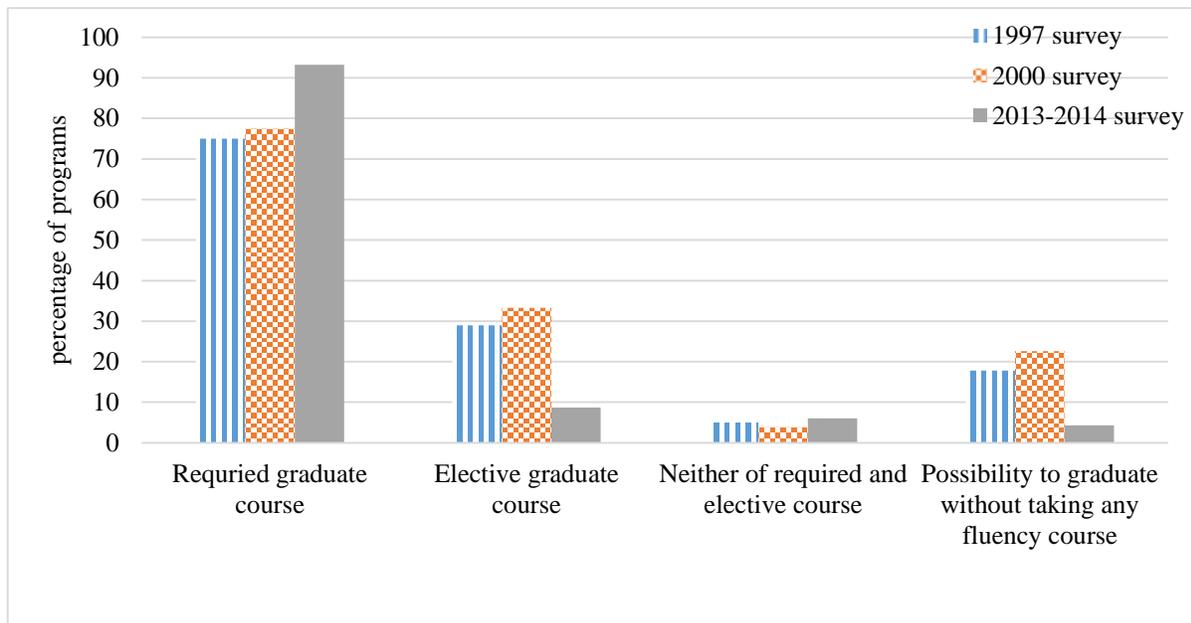


Figure 1. Comparison of results about didactic education from the current survey to the 1997 and 2000 surveys

4.2.2 Nature of academic education in fluency disorders

Table 4.

Aspects of Fluency Disorders Covered in Class

	Number of programs (out of 191 responding)	Percent of programs
Stuttering	188	98.4
Developmental	188	100
Neurogenic	165	87.8
Psychological	155	82.5
Disfluency associated with language disorders	91	47.6
Disfluency associated with neurogenic disorders	120	62.8
Cluttering	158	82.7
Other	15	7.9

When asked about whether programs provide academic content related to fluency disorders, all of the programs (out of 191 responding) reported they do, as shown in Table 4. Out of 188 programs that indicated covering “stuttering” in class (98.4%), all programs cover “developmental stuttering,” 165 (87.8%) cover “neurogenic stuttering,” and 155 (82.5%) cover “psychological stuttering.” Out of 191 programs, 91 (47.6%) indicated covering “disfluency associated with language disorders” and 120 (62.8%) cover “disfluency associated with neurogenic disorders.” Fifteen indicated “other” such as covert stuttering, other developmental comorbid communication disorders, genetics, and fluency disorders in general as a part of an introduction to communication disorders.

Table 5.

Contents Regarding Stuttering Taught in Class

	Number of programs (out of 188 responding)	Percent of programs
Historical theory/background	176	93.6
Current theory/background	185	98.4
Assessment procedures	182	96.8
Historical treatment	124	66.6
Current treatment		
Stuttering modification techniques	179	95.2
Speech modification techniques	181	96.3
Cognitive behavioral treatment	173	92.0
Other counseling approaches	124	66.6
Altered auditory feedback	144	76.6
Cluttering assessment/treatment	149	79.3
Professional issues	87	46.3
Multicultural issues	115	61.2

Table 5 provides information about the nature of the academic courses in fluency disorders, as reported by 188 responding. Most (98.4%) indicated that “current theory or background” is covered in class. Also, high percentages of programs indicated that “assessment procedures” (96.8%), “speech modification techniques” (96.3%), and “stuttering modification techniques” (95.2%) are covered. Less than a half of the programs indicated that “Professional issues” (46.3%) are covered.

A total of 145 programs responded to the question about what percentage of class time spent on fluency disorders is focused on theoretical issues versus clinical applications. The respondents indicated that an average of 33.0% of class time ($SD = 16.8\%$; range = 3% – 80%) is focused on theoretical issues, an average of 60.2% of class time ($SD = 18.0\%$; range = 0% – 90%) is focused on clinical applications, and the rest of the time (5.0%) is focused on other issues such as counseling, effects of daily living, efficacy of treatment, guest speakers, bullying,

and professional issues. When asked about whether the courses involve practical or laboratory sessions, 136 programs (out of 148 responding, 91.9%) reported including practical or laboratory sessions such as counting disfluencies, practicing fluency shaping and stuttering modification techniques, and pseudo stuttering. Out of 134 programs responding, 76 (56.7%) reported that they incorporate competency-based testing. Many of these programs indicated that they have students demonstrate assessment and treatment skills in class or that students complete graded assignments or projects for analysis of speech samples and intervention.

4.2.2.1 Comparison of the current and previous surveys

As shown in Figure 2, compared to the results from the previous surveys, an increased percentage of programs (out of 145 responding, 65.5%) reported that they have greater emphasis on clinical applications. Also, an increased percentage of programs indicated that they involve practical or laboratory sessions (out of 148 responding, 91.9%) and incorporate competency-based testing in their courses (out of 134 responding, 56.7%).

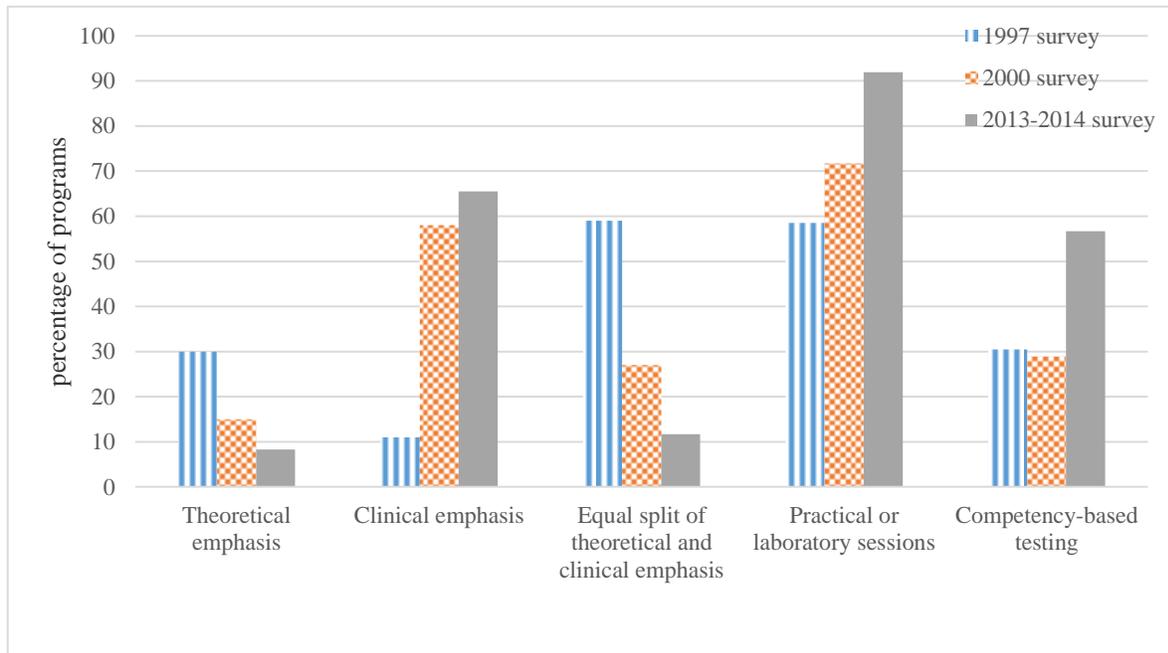


Figure 2. Comparison of results about the nature of academic education from the current survey to the 1997 and 2000 surveys

4.2.3 Individuals teaching courses

A total of 110 programs (out of 148 responding, 74.3%) reported that courses are taught by tenure-track faculty, while 20 programs (out of 146 responding, 13.7%) reported that courses are taught by adjunct or part-time faculty. Out of 148 programs that responded to the question about the ASHA CCC, 142 (95.9%) indicated that the faculty teaching the course hold the ASHA CCC, and 107 (72.3%) indicated that the faculty hold membership in ASHA's Special Interest Group (SIG) - 4. Out of 146 programs responding, 38 (26.0%) reported that the instructors hold the Clinical Specialty Certification in fluency disorders.

Out of 147 programs that responded to the question about whether fluency disorders are instructors' primary research or clinical area, 99 (67.3%) indicated that they are. Out of 149 programs responding, 112 (75.2%) reported that the instructors' previous clinical experience

with fluency disorders was extensive (rating 4 or 5 on a 5-point scale) and 80 programs (out of 147 responding, 54.4%) reported that the instructors' current clinical experience with fluency disorders was extensive. With regard to research experience with fluency disorders, 64 programs (out of 146 responding, 43.8%) reported extensive experience. Those 60 programs that reported that their instructors' primary area of expertise is not fluency disorders indicated that the instructors developed knowledge in fluency disorders through continuing education, extensive clinical experience, and self-study. A total of 180 programs responded to the question about whether they are likely to hire someone with experience in fluency disorders when the individuals teaching the courses leave the position. Results, which are shown in Table 6, indicated that 60% of the programs responded as "yes" or "probably yes" while more than 20% of the programs responded as "no" or "probably no."

Table 6.

<i>Likelihood to Hire Someone with Experience in Fluency Disorders</i>	
<u>Choices</u>	<u>Percentage of program</u>
Yes	23.9
Probably yes	36.1
No	4.4
Probably no	18.9
Unknown	16.7

4.2.3.1 Comparison of the current and previous surveys

A comparison of the results from this survey to the prior surveys, shown in Table 7, reveals that a slightly decreased percentage of programs indicated that the courses in fluency disorders are

taught by tenure-track instructors. Compared to the figure from the 2000 survey, more programs indicated membership in SIG-4, though a decreased percentage of programs reported that the instructors hold the Clinical Specialty Certification in fluency disorders. An increased percentage of programs reported that instructors' primary research or clinical expertise is in fluency disorders. A slightly decreased percentage of programs reported that the courses are taught by individuals with extensive current clinical experience, but an increased percentage of programs reported that the courses are taught by individuals with extensive research experience.

Table 7.

Comparison of the Results about Individuals Teaching Fluency Disorders from the Current Survey to the Previous Surveys

Characteristics	1997	2000	2013-4
Tenure-track instructor	89% (119/134)	79.6% (121/152)	74.3% (110/148)
Adjunct/part-time instructor	6% (8/134)	13.2% (20/152)	13.7% (20/146)
ASHA CCC holder	98% (131/134)	98.6% (138/140)	95.9% (142/148)
Membership in SIG-4	N/A	66.4% (99/149)	72.3% (107/148)
Clinical Specialty Certification	N/A	39.6% (59/149)	26.0% (38/146)
Instructor with primary research/clinical expertise in fluency disorders	65% (87/134)	58.1% (90/155)	67.3% (99/147)
Instructor with extensive previous clinical experience in fluency disorders	N/A	75% (119/159)	75.2% (112/149)
Instructor with extensive current clinical experience in fluency disorders	50% (67/134)	58% (92/159)	54.4% (80/147)
Instructor with extensive research experience in fluency disorders	37% (50/134)	32% (51/159)	43.8% (64/146)

4.3 CLINICAL EDUCATION

4.3.1 Clinical practicum experiences

When asked about whether the clinical experience with the assessment of fluency disorders is required as part of clinical practicum, 79 programs (out of 148 responding, 53.4%) reported that it is required. Of these, 73 programs reported an average of 9.3 clinical hours of assessment ($SD = 8.7$ hours; range = 1 – 50 hours), with 55% of this time spent with children and 34.3% spent with adults. Out of 87 programs that provided information about where students obtain their clinical hours in assessment, 60 (69.0%) reported that a majority of it is obtained in a university clinic and 27 (31.0%) reported that a majority of it is obtained outside of a university clinic.

Also, 71 programs (out of 149 responding, 47.7%) reported that the clinical experience with the treatment of fluency disorders is required as part of clinical practicum. Of these, 65 programs reported an average of 15.4 clinical hours of treatment ($SD = 8.6$ hours; range = 3 – 50 hours), with 50.6% of this time spent with children and 37.4% spent with adults. Out of 75 programs that provided information about where students obtain their clinical hours in treatment, 52 (69.0%) reported that a majority of hours are obtained in a university clinic and 23 (30.7%) reported that a majority of hours are obtained outside the university clinic.

Out of 145 programs responding, 21 (14.5%) indicated that students earn "fluency disorders" hours with an area other than stuttering, such as motor speech disorders, reading, articulation, and non-fluent aphasia. Of these, 19 programs indicated that an average of 11 hours ($SD = 5.6$ hours; range = 3-20 hours) are obtained in this way.

When asked about whether it is possible for students to complete their program without obtaining any clinical practicum hours in fluency disorders, 50 programs (out of 148 responding, 33.8%) reported that it is possible and that approximately 41.2% of the students ($SD = 28.7\%$; range = 1% - 90%) completed their program this way.

4.3.1.1 Comparison of the current and previous surveys

As shown in Table 8, an increased percentage of the programs reported that they require clinical hours of assessment in fluency disorders compared to the figure from the previous surveys. Also, an increased percentage of the programs reported that they require clinical hours of treatment in fluency disorders compared to the 2000 survey. There was an apparent decreased percentage of the programs that reported that it is possible for students to complete their programs without obtaining any clinical hours in fluency disorders between the 2000 survey and the current survey.

Table 8.

Comparison of Results about Clinical Practicum Experiences from the Current Survey to the Previous Surveys

Clinical hour requirement in fluency disorders	1997	2000	2013-4
Programs with requirement of assessment hours	44% (56/128)	36.7% (55/150)	53.4% (79/148)
Programs with requirement of treatment hours	49% (63/128)	36.0% (54/150)	47.7% (71/149)
Programs with possibility of completion of the program without obtaining any clinical hours	59% (76/128)	65.1% (97/149)	33.8% (50/148)

4.3.2 Clinical supervisors

Sixty programs (out of 162 responding, 37.0%) reported that the same person supervises the practicum and teaches the courses in fluency disorders. Out of 121 programs that responded to the question about whether there is a supervisor who views fluency disorders as his or her primary area of expertise, 60 (49.6%) reported that there is. The 54 programs that provided information about the average percentage of the supervision done by the faculty whose expertise is fluency disorders indicated that it is 72.9% ($SD = 28.1\%$; range = 10% – 100%). In addition, 51 programs (out of 120 responding, 42.5%) indicated that the faculty teaching the courses hold membership in ASHA's SIG-4. Out of 122 programs responding, 22 (18.0%) reported that the instructors hold the Clinical Specialty Certification in fluency disorders. A total of 54 programs (out of 112 responding, 48.2%) reported that the supervisors' previous clinical experience with fluency disorders was extensive (rating 4 or 5 on a 5-point scale) and 45 programs (out of 112 responding, 40.2%) reported that the supervisors' current clinical experience with fluency disorders is extensive.

4.3.2.1 Comparison of the current and previous surveys

A comparison of the result from this survey to the 2000 survey (50% out of 96 responding), shown in Table 9, reveals that almost the same percentage of the schools (49.6% out of 121 responding) indicated that there is a supervisor who views fluency disorders as his or her area of expertise. An increased percentage of the schools (42.5% out of 120 responding) indicated membership in SIG-4, but a similar percentage of programs (18.0% out of 122 responding) reported that the supervisors hold the Clinical Specialty Certification in fluency disorders. A slightly decreased percentage of programs (48.2% out of 112 responding) reported that

supervisors' previous clinical experience is extensive compared to the result in the 2000 survey. Also, over the three survey periods, a gradual decreased percentage of the schools indicated that supervisors' current clinical experience is extensive.

Table 9.

Comparison of the Results about Clinical Supervisors from the Current Survey to the Previous Surveys

Characteristics	1997	2000	2013-4
Supervisor who views fluency disorders as his/her area of expertise	73% (116/159)	50% (48/96)	49.6% (61/121)
Membership in SIG-4	N/A	37.5% (22/59)	42.5% (51/120)
Clinical Specialty Certification	N/A	20.9% (19/91)	18.0% (22/122)
Supervisor with extensive previous clinical experience in fluency disorders	N/A	53% (84/159)	48.2% (54/112)
Supervisors with extensive current clinical experience in fluency disorders	68% (108/159)	49% (78/159)	40.2% (45/112)

4.4 RELATIONSHIP BETWEEN EDUCATION AND PROGRAM SIZE

In order to investigate whether program size has an effect on educating students academically and clinically, size of programs was divided into small, medium, and large based on the number of students and faculty as shown in Table 10. Following the procedures from Yaruss (1999), small programs indicate those at the 33 percentile and below and larger programs indicate those at the 67 percentile and above.

Table 10.

Division of Program Size Based on Number of Students and Faculty

a. Program size based on number of students			
Program size	Percentile range	Number of students	N
Undergraduate			
Small	33 and below	80 and below	56
Medium	34-66	81-149	62
Large	67 and above	150 and above	42
Graduate			
Small	33 and below	45 and below	53
Medium	34-66	46-60	66
Large	67 and above	61 and above	39
b. Program size based on number of faculty			
Program size	Percentile range	Number of faculty	N
Small	33 and below	9 and below	36
Medium	34-66	10-14	69
Large	67 and above	15 and above	53

The results for a Chi-square analysis shown in Table 11, indicate that there was a significant relationship between program size and undergraduate required course offerings (significance level = 0.05). However, when a Bonferroni corrected p -value (0.01) is applied to prevent from false positive results from multiple comparisons, all of the results from the Chi-square analysis indicate that there was no significant relationship between program size and didactic and clinical education in fluency disorders. Only those data regarding course or clinical offerings that lead to sufficient expected values were selected to draw a meaningful analysis.

Table 11.

Relation between Program Size and Didactic and Clinical Requirements in Fluency Disorders

Nature of education in fluency disorders	Program size based on number of					
	Students			Faculty		
	chi-square	df	p-value	chi-square	df	p-value
Didactic education						
Undergraduate required course	7.51	2	0.02	4.72	2	0.10
Graduate required course	3.00	2	0.22	2.45	2	0.30
Clinical education						
Required assessment hours	0.57	2	0.75	3.87	2	0.15
Required treatment hours	0.90	2	0.64	3.70	2	0.16

4.5 CHANGES IN PROGRAM REQUIREMENTS

4.5.1 Changes following the CCC standard revisions in 2005 and 2014

Out of 154 programs that provided information about whether they made changes following 2005 revision of the CCC standards, 36 (23.4%) reported that they made changes in their program requirements. Out of 35 programs that provided detailed information about the changes, 2 (5.7%) reported that they reduced coursework requirements and 11 (31.4%) reported that they increased didactic coursework requirements. Seventeen (48.6%) reported that they decreased clinical requirements and 5 (14.3%) reported that they increased clinical requirements. In addition, 9 (25.7%) reported “others,” indicating incorporation or simulation of clinical skills in class, creation of a new seminar combined with another course, or that they were indecisive.

Out of 155 programs that provided information about whether they made changes following the 2014 revision of the CCC standards, 17 (11.0%) reported that they made changes. Out of these, 1 (5.9%) reported that they reduced coursework requirements and 5 (29.4%)

reported that they increased coursework requirements. Four (23.5%) reported that they reduced clinical requirements and 5 (14.3%) reported that they increased clinical requirements. The remaining programs (41.2%) reported “others” (e.g., revamping entire curriculum to problem-based learning, but not only due to the 2014 standards, considering changing a undergrad required course to graduate level and having a undergrad elective course) and 57.1% of them indicated that they are not sure.

4.5.2 Comparison of changes in program requirements over the three survey periods

Following the 1993 CCC revision, with comparison from the 1997 survey to the 2000 survey, an increased percentage of the programs indicated changes in program requirements. Also, overall, an increased percentage of schools reduced academic and clinical requirements as shown Table 12. In the preparation for the 2005 CCC changes, the 2000 survey indicated that out of the responding programs that reported anticipated changes (22.3%), more than a half of the programs reported that they expected further reductions in academic and clinical requirements. In contrast to the 2000 survey, the current survey indicated that out of the responding programs that reported changes in program requirements (23.4%), an increased percentage of the programs reported that they increased academic requirements rather than reducing them. A similar percentage of the programs reported that they reduced clinical requirements rather than increasing them. Following the 2014 CCC revision, while 40% of the programs that indicated changes in program requirements are not yet sure about the specific changes, more programs reported that they increased academic requirements rather than reducing them. However, more programs reported that they reduced clinical requirements rather than increasing them. This may reflect a continuing reduction in clinical education with more emphasis on didactic education.

Table 12.

Comparison of Changes in Program Requirements over the Three Survey Periods

Changes in program requirements	1997	2000	2013-4
Following the 1993 revision			
Total number of programs responding	127	159	N/A
Programs that made changes in program requirements	50.4%	57.0%	N/A
Programs that reduced coursework requirements	9%	25.6%	N/A
Programs that increased coursework requirements	N/A	3.3%	N/A
Programs that reduced clinical requirements	63%	95.6%	N/A
Programs that increased clinical requirements	N/A	0%	N/A
Following the 2005 revision			
Total number of programs responding		157	154
Programs that made changes in program requirements	N/A	22.3%	23.4%
Programs that reduced coursework requirements	N/A	62.9%	5.7%
Programs that increased coursework requirements	N/A	14.3%	31.4%
Programs that reduced clinical requirements	N/A	51.4%	48.6%
Programs that increased clinical requirements	N/A	17.1%	14.3%
Following the 2014 revision			
Total number of programs responding	N/A	N/A	155
Programs that made changes in program requirements	N/A	N/A	11.0%
Programs that reduced coursework requirements	N/A	N/A	5.9%
Programs that increased coursework requirements	N/A	N/A	29.4%
Programs that reduced clinical requirements	N/A	N/A	23.5%
Programs that increased clinical requirements	N/A	N/A	14.3%

5.0 DISCUSSION

5.1 SUMMARY OF THE CURRENT FINDINGS

The current study investigated how undergraduate and graduate programs educate students about fluency disorders, both academically and clinically. It also examined whether there was any trend of changes in program requirements as the CCC standards have been revised to reflect the ever-expanding scope of practice for speech-language pathologists. The survey revealed that only a small percentage of undergraduate programs offer a required (20%) or elective (13%) course. Moreover, a majority of programs (97%) indicated that it is possible for undergraduate students to graduate without having taken any course in fluency disorders. On the other hand, a majority of graduate programs indicated that they offer either a required (93%) or an elective course (81%), and that about 10% of programs allow students to graduate without having taken any course devoted to fluency disorders. More undergraduate programs cover fluency disorders as part of other courses and offer neither a required nor an elective course than graduate programs. These findings suggest that education in fluency disorders is provided more intensively at the graduate level as how education in other pathologies is provided.

In regard to clinical education, one-half of the graduate programs indicated that they require clinical hours in fluency disorders, but more than one-third of programs reported that they allow students to graduate without having acquired any clinical hours in fluency disorders.

The amount of clinical hours (an average of 10 assessment hours and an average of 15 treatment hours) is probably not sufficient for students to be clinically confident (Kelly et al., 1997; Sommers & Caruso, 1995).

5.2 COMPARISON OF THE CURRENT AND PREVIOUS STUDIES

5.2.1 Didactic education

In order to evaluate trends in changes to the program requirements, the current study compared the present results about graduate program education to findings from two previous surveys (Yaruss, 1999; Yaruss & Quesal, 2002). The comparison revealed that an increased percentage of programs now offer a required course, while a decreased percentage of programs offer an elective course. A similar percentage of programs indicated offering neither a required nor an elective course over time. Also, an increased percentage of programs stated that they cover fluency disorders as part of other courses. These findings suggest some positive changes in didactic education in fluency disorders. Specifically, while the previous studies found not enough requirements or reductions in didactic education since the 1993 and 2005 revisions in the CCC standards, the current study found that graduate programs have accommodated the revised CCC standards and the expansion of scope of practice in the field of speech-language pathology by increasing course requirements or covering fluency disorders in other courses. The fact that only a few programs allow graduate students to graduate without having taken any fluency course also reflects a positive change in the training provided by graduate programs. Compared to results from prior surveys, an increased percentage of programs indicated emphasis on clinical

application in class versus theory and incorporation of practical sessions and competency-based testing in class. These changes of the nature of academic courses suggest that programs may be trying to help students gain clinical skills and experience through class time due to the insufficient clinical hours that students receive in clinical settings.

A comparison of past and present findings about individuals teaching the course reveals a decreased percentage of programs with instructors holding Clinical Specialty Certification and an increased percentage of programs with instructors with SIG-4 membership. At the same time, an increased percentage of programs indicated having instructors with primary expertise in fluency disorders and with extensive research experience rather than extensive clinical experiences. These findings may suggest that programs have acknowledged the necessity of having an individual with primary expertise in fluency disorders, but that those individuals tend to be less clinically experienced. The increased SIG-4 membership among instructors also portrays the continuous academic and clinical endeavors partaken by individuals teaching the course in order to keep them updated with important skills and knowledge in this ever evolving field. These characteristics that there are more academically experienced instructors may reflect the change that more programs offer a required course and cover a clinical portion through the course. Although 60% of programs indicated that they will certainly or probably hire somebody with experience in fluency disorders when a current instructor leaves the position, it is concerning that approximately 20% of programs indicated that they will certainly not or probably not hire somebody with experience in fluency disorders, while 17% remains uncertain. Considering the combination of a lack of hiring fluency experts, programs offering fewer tenure-track positions, and faculty having neither Clinical Specialty Certification nor extensive clinical experience, a significant reduction in qualified fluency experts might be expected in the future.

5.2.2 Clinical education

In regard to clinical education, a comparison between the previous and current surveys reveals that more programs now require clinical hours in fluency disorders, but also that one-third of programs still allow students to graduate without having acquired any fluency hours at all. This is a slightly more encouraging finding than seen in the past, but the number of programs providing insufficient clinical practicum still constitute a large portion of the current higher education in fluency disorders. Similar to the findings about individuals teaching the course, the apparent finding is that reduced programs indicated that their supervisors are clinically experienced. Although the current finding suggests improved clinical education compared to the previous results overall, it seems that the increase in the amount of students' clinical experience, as well as the hiring of additional clinically experienced supervisors would be necessary for improving the amount and quality of the training students receive. Consistent with the finding from the previous studies, there was not a significant relationship between the number of students and faculty in the program and the amount of academic and clinical education that programs offer.

5.2.3 Changes following the revised CCC standards

The current study continued the examination of whether programs reduced or increased didactic and clinical requirements following the 2005 and 2014 revisions of the ASHA CCC standards. The current finding suggests an increased percentage of programs indicating greater didactic requirements but reduced clinical requirements following both 2005 and 2014 revisions. These results are different from the previous studies suggesting the trend of reduction in both didactic

and clinical requirements. It should, however, be noted that only 23% and 11% of programs reported changes in their requirements following the 2005 and 2014 revisions, respectively. It may suggest that the rest of the programs that did not report changes could be those programs maintaining their reduced program requirements that they have already made in the past.

5.3 LIMITATIONS OF THE CURRENT STUDY AND FUTURE IMPLICATIONS

One of the limitations of the current study is that the direct tracking of changes in individual programs is not possible due to the anonymous nature of both previous and current surveys. Furthermore, it is possible that any differences observed are simply due to the differences in which specific programs responded. Still, given that the response rate across the three studies was relatively high and consistent, it is clear that a notable proportion of the data represent responses from the same programs over time.

Also, although there are some duplicated questions in the three surveys, the questionnaires are not identical. Thus, the direct comparison of every item from one survey to the next was not possible. Although every attempt was made to keep such variances at a minimum, some changes in wording were necessary in order to reduce confusion and improve the overall results obtained in the present study.

As indicated in the previous survey studies, the current study is likely to have a response bias, in that programs with faculty having more interest in the fluency disorders may have been more likely to respond. The fact that a high percent of programs (68%) that responded to the survey indicated that their academic or clinical faculty members participated in ASHA's SIG-4 for fluency disorders reflects this possible response bias. In order to evaluate the study's validity

and reliability, a comparison of the current findings and annual reports on enrollments and education from the programs that received the survey may be helpful.

In terms of the construction of the survey itself, there are some yes/no items for which an additional choice of “N/A” might have been helpful. For example, because the questionnaire includes questions about both undergraduate and graduate programs, there might have been some possibility that undergrad-only or graduate-only programs answered ‘no’ when the question was not applicable to them.

In sum, it appears that programs acknowledge the limited education they can provide in a limited time as ASHA requires students to demonstrate increased knowledge and skills as the scope of practice is expanding. The findings from the current study indicate that programs have tried to accommodate these changes by increasing their academic course requirements and including more practical sessions and competency-based testing in class. Even though programs increased the clinical requirements, it seems that there are still not enough clinical hours that students can earn. Prior to the 1993 CCC revision when the minimum of 25 hours was required, clinicians already reported their lack of confidence in treating fluency disorders (Mallard et al., 1988), which may suggest that 10-15 clinical hours are far less than needed. Also, it is a concern that the number of faculty teaching courses and supervising clinical practicum who possess extensive clinical experience has been reduced. These findings reflect that it may be hard to expect a significant increase in the academic and clinical education due to the systemic limitations (e.g., a limited amount of time in the program to expose students to a growing scope of practice, a limited number of clients that students can work with, and a limited number of faculty who specialize in fluency disorders). It appears that programs found that increasing the

clinical emphasis through academic coursework was a way of providing the necessary education while rapidly responding to the changes in the field.

Some of the changes in didactic and clinical education about fluency disorders indicated in the current study are more positive and promising for the future than what the authors anticipated based solely on the results of the previous studies. However, it will be difficult to argue that in-class experiences will lead to the same development in students' clinical competence and confidence as direct clinical experiences will. Extra efforts beyond graduate work, such as receiving continuing education, pursuing Clinical Specialty Certification, and membership in SIG-4 and organizations such as the National Stuttering Association, are some possible ways to raise students' confidence levels and help them become more knowledgeable in fluency disorders. Furthermore, in order to evaluate the impact of the current higher education in fluency disorders, an ongoing investigation that tracks how clinicians feel about treating fluency disorders after graduate school will be helpful. Lastly, providing adequate education for all communication disorders has been challenging for many programs as the scope of practice has expanded. However, it is an SLPs' duty to ensure all the needs for clients with different communication disorders are met including rare ones. These issues will need to be addressed in a systemic manner (e.g., lengthening program duration, considering specialization earlier, or restricting the scope of practice). In order to find effective ways in managing issues in speech-language pathology education, a future investigation of how programs have evolved their curriculum to include the necessary clinical skills in other communications disorders may also prove helpful.

APPENDIX

DIDACTIC/CLINICAL EDUCATION IN FLUENCY DISORDERS – FOLLOW-UP

(2013-2014)

A. Questions about the didactic portion of your program

Please check all the levels of study that your program has:

- Undergraduate
- Graduate
- Both

1. Does your undergraduate/graduate program provide academic content related to fluency disorders? YES NO

1.1. If so, which aspects of fluency disorders are covered?

- Stuttering (Developmental Neurogenic Psychological)
- Disfluency associated with language disorders (e.g., reading fluency)
- Disfluency associated with neurogenic disorders (e.g., aphasia, apraxia)
- Cluttering
- Other _____

2. Does your program have any required *undergraduate* course exclusively devoted to fluency disorders that students must take to graduate with the Bachelor's Degree? YES NO

2.1. If so, how many credits? _____

2.2. What is the name of the course? _____

2.3. What is the name of the text book used in the course? _____

2.4. Is it possible for an *undergraduate* student to complete your program without taking at least one class exclusively devoted to fluency disorders? YES NO

2.5. If so, approx. what percent of undergraduate students complete your program without taking at least one class exclusively devoted to fluency disorders? _____

3. Does your program have any required *graduate* course exclusively devoted to fluency disorders that students must take to graduate with the Master's Degree? YES NO

- 3.1. If so, how many credits? _____
- 3.2. What is the name of the course? _____
- 3.3. What is the name of the text book used in the course? _____
- 3.4. Is it possible for a *graduate* student to complete your program without taking at least one class exclusively devoted to fluency disorders? YES NO
- 3.5. If so, approx. what percent of *graduate* students complete your program without taking at least one class exclusively devoted to fluency disorders? _____
- * Check here _____ if both undergraduate & graduate students take the same course.
4. Does your program have any elective course(s) exclusively devoted to fluency disorders?
YES NO
- 4.1. If so, are the course(s) offered at the Undergraduate or Graduate level?
UG G Both
- 4.2. If so, how many credits? _____
- 4.3. Approx. what percentage of students take the elective course(s) _____
- 4.4. What are the name(s) of the course(s)? _____
- 4.5. What are the name(s) of the text book used in the course(s)? _____
5. OPTIONAL: Please briefly describe these required or elective courses (or provide copy of catalog description or syllabus) _____
*Syllabi can be emailed to jil107@pitt.edu. Please note all the information provided will remain anonymous.
6. Are fluency disorders covered as part of any *undergraduate* courses (e.g., adult neurogenic disorders or motor speech disorders) other than required or elective courses exclusively devoted to fluency disorders? YES NO
- 6.1. About what percentage of the time in these courses is spent on fluency disorders?

- 6.2. OPTIONAL: Please briefly describe these other courses (or provide copy of catalog description or syllabus) _____
7. Are fluency disorders covered as part of any *graduate* courses (e.g., adult neurogenic disorders or motor speech disorders) other than required or elective courses exclusively devoted to fluency disorders? YES NO
- 7.1. About what percentage of the time in these courses is spent on fluency disorders? _____
- 7.2. OPTIONAL: Please briefly describe these other courses (or provide copy of catalog description or syllabus) _____
8. Do any of the courses on fluency disorders involve practical or laboratory sessions? (e.g., counting disfluencies, measuring speech rate, practicing modification techniques)
YES NO
- 8.1. Please describe the practical or laboratory sessions. _____
- 8.2. Do any of the courses on fluency disorders incorporate competency-based testing? (e.g., demonstrating clinical techniques as a graded assignment in the class)
YES NO
- 8.2.1. Please describe the competency-based testing. _____

9. Overall, approximately what percentage (0 to 100%) of the class time spent on fluency disorders is focused on:
 Theory/Background ____% Clinical Application ____% Other (specify) ____%

10. Which of the following areas are covered in your class?

- Historical theory/background
- Current theory/background
- Assessment procedures
- Historical treatment
- Current treatment
- Stuttering modification techniques (e.g. Van Riper strategies)
- Speech modification techniques (e.g., rate change, fluency, shaping)
- Cognitive behavioral treatment (e.g., desensitization, cognitive restructuring)
- Other counseling approaches (e.g., ACT, mindfulness)
- Altered auditory feedback
- Cluttering assessment/treatment
- Professional issues (e.g., licensing, insurance, specialty recognition)
- Multicultural issues

B. Questions about the individual who teaches the fluency disorders class(es)

10. Tenure-track/Tenured? YES NO

11. Adjunct/Part-time? YES NO

12. ASHA CCC? YES NO

13. Is this person a member of ASHA's Special Interest Groups-4 (Fluency Disorders)?
 YES NO

14. Does this person hold the Clinical Specialty Certification in Fluency Disorders?
 YES NO

15. Is fluency this person's primary area of clinical/research expertise? YES NO

		Minimal			Extensive	
16. Amount of <u>previous</u> clinical experience with fluency disorders	1	2	3	4	5	

17. Amount of <u>current</u> clinical experience with fluency disorders	1	2	3	4	5
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18. Amount of research experience with fluency disorders	1	2	3	4	5
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19. If fluency disorders is not this person's primary area of clinical/research expertise, how did s/he develop knowledge in the area of fluency disorders (e.g., sabbatical, continuing education, self-study)? _____

20. When this person leaves the position (e.g., through retirement or changing to another university), is your program likely to hire somebody with experience in fluency disorders to fill this position?

Yes Probably yes No Probably no Unknown

C. Questions about the clinical portion of your program

21. Is experience with the *assessment* of fluency disorders a required part of the graduate clinical practicum? YES NO

21.1. Is the majority of students' *assessment* experience obtained in your clinic or in extern/school placements? In-Clinic Out-of-Clinic

21.2. On average, approximately how many clinical practicum hours do students obtain in the *assessment* of fluency disorders? _____ hours

21.3. Approx. what percent of the *assessment* practicum involves children/adults?

Children _____% Adults _____%

22. Is experience with the *treatment* of fluency disorders a required part of the graduate clinical practicum? YES NO

22.1. Is the majority of students' *treatment* experience obtained in your clinic or in extern/school placements? In-Clinic Out-of-Clinic

22.2. On average, approximately how many clinical practicum hours do students obtain in the *treatment* of fluency disorders? _____ hours

22.3. Approx. what percent of the *treatment* practicum involves children/adults?

Children _____% Adults _____%

23. Do students earn "fluency disorders" hours with any other disorder areas (e.g., reading fluency or apraxia), as opposed to earning such hours exclusively in "stuttering" or "cluttering"? YES NO

23.1. If so, please describe the other areas where students earn "stuttering" hours.

23.2. Approximately how many hours in fluency disorders are obtained in this way? _____

24. Is it possible for a graduate student to complete your program without obtaining *any* clinical practicum hours in fluency disorders? YES NO

24.1. If so, approx. what percent of students complete your program without obtaining any clinical practicum hours in fluency disorders? _____%

D. Questions about the individuals who supervise the fluency disorders practicum

(If the same person supervises the practicum and teaches the courses, check here _____ and skip this section)

25. Is there a supervisor who views fluency disorders as his or her primary area of expertise? YES NO

25.1. Approx. what percent of the supervision is done by the faculty who has expertise? _____%

26. Is there a supervisor who is a member of ASHA's Special Interest Groups - 4 (Fluency Disorders)? YES NO

27. Is there a supervisor who holds the Clinical Specialty Certification in Fluency Disorders?
YES NO

28. Amount of supervisors' previous clinical experience with fluency disorders
Minimal Extensive
1 2 3 4 5

29. Amount of supervisors' current clinical experience with fluency disorders
Minimal Extensive
1 2 3 4 5

E. Changes in academic and clinical education regarding fluency disorders

30. Did your program's requirements for training in fluency disorders change after ASHA revised the standards for the CCC in 2005? YES NO

30.1. If so, please check all that apply:

_____ Reduced coursework requirements _____ Reduced clinical requirements
(e.g., changed required classes to electives) (e.g., reduced 25 clock hour requirement)
_____ Increased coursework requirements _____ Increased clinical requirements
(e.g., added classes to curriculum) (e.g., added clinical clock hour requirement)
_____ Others, please specify _____

31. Do you believe that your program's requirements for training in fluency disorders will change with the implementation of the 2014 CCC standards? YES NO

31.1. If so, please check all that apply:

_____ Will reduce coursework requirements _____ Will reduce clinical requirements
(e.g., change required classes to electives) (e.g., reduce 25 clock hour requirement)
_____ Will increase coursework requirements _____ Will increase clinical requirements
(e.g., add classes to curriculum) (e.g., add clinical clock hour requirement)
_____ Others, please specify _____

32. Please add any additional comments regarding academic and clinical education in fluency disorders:

F. Demographic questions about your program

33. Approximate number of students enrolled in the program:

Undergrad. _____ Graduate _____

34. Degrees offered ___ B.A. ___ B.S. ___ Post-Bacc. ___ M.A. ___ M.S. ___ Ph.D. ___
Other _____

35. Total number of SLP faculty: Full Time _____ Part-Time _____

35.1. How many serve solely in an academic capacity (e.g., teaching, research, administration)? Full Time _____ Part-Time _____

35.2. How many serve solely in a clinical supervision role? Full Time _____ Part-Time _____

35.3. How many serve both an academic and clinical supervision role?

Full Time _____ Part-Time _____

35.4. Of the supervisors listed above (35-2, 35-3), how many specialize in fluency disorders?

36. How long is the typical Master's program for students *with* an undergraduate background in Speech-Language Pathology? _____ Quarters / Semesters (circle one)

OPTIONAL: Name of University _____

* Note: No program will be clarified in any way on reports about this study. This information will be used solely for tracking responses on follow-up contacts. If you have any questions or would like to follow up, please contact Dr. J. Scott Yaruss, University of Pittsburgh, at jsyaruss@pitt.edu.

THANK YOU FOR YOUR PARTICIPATION!

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