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Communication Sciences and Disorders Faculty Perceptions of Interprofessional Education

Janine L. Schmedding-Bartley
University of Kentucky, janine.l.s.bartley@uky.edu

Courtney Karasinski
Grand Valley State University, karasinc@gvsu.edu

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Communication Sciences and Disorders Faculty Perceptions of Interprofessional Education

Cover Page Footnote

Janine L. Schmedding-Bartley, Department of Communication Sciences and Disorders, Grand Valley State University; Courtney Karasinski, Department of Communication Sciences and Disorders, Grand Valley State University. Janine L. Schmedding-Bartley is now at the Department of Communication Sciences and Disorders at the University of Kentucky. Thank you to the faculty who took the time to participate in this study. Correspondence concerning this article should be addressed to Janine L. Schmedding-Bartley, Department of Communication Sciences and Disorders, University of Kentucky, 120L C.T. Wethington Bldg., 900 South Limestone, Lexington, KY, 40536-0200. E-mail: janine.l.s.bartley@uky.edu

Introduction

Best practice in healthcare includes interprofessional collaborative practice (IPCP), as noted by the World Health Organization (WHO; 2010), which necessitates interprofessional education (IPE) during pre-professional preparation. IPE occurs when two or more professionals learn about, from, and with each other to enable effective collaboration and improve health outcomes (WHO, 2010). In the last decade, the American Speech-Language-Hearing Association (ASHA), the Council of Academic Programs in Communication Sciences and Disorders (CAPCSD) and the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) have taken a strong stance on IPCP to ensure communication sciences and disorders (CSD) professionals are prepared and willing to provide service aligned with a non-hierarchical interprofessional service delivery model. All three organizations advocate for integrating IPE into the preparation of speech-language pathologists (SLPs) and audiologists. ASHA's Envisioned Future: 2025 (ASHA, 2015) expects new practitioners to be trained through IPE in order to effectively practice IPCP in the workplace. Further, the 2017 CAA accreditation standards for speech-language pathology and audiology programs introduced professional competencies related to IPE/IPCP requiring programs to provide opportunities for students to demonstrate the listed competencies.

The relatively recent emphasis to include IPE within CSD training programs has resulted in CSD training programs rushing to implement strategies to include IPE within the curriculum by relying on literature from other medical and health professions fields, while the literature base within CSD tries to catch up. In an effort to consolidate the knowledge from multiple fields and to support integration of IPE into the pre-professional training programs of CSD students and other health professions, professional organizations have published guides designed to educate clinicians and faculty about IPCP and IPE and provide ideas for optimally implementing IPE within higher education (Health Professions Accreditors Collaborative, 2019; Johnson, 2016; Weiss, et al., 2019). Since the introduction of the term IPE by ASHA, the field of CSD has seen an influx of empirical studies published to describe how SLP and audiology programs across the country have implemented IPE and the results of their efforts. To date, one study has attempted to explore the adoption of IPE by communication sciences and disorders (CSD) programs in institutes of higher education. Goodman (2016) disseminated an in-depth survey to CSD programs across the United States to determine how many programs were implementing IPE and to understand reasons programs were not implementing IPE. Goodman found that approximately 50 percent of the responding 184 programs were implementing IPE within their curriculum. However, with the recent CAA mandate requiring IPE, all CAA accredited programs are now required to implement IPE in their curriculum necessitating rapid growth of IPE in CSD graduate programs.

IPE in healthcare education. The concept of IPE has existed in health professions education and practice for more than four decades; however, most of the literature has focused on public health, primary care and intensive care (Johnson, 2016). Despite the long history of the concept, medical providers and institutes of higher education have been slow to adopt IPCP and IPE. Over time, research has sought to understand why adoption of both IPCP and IPE has been challenging and slow. Lawlis, Anson and Greenfield (2014) conducted a review of the literature describing barriers and enablers of IPE across institutions of higher education that train healthcare practitioners. They identified three levels of stakeholders, each with the potential to exhibit barriers and enablers:

governmental and professional level, institutional level, and individual level. After examining barriers and enablers at each level across numerous studies, Lawlis and colleagues revealed five key fundamental elements of successful/sustainable higher education IPE programs including government funding, institutional funding, faculty development programs, institutional organizational support, and staff/faculty ownership and commitment. Lawlis and colleagues revealed individual-level barriers such as faculty attitudes, high workload, faculty conceptual understanding of IPE, biases toward own profession, and lack of respect toward other health professionals. Individual-level enablers to IPE included faculty enthusiasm, commitment, and understanding of IPE.

Within CSD, little research has been conducted exploring the barriers to implementation of IPE within higher education. However, with only 50 percent of CSD programs implementing IPE, it is critical to understand if the barriers in CSD are similar or different to those reported by Lawlis and colleagues (2014). Understanding the barriers to IPE in CSD programs will facilitate the development of resources to help programs struggling to implement IPE. With the mandate for all CSD programs to implement IPE, it is critical that we develop resources to help all programs successfully implement IPE. Emerging literature has identified some potential barriers reported by CSD programs that align with Lawlis and colleagues' governmental/professional level and institutional level barriers, including lack of interested collaborators, congested graduate curriculums, and limited funding (Johnson, et al., 2016; Olszewski, et al., 2019; Pickering & Embry, 2013; Self, et al., 2017).

Faculty perceptions of IPE. The fifth key fundamental element discussed by Lawlis, Anson and Greenfield (2014) pertains to individual perceptions of IPE and endorsement of IPE. Previous examinations of health professions faculties' individual perceptions of IPE and endorsement of IPE suggested that faculty held varying perceptions of IPE, and negative attitudes toward IPE and IPCP could be a barrier to implementation of IPE (Colyer, 2008; Curran, et al., 2007; Gardner, et al., 2002; Steinert, 2005). More recent studies of faculty across healthcare disciplines bring to light that general attitudes and perceptions toward IPE are more positive than previously thought, and higher level institutional and governmental barriers are more likely at the root of slow adoption of IPE (Beck et al., 2016; Hughes, et al., 2019; Lash, et al., 2014; Loversidge & Demb, 2015). Although the more recent studies demonstrate a favorable shift in faculty perceptions toward IPE, differences in beliefs about implementation and barriers persist across faculty from different academic colleges. Lash et al. (2014) found that, across colleges of pharmacy, health science, and medicine, the level of emphasis placed on IPE differed as well as the amount of support from administration. Beck and colleagues (2016) found that faculty from colleges of medicine, allied health, nursing, pharmacy, and public health differed in their understanding of individual roles within teams, their appreciation of others' expertise, and determining team functioning guidelines.

Although empirical evidence regarding faculty perceptions of IPE is mounting, very few prior studies of the perceptions of healthcare faculty have included CSD faculty, and none of the more recent studies have included CSD faculty; thus, very little is known about CSD faculty perceptions of IPE. Faculty within SLP and audiology programs have the potential to hold different perceptions and beliefs about IPE compared to the previously studied healthcare professions due to the dual emphasis on training students to work effectively within the healthcare environment as well as the educational environment. Therefore, it is essential to examine the perceptions of IPE by CSD

faculty. Anecdotally, reports of CSD faculty perceptions of IPE are mixed. In a video shared on the CAPCSD website, Prelock (2015) describes encountering colleagues in higher education who stated “I won’t do it” when speaking of implementing IPE within their programs. In contrast, DiGiovanni and McCarthy (2016) describe that a survey of college of health science professions faculty including audiology and SLP faculty at a single institution indicated that a majority of faculty had positive perceptions of integrating IPE into academic programs, but identified challenges at the institution level.

In an effort to advance the profession toward the ASHA Envisioned Future 2025, ASHA’s 2015 - 2017 strategic plan included surveying members regarding IPE and IPCP (ASHA, n.d.). In the spring of 2017, ASHA disseminated a survey asking members about recent IPCP clinical experiences (ASHA, 2017). The responses of 755 members revealed that a majority of respondents had recently had positive IPCP experiences and were satisfied with the degree of collaboration they experience with their interprofessional colleagues. However, only about a quarter of the respondents were prepared to lead an interprofessional team of professionals, and even fewer had formal training in IPCP. By design, only 2.3 percent of respondents were university instructors or researchers. The findings of the survey are helpful in demonstrating the training-to-practice gap that exists in the field of CSD. However, due to limited faculty participation, conclusions cannot be drawn regarding recent IPCP/IPE experiences of faculty. The emphasis for IPCP within the workplace continues to expand, and ASHA is dedicated to ensuring clinicians are prepared to work in a collaborative work environment, but, empirically, little is known about implementation of IPE within the university environment and barriers to implementation within CSD programs. Specifically, little is known about faculty perceptions of IPE and whether these personal perceptions could potentially be barriers to implementation of IPE within CSD training programs.

Purpose. The purpose of this study was to examine the attitudes of CSD faculty toward IPE. Due to the limited data about CSD faculty attitudes toward IPE, the first research question examined the overall attitudes of university faculty toward IPE using a survey tool. Goodman (2016) found that most of the CSD programs implementing IPE training in their curricula were housed within colleges of health sciences, in contrast to colleges of education and colleges of arts and sciences. Thus, the second research question examined whether there are differences in attitudes toward IPE among faculty from programs housed in different types of colleges. Finally, university CSD programs typically employ faculty with a variety of degrees, including those with master’s degrees, clinical doctorates, and research doctorate degrees. Often these faculty have different roles in direct clinical teaching, with faculty who have master’s degrees conducting more direct clinical teaching than those with research doctorate degrees. Thus, faculty employed by universities with different training backgrounds may have different experiences with IPE. Therefore, the last research question examined whether there are differences in attitudes toward IPE among faculty with different training backgrounds.

Methods

Survey Development. To examine faculty perceptions of IPE and IPCP, a survey was adapted from the publicly-available Interprofessional Attitudes Scale (IPAS; Norris, et al., 2015). The IPAS was designed to evaluate attitudes toward IPE/IPCP and expanded upon the widely used extended Readiness for Interprofessional Learning Scale (Reid, et al., 2006) to align with the 2011 Core

Competencies for interprofessional collaborative practice (Interprofessional Education Collaborative Expert Panel, 2011). Norris and colleagues developed the survey through exploratory and confirmatory factor analysis and identified 27 unique items and five unique subscales. Norris and colleagues validated the IPAS with students across different health sciences disciplines in the United States. Prior to the development of the IPAS, most tools had been tested outside of the U.S. Prior to initiation of this study, no scales had been specifically designed for faculty members or health sciences educators.

The authors of the current study slightly modified the IPAS item wording to gear the questions toward faculty, and to increase the relevance of the survey for faculty members who prepare students for practice in both healthcare and educational settings, as the original survey was geared toward only healthcare practice (e.g., Original IPAS item 1.3 wording “learning with other students will help me become a more effective member of health care team; revised IPAS item 1.3 wording “learning with other students will help students become more effective members of clinical care teams”). Prior to sending the survey to the full list of potential participants, the authors sent the survey to five CSD faculty members with expertise in IPE, who provided feedback on the survey. Based on this feedback, the authors modified the survey for content, clarity, and format. The revised IPAS contained the five sub-scales identified in the IPAS validation study and evaluated a wide range of attitudes toward IPE. The nine-item Teamwork, Roles and Responsibilities (TRR) sub-scale focused on IPE and measured participants’ attitudes toward students from different disciplines learning together and participants’ roles in facilitating such learning. All nine items were revised to make students the subject of the item and to include professionals from education settings as well as healthcare settings. The five-item patient-centeredness (PC) sub-scale measured participants’ values regarding patients’ perspectives in care. None of the PC items were revised from the original IPAS. The three-item Interprofessional Biases (IB) sub-scale measured perceived biases among professionals from different disciplines and personal biases about different disciplines. All IB items were revised to remove language specific to healthcare professionals so the items were more broadly focused to include education personnel. The four-item Diversity and Ethics (DE) sub-scale measured attitudes toward providing care to patients from all backgrounds. None of the DE items were revised, but the leading statement for all items was revised to read “It is important for health and education professionals to” whereas the original IPAS stated “It is important for health professionals to.” The six-item Community-Centeredness (CC) sub-scale measured attitudes toward collaboration with non-healthcare/educational providers. Five of the six items on the CC scale were revised to include the impact on educational outcomes. See Appendix A for a comprehensive summary of the revisions. Participants rated their agreement with each item on a five-point Likert scale with possible responses ranging from 1 = strongly agree to 5 = strongly disagree. Demographic questions were added to the survey in order to assess the relation between attitudes toward IPE and gender, highest degree earned, year degree was earned, level of students taught (e.g., undergraduate, graduate), type of institution (i.e., Carnegie classification), area of expertise in the field, and previous experience with IPE. See Appendix B for survey items not included in the IPAS.

Cronbach’s α was calculated to assess the internal consistency of each scale. Per criteria by George and Mallery (2003), TRR ($\alpha=0.86$) and CC ($\alpha=0.83$) had high levels of internal consistency, PC ($\alpha=0.65$) had internal consistency close to the acceptable range, and IB ($\alpha=0.47$) and DE ($\alpha=0.48$) had low internal consistency. The instrument as a whole ($\alpha=0.75$) had an acceptable level of

internal consistency. The lower internal consistency values for the PC, IB, and DE sub-scales may be due to the relatively smaller number of items included in these scales.

Procedure. After the survey was modified, it was sent to 1128 faculty members in communication sciences and disorders departments accredited by the CAA. Potential participants were identified by visiting the department website of each program listed in CAA's publicly-available program list. All faculty members listed on each department website were invited to participate in the research study in July 2017 via an email generated by the Qualtrics survey platform. Potential participants included faculty in both audiology and speech-language pathology programs and faculty who primarily taught didactic courses as well as faculty who primarily taught clinical courses or in an academic clinic. Off-campus clinical supervisors and preceptors not listed on websites were not included in the potential participant pool. The survey was open for eight weeks and three reminder emails were sent to participants who had not completed the survey. Participants consented to participate by clicking on the link sent in the email and checking "yes" on the consent form at the beginning of the survey.

Analysis. Survey responses were exported to SPSS for analysis. Descriptive analyses examined participant characteristics and frequencies of responses for each question across all participants. To examine differences across education level and across institution types, further descriptive analyses were calculated for each survey question, and independent sample t-tests were conducted to compare group means on the IPAS subscales. Lower scores on the subscales indicated stronger agreement with the statements in the subscale. The minimum and maximum possible scores for each subscale follow: TTR (9 – 45), PC (5 – 25), IB (3 – 15), DE (4 – 20), CC (6 – 30), and total (27 – 135).

Results

Participants. A total of 180 individuals initiated the survey. Twenty-two surveys were removed from the sample because the participant answered one or fewer questions. Thus, 158 participants completed the survey, for a return rate of 16%. A majority (64.6%) of the respondents were academic faculty; the remaining respondents classified themselves as clinical faculty. Respondents who listed their title/rank as assistant/associate/full/visiting professor were classified as academic faculty. Respondents who listed their title/rank as clinical educator, clinical instructor, clinical director were classified as clinical faculty. All but eight respondents reported teaching courses at the university. Respondents were from 36 U.S. states and most (80.4%) identified as female. Respondents reported earning their most recent CSD related degree as early as 1971 and as late as 2016, with 47% of respondents indicating they earned their degree in the year 2000 or later and 44% of respondents earning their degree before 2000. A majority of respondents indicated that their academic department was located within a college related to health sciences (e.g., medical school, allied health, health professions, etc.; 51%), whereas 15% were located in a college of education and 23% were located in a variety of other colleges (e.g., college of arts and sciences, college of communications). The percentage of respondents from healthcare-related colleges (51%) is in alignment with the percentage of SLP programs (47.9%) and slightly higher than the percentage of audiology programs (44.4%) reported to be administratively housed in healthcare-related colleges by the 2018 CSD Academic Survey (CAPCSD & ASHA, 2018). Eleven percent of the respondents did not complete the question regarding college. Most of the respondents

reported having PhDs in a CSD discipline ($N = 85$), 46 had master's degrees, and 11 had clinical doctorates. Nine respondents reported "other" degrees (e.g., PhD plus another doctorate, PhD in other disciplines, MS plus credit toward PhD, PhD plus post-doc work) and seven respondents did not report their degree level.

CSD Faculty Attitudes Toward IPE. To answer the first research question, descriptive analyses of the entire participant sample per item indicated that more than 80% of all participants endorsed a majority of the positively written statements regarding IPE. Only four statements were endorsed by less than 80% of the participants including statements about interprofessional biases. Over 60% of the participants indicated that interprofessional biases were not present in their work environment, either from themselves or from interprofessional team members. See Table 1 for results per item.

CSD faculty in the sample had a mean score of 12.99 ($SD = 4.52$) on the TRR subscale, indicating that faculty strongly agreed or somewhat agreed with most statements in this section. They had a mean score of 5.17 ($SD = 0.63$) on the PC subscale indicating that a large majority of the participants strongly endorsed statements related to patient-centeredness. A mean score of 7.76 ($SD = 2.38$) on the CC subscale demonstrates that most participants strongly agreed with statements supporting community centeredness. A mean score of 4.24 ($SD = 0.70$) on the DE subscale demonstrates that most participants strongly agreed with statements supporting diversity and ethics. Participants had a mean score of 10.78 ($SD = 2.19$) on the IB subscale indicating participants somewhat disagreed with statements endorsing interprofessional biases.

IPAS Group Comparisons.

CSD faculty attitudes toward IPE across colleges. To answer the second research question, Chi square analyses were conducted to examine differences across colleges per item and independent samples t-tests were computed to examine differences across colleges on the subscale mean scores. Chi square analysis compared participants from colleges of health sciences to participants from other colleges on the combined proportion of respondents who either strongly agreed or agreed with each statement. No significant differences were revealed across individual statements. See Table 2 for results per item.

To examine the difference between participants who were employed within healthcare-related colleges and participants who were employed within other colleges, independent samples t-tests were computed. Since there was an unequal number of participants across the two groups, Levene's test for homogeneity of variance was used to select the appropriate statistic for comparison. Homogeneity of variance was not violated for the TRR, PC, IB, CC and IPAS total scales but was violated for the DE scale; thus, the following results account for these findings. The two groups of faculty members held similar attitudes related to teamwork, roles, and responsibilities ($t = 1.00, p = .317$), patient-centeredness ($t = -.39, p = .698$), diversity and ethics ($t = 1.59, p = .115$), community-centeredness ($t = -.71, p = .480$) and overall on the IPAS ($t = -1.50, p = .137$). However, the groups significantly differed on interprofessional biases ($t = 2.43, p = .016$), with faculty from other colleges endorsing less interprofessional bias. See Table 3 for means and standard deviations used for comparisons.

Table 1

Percent of Participants Selecting Each Rating Per IPAS Item

All Participants (N = 158)	Strongly Agree	Somewhat Agree	SA + SWA	Neutral	Somewhat Disagree	Strongly Disagree
Teamwork, Roles and Responsibilities						
Q1	1.9	1.3	3.2	5.7	12.7	78.5
Q2	62.0	30.4	92.4	4.4	1.9	1.3
Q3	77.8	15.8	93.6	3.8	1.3	0.6
Q4	69.0	25.9	94.9	3.8	1.3	0.0
Q5	87.3	9.5	96.8	2.5	0.6	0.0
Q6	68.4	22.8	91.2	7.0	1.3	0.6
Q7	84.2	12.7	96.9	2.5	0.0	0.6
Q8	46.8	35.4	82.2	9.5	5.7	2.5
Q9	38.0	46.2	84.2	12.0	2.5	0.6
Patient-Centeredness						
Q10	97.5	1.3	98.8	0.0	0.0	0.0
Q11	92.4	6.3	98.7	0.0	0.0	0.0
Q12	96.2	1.9	98.1	0.6	0.0	0.0
Q13	95.6	3.2	98.8	0.0	0.0	0.0
Q14	96.2	1.9	98.1	0.6	0.0	0.0
Interprofessional Biases						
Q15	3.2	5.1	8.3	16.5	59.5	13.9
Q16	11.4	12.0	23.4	16.5	51.9	6.3
Q17	5.1	10.8	15.9	17.1	40.5	24.7
Diversity and Ethics						
Q18	88.6	7.6	96.2	0.6	0.0	0.6
Q19	89.2	8.2	97.4	0.0	0.0	0.0
Q20	94.9	2.5	97.4	0.0	0.0	0.0
Q21	96.2	1.3	97.5	0.0	0.0	0.0
Community-Centeredness						
Q22	81.0	14.6	95.6	0.6	0.0	0.0
Q23	71.5	20.3	91.8	4.4	0.0	0.0
Q24	69.6	22.8	92.4	3.8	0.0	0.0
Q25	60.1	26.6	86.7	7.0	2.5	0.0
Q26	68.4	23.4	91.8	4.4	0.0	0.0
Q27	83.5	12.0	95.5	0.7	0.0	0.0

Note. Questions that do not have responses equaling 100% had a maximum of six participants with missing data for that question.

Note. SA = strongly agree; SWA = somewhat agree

Table 2

Percent of Participants Selecting Each Rating Per IPAS Item by College

CHS (<i>n</i> = 59) vs. Other (<i>n</i> = 81)	CHS			Other		
	Strongly Agree	Somewhat Agree	SA + SWA	Strongly Agree	Somewhat Agree	SA + SWA
Teamwork, Roles and Responsibilities						
Q1 (strongly disagree)	83.1	10.2	93.3	77.8	14.8	92.6
Q2	69.5	25.4	94.9	60.5	30.9	91.4
Q3	79.7	15.3	95.0	77.8	16.0	93.8
Q4	67.8	28.8	96.6	70.4	24.7	95.1
Q5	88.1	6.8	94.9	86.4	11.1	97.5
Q6	67.8	25.4	93.2	69.1	22.2	91.3
Q7	86.4	13.6	100.0	82.7	12.3	95.0
Q8	52.5	35.6	88.1	43.2	38.3	81.5
Q9	45.8	40.7	86.5	33.3	50.6	83.9
Patient-Centeredness						
Q10	100.0	0.0	100.0	98.8	1.2	100.0
Q11	94.9	5.1	100.0	95.1	4.9	100.0
Q12	96.6	3.4	100.0	98.8	1.2	100.0
Q13	94.9	5.1	100.0	98.8	1.2	100.0
Q14	98.3	1.7	100.0	97.5	1.2	98.7
Interprofessional Biases						
Q15 (strongly disagree)	10.2	62.7	72.9	18.5	63.0	81.5
Q16 (strongly disagree)	5.1	49.2	54.3	8.6	55.6	64.2
Q17 (strongly disagree)	25.4	40.7	66.1	29.6	40.7	70.3
Diversity and Ethics						
Q18	96.6	3.4	100.0	88.9	9.9	98.8
Q19	93.2	6.8	100.0	90.1	9.9	100.0
Q20	100.0	0.0	100.0	96.3	3.7	100.0
Q21	98.3	1.7	100.0	100.0	0.0	100.0
Community Centeredness						
Q22	84.7	15.3	100.0	85.2	14.8	100.0
Q23	72.9	20.3	93.2	75.3	22.2	97.5
Q24	69.5	25.4	94.9	74.1	23.5	97.6
Q25	57.6	27.1	84.7	65.4	28.4	93.8
Q26	71.2	23.7	94.9	70.4	24.7	95.1
Q27	86.4	13.6	100.0	86.4	12.3	98.7

Note. CHS = Colleges of Health Sciences; *Note.* SA = strongly agree; SWA = somewhat agree

Table 3

IPAS Subscale College Group Means

Subscale	CHS		Other	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
TRR	13.14	4.49	12.40	3.96
PC	5.12	0.46	5.15	0.41
IB*	11.34	1.86	10.47	2.33
DE	4.26	0.67	4.12	0.38
CC	7.63	2.22	7.92	2.53
Total	41.57	5.62	40.07	6.03

Note. CHS = Colleges of Health Science; * = $p < .05$

CSD faculty attitudes toward IPE across faculty education level. To answer the second research question, Chi square analyses were conducted to examine differences across degree levels per item and independent samples t-tests were computed to examine differences across degree levels on the subscale mean scores. Chi square analyses were used to compare master's trained faculty to research doctoral trained faculty on the combined proportion of respondents who either strongly agreed or agreed with each statement. Only two statements revealed significant differences: item 3 ($\chi^2 = 4.46, p = .035$) and item 17 ($\chi^2 = 6.83, p = .009$). All of the master's level faculty agreed with the statement "Learning with other students will help students become more effective members of clinical care teams," while a smaller proportion, 91 percent of the doctoral faculty, agreed with this statement. A significantly larger proportion of the master's level faculty compared to the doctoral level faculty disagreed with the statement "Prejudices and assumptions about professionals from other disciplines get in the way of intervention implementation." See table 4 for a summary of each item.

To examine the differences in subscale scores on the IPAS between faculty who held a research doctorate and faculty who held a master's degree, independent samples t-tests were computed. Since there was an unequal number of participants across the two groups, Levene's test for homogeneity of variance was used to select the appropriate statistic for comparison. Homogeneity of variance was not violated for the PC, IB, and DE scales but was violated for the TRR, CC and IPAS total scale; thus, the following results account for these findings. The two groups of faculty members held similar attitudes related to patient-centeredness ($t = -.48, p = .633$), interprofessional biases ($t = 1.56, p = .121$), diversity and ethics ($t = -.08, p = .935$), and overall on the IPAS ($t = -1.82, p = .071$). However, the groups significantly differed on the teamwork, roles, and responsibilities scale ($t = -2.01, p = .047$), and community-centeredness ($t = -2.16, p = .032$). Across both comparisons, the faculty who held PhDs agreed with the statements less than the faculty who held master's degrees. See Table 5 for means and standard deviations used for comparisons.

Table 4
Percent of Participants Selecting Each Rating Per IPAS Item by Education Level

	PhD (<i>n</i> = 90)			Masters (<i>n</i> = 47)		
	Strongly Agree	Somewhat Agree	SA + SWA	Strongly Agree	Somewhat Agree	SA + SWA
Teamwork, Roles, and Responsibilities						
Q1 (strongly disagree)	74.4	14.4	88.9	85.1	10.6	95.7
Q2	62.2	27.8	90.0	61.7	31.9	93.6
Q3	74.4	15.6	91.0*	83.0	17.0	100.0
Q4	64.4	28.9	93.3	70.2	27.7	97.9
Q5	84.4	12.2	96.7	93.6	4.3	97.9
Q6	61.1	28.9	90.0	76.6	17.0	93.6
Q7	83.3	14.4	97.8	87.2	10.6	97.9
Q8	43.3	36.7	80.0	51.1	38.3	89.4
Q9	35.6	44.4	80.9	36.2	53.2	89.4
Patient-Centeredness						
Q10	98.9	1.1	100.0	100.0	0.0	100.0
Q11	92.2	7.8	100.0	95.7	4.3	100.0
Q12	97.8	2.2	100.0	97.9	2.1	100.0
Q13	97.8	2.2	100.0	95.7	4.3	100.0
Q14	97.8	1.1	98.9	97.9	2.1	100.0
Interprofessional Biases						
Q15 (strongly disagree)	12.2	61.1	73.3	19.1	61.7	80.8
Q16 (strongly disagree)	5.6	56.7	62.3	8.5	46.8	55.3
Q17 (strongly disagree)	20.0	41.1	61.1*	38.3	44.7	83.0
Diversity and Ethics						
Q18	92.2	6.7	98.9	91.5	6.4	97.9
Q19	92.2	7.8	100.0	91.5	8.5	100.0
Q20	97.8	2.2	100.0	97.9	2.1	100.0
Q21	98.9	1.1	100.0	100.0	0.0	100.0
Community-Centeredness						
Q22	82.2	16.7	98.9	85.1	14.9	100.0
Q23	67.8	25.6	93.3	85.1	14.9	100.0
Q24	64.4	28.9	93.3	83.0	17.0	100.0
Q25	60.0	26.7	86.7	66.0	29.8	95.7
Q26	70.0	23.3	93.3	72.3	25.5	97.9
Q27	85.6	13.3	98.9	89.4	10.6	100.0

Note. SA = strongly agree; SWA = somewhat agree; **p* < .05

Table 5

IPAS Subscale Education Level Group Means

Subscale	PhD		Masters	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
TRR*	13.61	5.03	12.15	3.40
PC	5.17	0.47	5.13	0.40
IB	10.71	2.06	11.28	1.91
DE	4.22	0.63	4.21	0.66
CC*	8.08	2.62	7.28	1.69
Total	41.81	6.65	40.04	4.52

Note. * = $p < .05$

Discussion

The main objective of this study was to examine the perspectives of IPE among CSD faculty. When examining responses of all participants, faculty were generally positive and supportive of students learning from and with students from different disciplines. The majority of faculty endorsed the benefits of IPE including teaching students to communicate better, teaching students to be more effective team members, and patients benefiting from students solving problems in groups. This survey evaluated individual perceptions of IPE and IPCP - what Lawlis, Anson and Greenfield (2014) would have characterized as individual level factors. Previously, individual-level factors, including individual perceptions of IPE have been identified as barriers to successful implementation of IPE programs. The overall positive results of this survey suggest that individual perceptions of IPE and IPCP may not be a barrier to successful implementation of IPE within CSD programs.

Among healthcare practitioners, biases about other disciplines can be a barrier to effective IPE/IPCP (Curran, et al., 2007). Data from the current survey illustrate that CSD professionals are not immune to holding biases toward other disciplines, and indicated that about one quarter of the faculty respondents felt they held personal biases toward professionals from other disciplines. In contrast, the respondents indicated that they did not believe that professionals from other disciplines held personal biases toward CSD professionals. Similarly, respondents of the ASHA 2017 IPCP survey overwhelmingly endorsed respect among clinical team members. The current findings taken together with the ASHA (2017) survey findings suggest that CSD professionals, clinicians and faculty alike, do not experience bias from other professionals.

When comparing CSD faculty with research doctorates to faculty with master's degrees, the survey responses indicated that the educational level did not impact how faculty felt about being patient-centered or respecting diversity among team members and patients. However, educational level did impact how faculty viewed the impact of IPE on students' later performance on clinical care teams and the faculty members' beliefs regarding impact of interprofessional biases. Faculty members with master's degrees were more likely to believe that IPE during graduate training programs would increase students' ability to be effective team members in their later career. Further, these master's level trained faculty were less likely to believe that interprofessional biases

would hinder treatment implementation. Together, these findings could reflect the different roles faculty with different educational backgrounds play in training students, and suggest that faculty with master's degrees may be more open to implementing IPE within graduate training programs.

The field of CSD is unique among both healthcare and education professions in that training programs are administratively housed within a number of different colleges across university campuses. The respondents of the current survey who reported being faculty from healthcare-related colleges indicated more bias toward and from professionals of other disciplines compared to faculty from other colleges. This finding suggests that faculty from healthcare-related colleges may have different experiences than faculty from other colleges, such as interacting with professionals from other health disciplines with more frequency than faculty from other colleges. Further, Goodman (2016) found that a majority of programs that had implemented IPE were housed in healthcare-related colleges, suggesting that faculty within these programs could have more intentional exposure to faculty from other disciplines than programs housed in other colleges. It is possible that with more exposure, faculty have witnessed more biases than faculty who are not engaged in these experiences. The identification of fewer professional biases from faculty in other colleges could indicate different experiences with collaboration in those colleges.

In recognizing that all CSD graduate programs now need to implement IPE opportunities, it is beneficial to identify potential barriers and identify remedies to overcome those barriers. This study revealed differences in perceived and experienced interprofessional biases across faculty from different colleges. These biases could jeopardize the success of IPE opportunities; thus, it is important to work to mitigate these biases. A brief search of the literature reveals that faculty development in the area of IPE may be a crucial component to reduce biases and stereotypic perceptions across faculty. Faculty development in IPE has been repeatedly identified as a key component in creating successful IPE programs (Buring, et al., 2009; Health Professions Accreditor Collaborative, 2019; Walter Hall & Zierler, 2015). However, Walter Hall and Zierler (2015) noted that simply bringing together different professionals most likely will not result in quality IPE, and Doll, Maio, and Potthoff (2018) noted that an online asynchronous faculty development program may not be appropriate for all colleges. In contrast, Dolan Watkins' (2016) review of IPE faculty development programs noted that successful faculty development programs valued diversity and encouraged diverse groups of people work together to achieve shared goals. The emphasis on diversity requires faculty participants to examine differences and similarities among professionals thus potentially leading to reduced stereotypic views of participating professionals. Dolan Watkins also found that successful faculty training programs focus energy on defining roles among professionals and encouraging modeling of self-reflection and self-awareness among IPE facilitators. Participation in faculty development programs that occur synchronously and over a period of time would align with the recommendation of what Wilkes and Kennedy (2017) called "relationship-based IPE", noting that much of professional cultural barriers can be minimized if professionals build relationships across professions by engaging in "repeated longitudinal experiences" with opportunities to get to know each other. Furthermore, synchronous faculty development programs support the Health Professions Accreditor Collaborative guidelines (2019) for faculty encourage faculty to deliberately spend time learning about, from and with faculty from other programs. Systematic evaluations of faculty development programs have reported positive faculty perceptions of the programs (Mladenovic & Tilden, 2017) and positive change in faculty knowledge and attitudes toward teamwork (Davis, et al., 2015).

Well-designed IPE faculty development programs may be useful for reducing potential bias among CSD faculty.

Implications. Finally, ASHA's (2017) IPE/IPCP survey indicated that clinical service providers were not prepared to lead IPE teams and a majority (76%) of clinicians did not have formal training in IPE/IPCP. The current research suggests that CSD faculty value IPE and generally believe IPE can support development of clinicians; thus, the current study highlights a gap between the perceived value of IPE within higher education and the preparedness of clinical service providers to practice IPCP. As CSD training programs develop and revise IPE curricula it is critical that programs help to close the instruction-to-service gap in order to prepare clinicians to confidently practice in a collaborative clinical environment by harnessing the attitudes of faculty who value IPE/IPCP.

Limitations. Any generalization of these results should be made with caution due to the notable limitations. As is common in survey research, the response rate of possible participants was low, although the response rate is similar to the response rate of other electronic surveys sent to ASHA constituents (ASHA, 2017). Given the self-selection bias of the study participants, the sample may represent individuals with professional experience in IPE or a strong interest in IPE and the data may not adequately represent a majority of CSD faculty.

Additionally, although the authors set out to use a validated tool with strong psychometric properties that aligned with the core competencies for interprofessional collaborative practice (Interprofessional Education Collaborative, 2011) to assess faculty perceptions of IPE, such a tool was not identified in the literature at the time this study was designed. Due to the lack of a tool, the authors used a tool validated on students and modified wording to reflect faculty perceptions. Results from this survey should be taken with caution because the validity of the tool has not been evaluated for faculty. Although the current study revealed acceptable internal consistency for the tool as a whole, and for the TRR and CC sub-scales, the PC, IB and DE sub-scales had lower internal consistency values. Further, some of the questions could have led the respondent to the most desirable response rather than an unbiased response, thus the findings of the current study may reflect more favorable perspectives of faculty.

Conclusion. As a profession, we are on our way to reaching ASHA's envisioned future 2025. CSD faculty generally value and support the inclusion of IPE and IPCP in the curriculum. Faculty members with master's degrees were more likely to value community centeredness and interdisciplinary teamwork than faculty members with PhDs, highlighting the value of having faculty members with a variety of levels of education in order to provide students with multiple perspectives.

Given that faculty in healthcare-related colleges reported greater bias toward and from other professions than faculty in other colleges, it is important that administrators and faculty members in healthcare-related colleges find ways to promote positive interactions among disciplines.

Disclosures

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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Appendix A

Original <i>Interprofessional Attitudes Scale</i> Wording	Revised <i>Interprofessional Attitudes Scale</i> Wording	Changes
Teamwork, Roles and Responsibilities		
Q1. Shared learning before graduation will help me become a better team worker.	Shared learning before graduation will help students become better team workers.	<i>Me</i> was changed to <i>students</i> .
Q 2. Shared learning will help me think positively about other professionals.	Shared learning will help students think positively about other professionals.	<i>Me</i> was changed to <i>students</i> .
Q3. Learning with other students will help me become a more effective member of a health care team.	Learning with other students will help students become more effective members of clinical care teams.	<i>Me</i> was changed to <i>students</i> . <i>Health care</i> was changed to <i>clinical care</i>
Q4. Shared learning with other health sciences students will increase my ability to understand clinical problems.	Shared learning with other health sciences and/or education students will increase the students' ability to understand clinical problems.	<i>And/or education</i> was added. <i>My</i> was changed to <i>students'</i> .
Q5. Patients would ultimately benefit if health sciences students worked together to solve patient problems.	Patients would ultimately benefit if students from multiple disciplines worked together to solve patient problems.	<i>Health sciences students</i> was changed to <i>students from multiple disciplines</i> .
Q6. Shared learning with other health sciences students will help me communicate better with patients and other professionals.	Shared learning with students from other professions will help students communicate better with patients and other professionals.	<i>Health sciences students</i> was changed to <i>students from other professions</i> . <i>Me</i> was changed to <i>students</i> .

Q.7 I would welcome the opportunity to work on small group projects with other health sciences students.

I would welcome the opportunity to work on projects with faculty from other disciplines.

Small group projects was changed to projects.

Other health sciences students was changed to faculty from other disciplines.

Q8. It is not necessary for health sciences students to learn together.

It is not necessary for students from multiple disciplines to learn together.

Health sciences students was changed to students from multiple disciplines.

Q9. Shared learning will help me understand my own limitations.

Shared learning will help students understand their own limitations.

Me was changed to students.

My was changed to their own.

Patient-Centeredness

Q10. Establishing trust with my patients is important to me.

Establishing trust with my patients is important to me.

No changes.

Q11. It is important for me to communicate compassion to my patients.

It is important for me to communicate compassion to my patients.

No changes.

Q12. Thinking about the patient as a person is important to getting treatment right.

Thinking about the patient as a person is important in getting treatment right.

No changes.

Q13. In my profession, one needs skills in interacting and co-operating with patients.

In my profession, one needs skills in interacting and co-operating with patients.

No changes.

Q14. It is important for me to understand the patient's side of the problem.

It is important for me to understand the patient's side of the problem.

No changes.

Interprofessional Biases

Q15. Health professionals/students from other disciplines have prejudices or make assumptions about me because of the discipline I am studying.

Professionals from other disciplines have prejudices or make assumptions about me because of the discipline I practice.

Health professionals/students was changed to *professionals*.

Am studying was changed to *practice*.

Q16. I have prejudices or make assumptions about health professionals/students from other disciplines

I have prejudices or make assumptions about professionals from other disciplines.

Health professionals/students was changed to *professionals*.

Q17. Prejudices and assumptions about health professionals from other disciplines get in the way of the delivery of healthcare

Prejudices and assumptions about professionals from other disciplines get in the way of intervention implementation.

Health was removed.

Delivery of healthcare was changed to *intervention implementation*.

Diversity and Ethics

Q18. It is important for health professionals to respect the unique cultures, values, roles/responsibilities, and expertise of other health professions.

It is important for health and education professionals to respect the unique cultures, values, roles/responsibilities, and expertise of other professionals.

Health professionals was changed to *health and education professionals*.

Health professions was changed to *professionals*.

Q19. It is important for health professionals to understand what it takes to effectively communicate across cultures.

It is important for health and education professionals to understand what it takes to effectively communicate across cultures.

Health professionals was changed to *health and education professionals*.

Q20. It is important for health professionals to respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based care.

It is important for health and education professionals to respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based intervention.

Health professionals was changed to *health and education professionals*.

Care was changed to *intervention*.

Q21. It is important for health professionals to provide excellent treatment to patients regardless of their background (e.g., race, ethnicity, gender, sexual orientation, religion, class, national origin, immigration status, or ability).

It is important for health and education professionals to provide excellent treatment to patients regardless of their background (e.g., race, ethnicity, gender, sexual orientation, religion, class, national origin, immigration status, or ability).

Health professionals was changed to *health and education professionals*.

Community-Centeredness

Q22. It is important for health professionals to work with public health administrators and policy makers to improve delivery of health care.

It is important for health and education professionals to work with administrators and policy makers to improve delivery of health care and education.

Health professionals was changed to *health and education professionals*.

Public health was removed.

Health care was changed to *health care and education*.

Q23. It is important for health professionals to work on projects to promote community and public health.

It is important for health and education professionals to work on projects to promote community and public health.

Health professionals was changed to *health and education professionals*.

Q24. It is important for health professionals to work with legislators to develop laws, regulations, and policies that improve health care.

It is important for health and education professionals to work with legislators to develop laws, regulations, and policies that improve health care and education.

Health professionals was changed to health and education professionals.

Health care was changed to health care and education.

Q25. It is important for health professionals to work with non-clinicians to deliver more effective health care.

It is important for health and education professionals to work with non-clinicians to deliver more effective health care and education.

Health professionals was changed to health and education professionals.

Health care was changed to health care and education.

Q26. It is important for health professionals to focus on populations and communities, in addition to individual patients, to deliver effective health care.

It is important for health and education professionals to focus on populations and communities, in addition to individual patients, to deliver effective health care and education.

Health professionals was changed to health and education professionals.

Health care was changed to health care and education.

Q27. It is important for health professionals to be advocates for the health of patients and communities.

It is important for health and education professionals to be advocates for the health and well-being of patients and communities.

Health professionals was changed to health and education professionals.

Health was changed to health and well-being

Note. Adapted from Norris, Carpenter, Eaton, Guao, Lassche, Pett, & Blumenthal (2015).

Appendix B

Section 6: Questions about your institution

1. Which best describes your institution of higher learning?
 - a. R1: Doctoral University – Highest research activity
 - b. R2: Doctoral University – Higher research activity
 - c. R3: Doctoral University – Moderate research activity
 - d. M1: Master’s College and/or University – Larger program
 - e. M2: Master’s College and/or University – Medium program
 - f. M3: Master’s College and/or University – Smaller program
 - g. Other – please describe
2. What college is your program/department housed in?
3. In what state is your program/department located?

Section 7: Questions about your teaching and clinical practice

1. What level courses do you teach? (can choose more than one)
 - a. Undergraduate – freshman
 - b. Undergraduate –sophomore
 - c. Undergraduate – junior
 - d. Undergraduate – senior
 - e. Graduate – academic courses
 - f. Graduate – clinical education courses
2. What would you describe as your area of expertise or focus for research?
3.

What is your title/rank at your institution?

Section 8: Demographics

1. What is the highest level of education you have attained in the area of speech-language pathology or audiology?
 - a. Baccalaureate
 - b. Masters
 - c. Clinical Doctorate
 - d. Ph.D.
 - e. Other
2. In what year did you earn your terminal degree?
3. In what year did you earn your clinical degree?
4. How would you describe your previous experience with Interprofessional education? (can choose more than one)
 - a. I’ve heard about it
 - b. I earned CEU’s in IPE
 - c. I implement IPE regularly in clinical settings

- d. I encourage students to implement IPE in their clinical practica
 - e. I teach a course on IPE
 - f. I discuss IPE in a course that I teach
 - g. I include IPE experiences in a course I teach
 - h. I conduct research in IPE
5. What is your identified gender?
- a. Male
 - b. Female
 - c. Prefer not to answer