

KEY WORDS

CLASSROOM-BASED

COLLABORATION

CONSULTATION

DISCIPLINE-SPECIFIC
TERMINOLOGY

EDUCATION

INTERPROFESSIONAL
EDUCATION (IPE)

JARGON

PRE-PROFESSIONAL

PROFESSIONAL
VOCABULARY

PULL-OUT

SPECIALIZED SERVICE
DELIVERYSPEECH-LANGUAGE
PATHOLOGIST (SLP)

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Collaboration: More than "Working Together"
An exploratory study to determine effect of
interprofessional education on awareness and
application of models of specialized service
delivery by student speech-language pathologists
and teachers

Collaboration : Plus que « Working Together »,
il s'agit d'une étude exploratoire pour déterminer
les effets d'un enseignement interprofessionnel
sur les connaissances et la mise en pratique de
modèles de prestation de services spécialisés
par des étudiants en orthophonie et des
apprentis enseignants.

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Abstract

In spring 2011, the University of Alberta in Edmonton, Alberta, Canada, implemented an interprofessional education (IPE) experience for student speech-language pathologists (S-LPs) and student teachers. One of the constructs addressed and assessed through the IPE experience was related to knowledge and application of models of specialized service delivery in schools. Directed content analysis methods were used to analyze participant responses on surveys before and after the IPE experience. Results from the surveys showed that after the IPE experience students were able to describe more models of specialized service delivery. The IPE experience also included a collaborative case study that asked small mixed-discipline groups of students to develop an intervention plan for a hypothetical classroom. Analysis of group responses on the case studies showed that students applied a variety of models of service delivery to address student and classroom speech, language, and communication needs.

Abrégé

Au printemps 2011, l'Université de l'Alberta à Edmonton (Alberta, Canada), a mis en oeuvre une expérience d'enseignement interprofessionnel pour les étudiants en orthophonie et pour des étudiants en éducation. Un des éléments étudiés et évalués par cette expérience touchait à la connaissance et à l'application de modèles de prestation de services spécialisés dans les écoles. Des méthodes d'analyse dirigée de contenu ont été utilisées pour analyser les réponses des participants avant et après l'expérience. Les résultats de l'étude ont démontré qu'après l'expérience, les étudiants étaient capables de décrire plus de modèles de prestation de services spécialisés. L'expérience comprenait aussi une étude de cas collaborative qui demandait à de petits groupes multidisciplinaires d'étudiants de développer un plan d'intervention pour une classe hypothétique. L'analyse des réponses de groupe à des études de cas démontre que les étudiants mettaient en oeuvre divers modèles de prestation de services pour répondre aux besoins de parole, de langage et de communication des élèves et des classes.

Background Information

Introduction. In 1991, the American Speech and Hearing Association (ASHA) issued a statement that applied to both speech-language pathologists (S-LPs) and teachers; "...no one professional has an adequate knowledge base or expertise to execute all the functions associated with providing educational services for students". When surveyed, teachers and S-LPs recognized the complexity of child development and that fostering development is not the responsibility of only one profession (Hartas, 2004). In 1996, Wright found that both S-LPs and teachers showed a commitment to collaborate for the benefit of the children being served. Collaboration is generally accepted as a necessary component of effective service delivery, yet there is limited information regarding the quality and quantity of interprofessional collaboration in Canadian schools.

Promotion of collaboration through legislation and policy. The Inclusion movement, considered the best practice in special education, brought students with disabilities into the mainstream classroom (Nochajski, 2001). As a result, schools are challenged to work with diverse populations that require additional support beyond traditional teaching. This movement necessitated that specialized services be structured to ensure the needs of all students are met (Bronstein, 2003; Nochajski, 2001). Accordingly, collaboration between professionals has been enshrined in government policy and legislation supporting inclusive education. For example, in June 2010, the Government of Alberta accepted the Action to Inclusion document (Government of Alberta, 2012). In doing so, collaboration was formally recognized as the primary method to achieve an inclusive education system (Government of Alberta, 2012).

In 2010, an ASHA Ad Hoc Committee on the Roles and Responsibilities of the School-Based S-LP developed a professional issues and practice statement regarding the roles and responsibilities of S-LPs in schools. In this document, collaboration with teachers and other professionals is repeatedly described as a responsibility of S-LPs in providing services to children in schools (ASHA 2010b). S-LPs are also encouraged to provide services within the classroom context. Thus the collaboration between teachers and S-LPs is described as crucial to effective service delivery in the areas of literacy, curriculum and response to intervention (ASHA 2010b). However, translation of such policies and guidelines into practice is predicated on the capacity of professionals to carry them out, in other words, to effectively collaborate. In order to determine the best approaches to moving policies related to collaboration into practice it is important to consider the current experiences of S-LPs in schools.

S-LPs in schools. The American Speech-Hearing Association estimates that fifty-seven percent of S-LPs in the United States of America are working in the school system (ASHA,

2012). S-LPs may be based in one school and only serve that school's population, or may visit multiple schools to provide services (Wright, 1996; Hartas, 2004). In the latter situation, S-LPs are often viewed as 'visitors' and members of a "non-educational profession" (Hartas, 2004, p. 38). This perception of S-LPs as external to the school community may hinder collaboration. School-based S-LPs typically provide intervention for oral language development in a pull-out model (Ukrainetz & Fresquez, 2003). The 2010 American annual report on speech and language services in schools indicated that S-LPs in schools spent over 70% of their time in the traditional pull-out model (ASHA, 2010a).

Models of service delivery. Although S-LPs and teachers are being encouraged to engage in collaboration, S-LPs continue to spend the majority of their time working in isolation, using a pull-out model. Given the recent changes in legislation and policy related to the provision of speech-language pathology services in schools, professionals are being asked to employ a variety of service delivery models to provide services to students and their families. In general, models of specialized service delivery can be grouped into four categories ranked from least integrative to most integrative (Hall & Weaver, 2001; Hartas, 2004): Multidisciplinary; Consultation; Interdisciplinary; and Transdisciplinary. The multidisciplinary approach to service delivery is hallmarked by a distinction between professionals with little to no communication between professionals, even though they are working directly with the same population. The pull-out model is an application of a multidisciplinary model. Consultation refers to a model where there is a referral system and experts are called in to comment on and make recommendations on a case (Hartas, 2004). Consultation may take the form of 'modeling' where the intervention agent has the opportunity to observe the expert completing a task, 'coaching' where the consultant offers support and hints to the intervention agent, 'scaffolding' where there is a dialogue between both professionals, and 'fading' where the expert withdraws support as the intervention agent become more confident in his or her abilities (Hartas, 2004). The interdisciplinary model refers to when professionals work together and engage in two-way communication, but each profession maintains their own distinct role (Hall & Weaver, 2001). In the classroom, the interdisciplinary model could be realized through multiple configurations such as, one-teach/one-drift (i.e., one professional assumes primary teaching responsibilities, while the other assists individual students), one-teach/one-observe, station teaching (i.e., each professional instructs at a separate center), remedial teaching (i.e., one professional re-teaches previously taught material), and supplemental teaching (i.e., one professional teaches the same material but in a new way and with new materials) (Friend, 2010 as cited in Flynn, 2010). The transdisciplinary model is defined by having a large amount

of professional overlap and professionals sharing roles and responsibilities (Hall & Weaver, 2001). A transdisciplinary approach requires extensive communication as professionals are expected to assume the roles of professionals belonging to other disciplines (Hall & Weaver, 2001; Hartas, 2004). Transdisciplinary approaches include parallel, team or co-teaching (Flynn, 2010).

Figure 1 summarizes this synthesis of theoretical models of service delivery and applications or specific configurations in and out of the classroom. The isolated units of information presented in Figure 1 are not novel and are found in previously published literature (Flynn, 2010; Hall & Weaver, 2001; Hartas, 2004). However, this synthesis of information about service delivery and collaboration is novel. This unique synthesis of service delivery models for school-based S-LPs and teachers was achieved by combining information about service delivery location (i.e., in the classroom/outside of the classroom) and specific classroom configurations with general models of collaboration (i.e., the parallel or co-teaching configuration as an example of the transdisciplinary model).

Knowing different models and configurations of service delivery is valuable in planning and implementing services for children. It is important that professionals use the models of service delivery strategically in order to address the needs of students throughout the intervention period. Each model of service delivery has strengths and weaknesses and therefore it is the responsibility of professionals to determine when to use each model. For example, a child who only had an articulation delay might initially benefit the most from a multidisciplinary approach to intervention where the S-LP works with the child in pull-out sessions to elicit the correct articulation of a sound. Once the child is able to produce the sound consistently, perhaps an interdisciplinary approach to service delivery would be appropriate where the S-LP would be drifting throughout the classroom while the children are engaged in a partner work, occasionally assisting the child with the articulation delay to correctly produce the target sound. In this manifestation of the interdisciplinary model, the teacher would be responsible for designing the classroom activity and for the education of all the students in the classroom and the S-LP would be responsible for

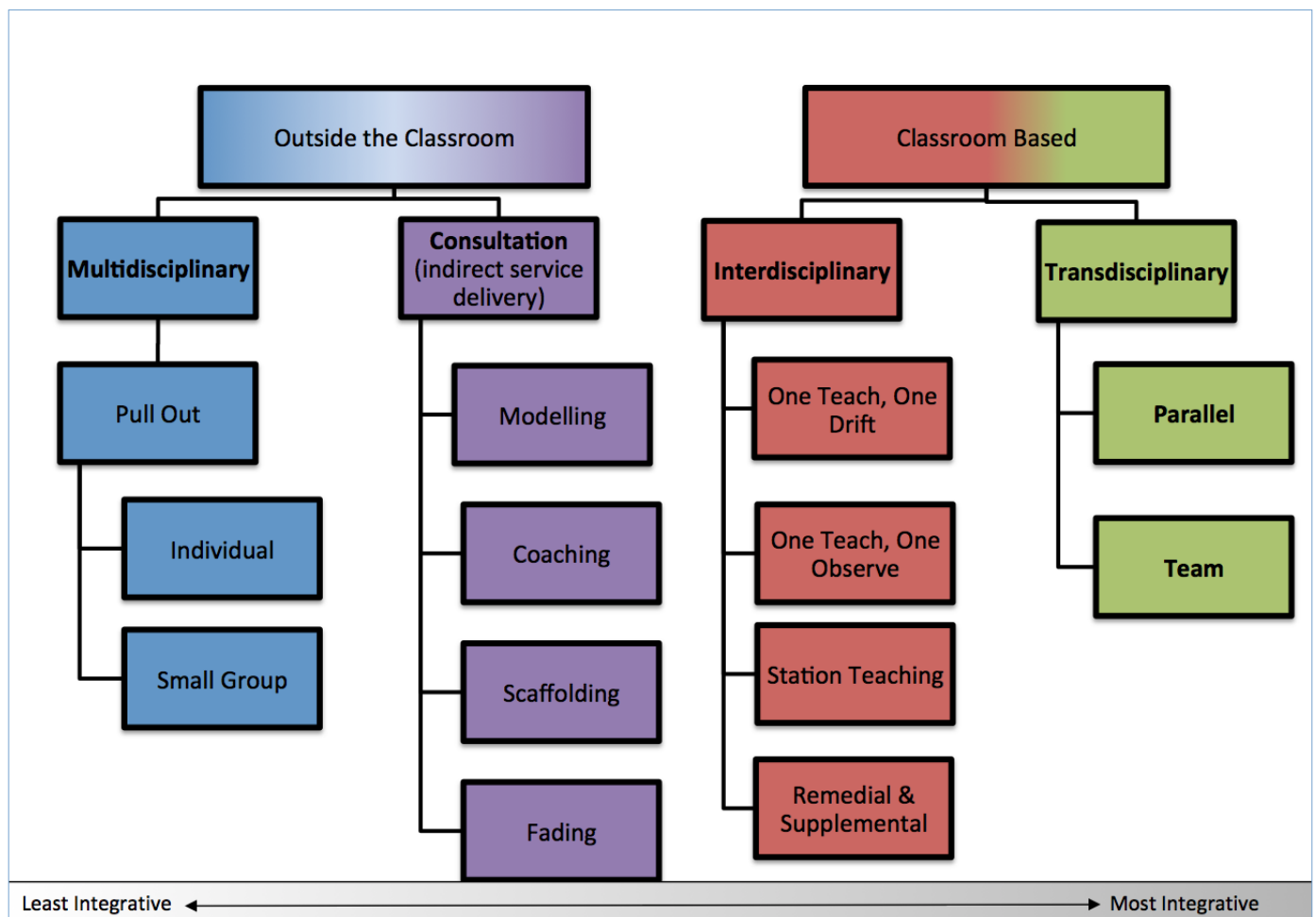


Figure 1. Synthesis of Theoretical Models of Service Delivery and Applications in Schools

ensuring the child with the articulation delay is transferring their newly acquired sound to the classroom setting. The S-LP and teacher would communicate regarding the task the children will be completing and that the S-LP will be drifting to provide necessary support. Next, the S-LP might consult with the teacher to provide the teacher with strategies to elicit the correct sound when the student may be unable to. Perhaps the teacher will observe while the S-LP models elicitation techniques during the classroom activity and then the S-LP will scaffold the teacher's learning of elicitation techniques with the child. Finally, the teacher will be able to elicit the correct sound when necessary without the S-LP's support, thus assuming the role of the S-LP, consistent with a transdisciplinary model. As illustrated, models of service delivery should be used to effectively provide services to children given the goals of the intervention program and the needs of the child at a given point in time.

University of Alberta Interprofessional Education Experience

Interprofessional education (IPE) involves experiences that not only bring together professionals or pre-professionals from different disciplines, but also provide an opportunity for them to learn together (Hammick, Freeth, Koppel, Reeves & Barr, 2007). The University of Alberta Departments of Speech-Pathology and Audiology and Elementary Education designed and implemented an IPE experience for student S-LPs and student teachers in Spring 2011. The 3-hour IPE experience was embedded in two undergraduate education courses and one graduate speech-language pathology course.

This IPE experience consisted of four components that are depicted in Figure 2. All students individually completed online reflective surveys before and after direct interaction between student S-LPs and teachers. For research purposes these surveys could be conceptualized as pre-post measures to assess the efficacy of the IPE experience. The surveys also served as an opportunity for students to reflect on their knowledge, skills, and attitudes related to interprofessional collaboration. Students from both disciplines came together for an interactive seminar, based on a foundational metaphor that described schools as existing on a mainland and S-LPs existing on an island approximately a kilometer off the coast. The seminar consisted of brief periods of instruction followed by opportunities for students to work in pairs through a series of activities. The final component was the collaborative case study. For this, the students worked in small mixed-discipline groups to design an intervention plan for a hypothetical classroom.

This IPE experience addressed four constructs of collaboration: knowledge and understanding of professional roles; communication skills; personal reflection; and knowledge and application of models of specialized service

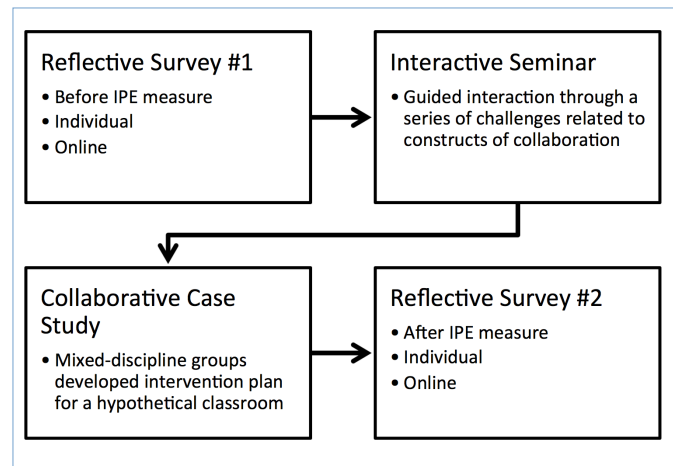


Figure 2. Summary of University of Alberta Interprofessional Education Experience

delivery. The analysis and results presented in this paper only pertain to the models of specialized service delivery construct of this IPE experience. The decision to include information on the specialized service delivery models available for S-LPs and teachers was supported in the understanding that IPE needed to be customized and reflect "appropriate and relevant service delivery settings" (Hammick et al., 2007, p. 748). Given the recent interest in provision of speech and language services in the classroom (ASHA 2010b; Cirrin et al., 2010; Hartas, 2004), the IPE experience was an appropriate way to provide pre-professionals with some knowledge of these changes and the potential configurations for collaboration when they enter the workforce. The seminar included explicit instruction in theoretical knowledge of service delivery and an overview of models of service delivery as found in Figure 1. Students also engaged in authentic (i.e., practical) opportunities to analyze and describe the way in which they would configure service delivery. Whenever applicable, this IPE experience focussed on literacy, as literacy is an area of education where S-LPs and teachers overlap in roles and responsibilities.

Purpose

The data and analysis presented in this paper were designed to determine the effects of this IPE experience on student S-LPs' and teachers' awareness and understanding of models of specialized service delivery in schools. Effects were determined by analysis of student application of models of specialized service delivery in hypothetical school-based scenarios.

Methods

Participants. Ninety-five percent of students enrolled in the three selected courses gave consent for their materials to be used for research purposes. Thus, information was gathered and analyzed from fifty-five student S-LPs, and

fifty-two student teachers. The IPE experience occurred before the student S-LPs had engaged in any clinical experience. However, over ninety-five percent of the student teachers had completed a five-week introductory practicum placement in a classroom. For the collaborative case study, random assignment was used to organize equal distribution of student S-LPs and student teachers into groups of four-to six students.

Materials. Data related to the models of service delivery construct were gathered from student responses on the online reflective surveys and group responses on the collaborative case studies. As part of the online reflective survey, students were asked to describe configurations for a service delivery given a classroom description. Students responded to the following item before and after the jointly attended sessions (i.e., the interactive seminar and collaborative case study):

Sheila is a speech-language pathologist who has been assigned to provide support to Janine's classroom. Janine's classroom is inclusive and therefore has students with varying abilities and a few with special needs. Explain to Sheila and Janine the different ways their professional contributions can be structured to meet student needs

On the collaborative case study, student groups were required to describe interventions based on classroom needs, but also describe the way in which the interventions would be structured (i.e., the model of service delivery that would be implemented to address the needs). Students were asked to choose a model of service delivery for every aspect of their intervention plan. For example, if student groups identified a need for a bullying intervention program they were also asked to describe how the intervention was going to be structured (i.e., the teacher and S-LP would co-teach the session using a transdisciplinary approach).

Analysis Methods

Coding. A directed content analysis approach was used to code responses to items on the reflective survey and collaborative case study. This deductive approach to analysis uses pre-existing knowledge to develop a coding structure before the analysis begins (Hsieh & Shannon, 2005). In this study the coding structure was derived from the synthesis of models of service delivery and application of these models in schools found in Figure 1. The codes for the analysis were Multidisciplinary, Interdisciplinary, Transdisciplinary, and Consultation. All codes had operational definitions, as presented in the coding structure found in Figure 3 (Hsieh & Shannon, 2005; Potter & Levine-Donnerstein, 1999). A default

Figure 3: Coding structure and operational definitions used in directed content analysis

General Models	Application of Models
Multidisciplinary <ul style="list-style-type: none"> Professionals work directly with same population No communication between S-LPs and Teachers Distinct roles and responsibilities 	Pull Out
Consultation <ul style="list-style-type: none"> Indicates one-way transfer of information One professional is the expert providing information to the other One professional may not work directly with the population 	
Interdisciplinary* <ul style="list-style-type: none"> Professionals work directly with the same population Communication between S-LPs & Teachers (2-way transfer of information) Distinct roles and responsibilities 	One teach, One drift One teach, One observe Station Remedial Supplemental
Transdisciplinary (Trans) <ul style="list-style-type: none"> Professionals work directly with the same population Communication between S-LPs & Teachers (2-way transfer of information) Overlapping and shared roles and responsibilities 	Parallel Team or Co-teach

Notes: Default code marked with an asterisk (*)

code was established such that any general statement of 'working together' was categorized as an interdisciplinary model. Finally, if a participant described an application of service delivery models, the general category code was applied (e.g., if a participant made reference to the pull-out model, the Multidisciplinary code was applied).

Collaborative case study. Groups of students were asked to describe the models of specialized service delivery that would be applied in their intervention plan. Group descriptions were structured to include several ways that the teacher and speech-language pathologist could serve the target population. We documented the most integrative model service delivery described by groups using the previously described coding structure. For this analysis, Multidisciplinary models were the least integrative and Transdisciplinary models were the most integrative (Figure 1). We also documented whether groups described some aspect of their intervention plan that included classroom-based services, pull-out services or consultative services.

Reliability. The first two authors developed the coding structure. The first author coded all student responses and a second author was responsible for coding a randomly selected 20% of the responses on the online reflective surveys and collaborative case studies. The reliability measure was determined by dividing the number of identical codes per response by the highest number of codes recorded by either author as being included in the response. For example, for one response the first author may have coded Multidisciplinary and Interdisciplinary while the second author coded Interdisciplinary. Agreement would be one out of two (i.e., 50%) for this response. A minimum overall agreement of 80% was sought. If 80% agreement was not achieved, the two authors met to discuss the responses they both coded in order to align their understanding and application of the coding structure. Then both authors re-coded with the new calibration (i.e., another 20% of responses were randomly selected for the second author to analyze). Eighty percent agreement was achieved before the transformation phase of analysis was conducted.

Transformation. In order to provide general comparisons of student responses on the online reflective surveys, transformation of codes was employed. Transformation of codes involves the application of numerical values to non-numerical data (Sandelowski, Voils & Knaf, 2009). On the online reflective survey students were allowed to describe more than one model of service delivery. As such the number of times a code was used was divided by the total number of responses analyzed, which typically equalled the number of participants. The use of number of responses instead of number of participants allowed analysis to be accurate even in instances where data was missing (i.e., a participant

failed to answer a question). The calculation resulted in a percentage of responses or students that included each code as part of their responses. More than one code was permitted for each response in order to ensure the coding process accurately reflected all components of a response.

On the collaborative case study, researchers documented the most integrative model described by groups. The number of times a code was recorded as the most integrative model was divided by the total number of groups resulting in a percentage of groups that identified each model as the most integrative model. Also, the number of groups that described some form of classroom-based services, pull-out services, and consultative services were divided by the total number of groups.

Results

Reflective surveys. Table 1 and Figure 4 present the percentage of S-LP students that included each of the general models of service delivery before and after the IPE experience. Before the IPE experience, 55% of student S-LPs' responses were coded as Interdisciplinary. Student responses often made a general statement indicating 'working together' without any specific reference to a model, which was coded as Interdisciplinary. Before the IPE experience 29% of student S-LPs described a Multidisciplinary model of service delivery and 16% described a Transdisciplinary model of service delivery. After the IPE experience, similar proportions of student S-LP responses described the Multidisciplinary, Interdisciplinary, and Transdisciplinary models (32%, 42%, and 32% respectively). Before the IPE experience, 39% of student S-LPs referred to Consultation as a model of service delivery and, after the IPE experience, 17% of student responses referred to Consultation.

Table 1 and Figure 5 present the percentage of student teacher responses that included each of the general models of service delivery before and after the IPE experience. Before the IPE experience, 27% of student teachers described an Interdisciplinary model of service delivery, usually coded as such due to a general statement about 'working together'. Before the IPE experience, 17% and 2% of student teacher responses were coded Multidisciplinary and Transdisciplinary, respectively. After the IPE experience, 72% of student teacher responses included an Interdisciplinary code. After the IPE experience, 31% and 33% of student teacher responses included Multidisciplinary and Transdisciplinary codes. Before the IPE experience, 13% of student teacher responses described Consultation. After the IPE experience, 14% of responses described Consultation.

Collaborative case study. Table 2 reports the percentages of groups that identified one of Multidisciplinary, Interdisciplinary, and Transdisciplinary as the most integrative general model of service delivery in the

Table 1: Percentages of student responses that made reference to models of service delivery

	S-LP Pre-IPE	S-LP Post-IPE	Teacher Pre-IPE	Teacher Post-IPE
Multidisciplinary	29%	32%	17%	31%
Interdisciplinary	55%	42%	27%	72%
Transdisciplinary	16%	32%	2%	33%
Consultation	39%	17%	13%	14%

Notes: S-LP = student speech-language pathologists, IPE = Interprofessional education,

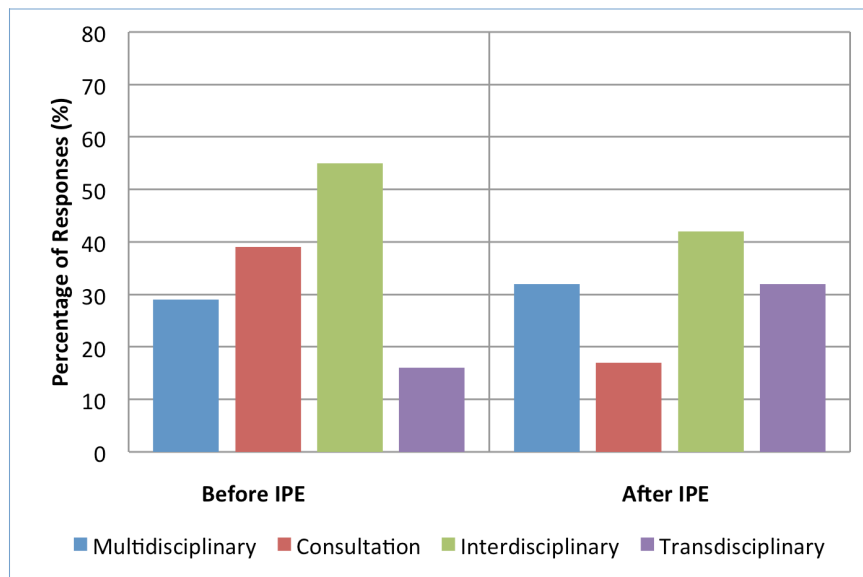


Figure 4. Percentages of student S-LP responses that applied general models of specialized service delivery before and after IPE

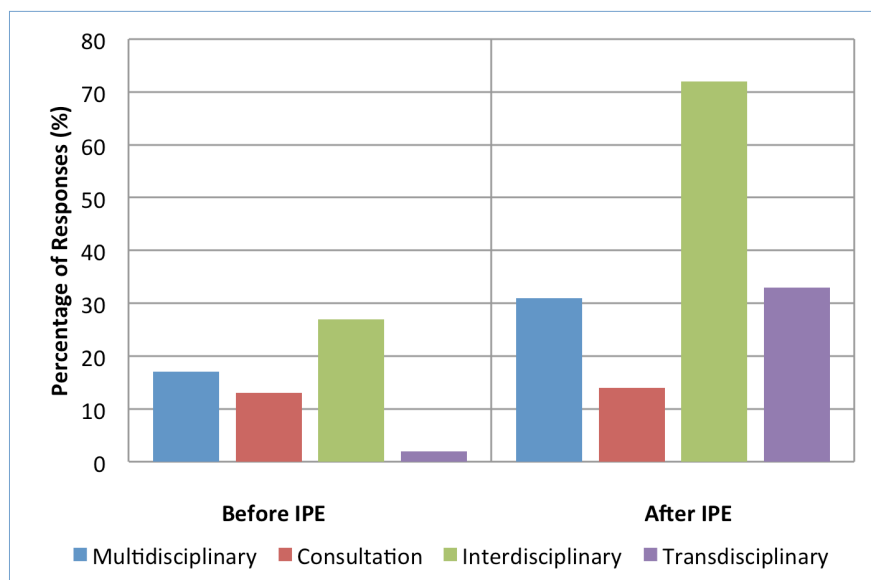


Figure 5. Percentages of student teacher responses that applied general models of specialized service delivery before and after IPE

Table 2: Percentages of groups and the most integrated model of service delivery identified in their intervention plan

	Most Collaborative Model of Service Delivery Included		
	Multidisciplinary	Interdisciplinary	Transdisciplinary
Percentage of groups that described models	-	17%	83%

Table 3: Percentages of groups that identified general categories of service delivery applications

	Application of Service Delivery		
	In the Classroom	Pull – Out	Consultation
Percentage of groups that applied service delivery	100%	91%	43%

group's intervention plan. Most groups (83%) referenced a Transdisciplinary model of service delivery. Table 3 shows percentages of groups that used classroom-based services, pull-out services, and consultative services. All groups indicated that they wanted to design an intervention program that included the speech-language pathologist working within the classroom. Almost all the groups identified the need for additional pull-out programming for children with exceptional needs (91%). Almost half of the groups utilized some form of a consultative model (43%) in their intervention plan.

Discussion

Student S-LPs before and after the IPE experience. For student S-LPs there was an equalization effect such that after the IPE experience student S-LPs were describing features of models of specialized service delivery with similar frequencies in lieu of making general statements related to 'working together'. Thus, student S-LPs were able to describe service delivery beyond a general idea of collaboration after the IPE experience. Student S-LPs reported consultation with less frequency after the IPE experience, aligning them more with a more integrative approach to service delivery. This shift toward a more integrative approach is consistent with current shifts taking place in schools towards a more collaborative service delivery approach (ASHA 2010b).

Student teachers before and after the IPE experience. Before the IPE experience, less than a third of student teachers made any general statements related to collaboration and even fewer made reference to any particular model of specialized service delivery. Perhaps this finding showed

that in general student teachers are unaware of their role in collaboration with other professionals. Interestingly, the vast majority of student teachers had some practical experience in the schools. This finding might also be a result of a lack of exposure to collaboration with other professionals when student teachers were in the schools. Finally, this finding could also be explained by a lack of understanding of the question on the survey. After the IPE experience, student teachers regularly reported Interdisciplinary as a method of service delivery. Furthermore, student teachers described specific features of models of collaboration with greater frequency after the IPE experience. Approximately the same number of student teacher responses described consultation before and after the IPE experience. For student teachers, the IPE experience improved general awareness of collaboration between speech-language pathologists and teachers and improved the ability of student teachers to describe specific models of service delivery. This IPE experience seemed to shift and hone the knowledge of student teachers to align with the currently emphasized models of specialized service delivery.

Comparing student S-LPs and student teachers before and after the IPE experience. Before the IPE experience, fewer student teachers described all models of service delivery than student S-LPs. After the IPE experience, comparable percentages of student S-LPs and teachers reported Multidisciplinary, Transdisciplinary, and Consultative models of service delivery. One outstanding difference after the IPE experience is the relative high frequency with which student teachers reported Interdisciplinary models of collaboration (72%). This mimics the pattern observed in student S-LPs

before the IPE experience. Perhaps student S-LPs were more aware of the need for collaboration before the IPE experience, while student teachers developed an understanding of this through the IPE experience, along with knowledge of different models of collaboration.

Collaborative case study. Groups of students working in mixed-discipline teams consistently created intervention plans that included S-LPs working in the classroom. Over 80% of the groups used some form of transdisciplinary collaboration when designing an intervention plan. This showed that interprofessional education not only exposed pre-professionals to the possibility of sharing roles, but that student S-LPs and student teachers were overwhelmingly willing to engage in sharing roles and responsibilities. Before the IPE experience only 16% of student S-LPs and 2% of student teachers described any aspect of transdisciplinary configurations of service delivery. Given this result, it would be unlikely that students would have designed intervention plans that included integrative models of service delivery without the theoretical exposure in the interactive seminar. Therefore it is likely that the theoretical knowledge which students applied in the case study was acquired through the IPE experience. Interestingly, over 90% of groups continued to identify pull-out programming as an option for children with specific speech or articulation needs who required individual attention. While all groups indicated a desire to engage in classroom-based service delivery, the vast majority of groups also believed that for some children, individual pull-out therapy was a valuable component of their intervention plan. This finding demonstrates that this IPE experience helped to align student understanding with current policies and legislation which, involves matching service delivery with student needs by using a variety of service delivery models (ASHA, 2010b).

Overall, the results of this study show that after this IPE experience more student teachers and student S-LPs were able to describe different models of service delivery in schools. After the IPE experience students applied and advocated for more integrative models of service delivery. Students from both disciplines were better able to describe characteristics of models of service delivery that extended beyond merely mentioning 'working together'. Regardless of discipline, the IPE experience provided practical information to participants regarding models of specialized service delivery.

Limitations & Future Research

This preliminary study demonstrated that participation in this IPE experience increased the variety of service delivery models that student S-LPs and teachers were able to describe and apply to address student needs. In doing so, this IPE experience helped prepare these students to participate in a collaborative workplace upon graduation. The authors encourage other universities in Canada develop

and engage student S-LPs and student teachers in IPE. The findings from this study show that explicit instruction in and opportunities to apply knowledge of models of service delivery helped students consider service delivery as another facet to collaboration. This IPE experience provided student S-LPs and student teachers an accurate survey of the current trends in the schools and prepared them for entrance into the collaborative work force in Canada. Future studies could determine the efficacy of other IPE modules as this study only looked at one specific IPE experience. Other IPE experiences could be designed to focus on other constructs of collaboration (i.e., conflict resolution) or even other content areas, such as response to intervention (ASHA, 2010b).

The descriptive content analysis used in this study provided preliminary evidence for the efficacy of the IPE experience. Future studies could use either a quantitative or qualitative approaches to build upon these findings. Interviews with students could provide more insight into their perceptions of the different models of service delivery while quantitative approaches can substantiate the changes effected by the IPE experience itself. Furthermore, responses on the case study could be analyzed for appropriate matching of model of service delivery to student need.

The student S-LPs in this study did not have any clinical experience while the student teachers had completed a practical experience. This discrepancy in workplace experience may have influenced the results of this study. Perhaps if this study had included student S-LPs with some clinical experience this group may have had more awareness of service delivery models. On the other hand, perhaps the practical experiences of student teachers provided these participants with an authentic understanding that collaboration with other professionals is not an important component of day-to-day life in schools. A future study could include student S-LPs and student teachers with various levels of practical experience and determine the influence of these experiences on knowledge and understanding of models of service delivery.

Finally, the effects of the interprofessional education experience could be substantiated longitudinally, and student S-LPs and student teachers could be followed in their clinical and practical experiences and their initial employment after graduation. This study provides a launching point for many more theoretical and practical investigations into service delivery in schools.

Conclusion

S-LPs and teachers have the potential to work together in a variety of configurations to implement effective specialized services for school-aged children with speech, language and communication needs. Models of service delivery

should be configured to best meet the child's needs. After participating in this IPE experience student teachers and S-LPs demonstrated knowledge of and willingness to apply different models of service delivery.

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