Exploring the Use of an Interprofessional Education Session for Speech-Language Pathology and Pharmacy Students

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Abstract

Interprofessional education (IPE) occurs when students are provided the opportunity to learn with and from others of related professions to improve the potential for future collaboration. The aim of this study was to explore the perceptions of students about working with professionals from different disciplines before and after their engagement in an interprofessional learning activity and determine any changes in their willingness to work in interprofessional teams.

Doctor of Pharmacy students from the University of Manitoba and Master's speech-language pathology students from McMaster University participated in an online inter-university and inter-provincial education module. Students were invited to complete the Interprofessional Socialization and Valuing Scale (ISVS-9B) and three open-ended questions to capture attitudes toward interprofessional teams before and after the IPE event. A mixed-method approach was used to assess changes in attitudes, values, and comfort with collaborating.

A total of 20 students completed the pre-survey and 19 completed the post-survey; significant changes in total ISVS-9B scores were observed. Four questions of the ISVS-9B also showed significant positive changes after the IPE event. Qualitative themes were identified from responses to the open-ended questions: collaboration optimizes patient care, collaboration is fostered by clear communication, learning from peers increases knowledge and appreciation of professional roles, and IPE fosters the potential for future collaborations.

This study suggests that a virtual IPE event tailored to pharmacy and speech-language pathology trainees may be effective in fostering future interdisciplinary collaboration through increasing knowledge and appreciation of other professional roles with a primary goal of optimizing patient care.

Keywords

Authors

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Introduction

Interprofessional collaborative practice (IPCP) has been identified by the World Health Organization (WHO) as an innovative way to strengthen fragmented health care systems and achieve optimal health services for patients (World Health Organization [WHO], n.d.). Clinical educators use interprofessional education (IPE) to train students to work collaboratively and function in an interprofessional team with the hope that the knowledge, skills, and values learned will influence future practice and improve patient outcomes (Canadian Interprofessional Health Collaborative [CIHC], 2010). IPE refers specifically to occasions when students of different professions learn with, from, and about each other to improve quality of patient care (Barr & Coyle, 2013). Historically, IPCP has been recognized as a key educational outcome by various accrediting bodies in North America to prepare healthcare students to be practice-ready collaborators (Accreditation Council for Pharmacy Education, 2015; Association of Faculties of Pharmacy of Canada, 2017; Accreditation Council for Occupational Therapy Education, 2022; Canadian Association of Occupational Therapists, 2022; Physiotherapy Education Accreditation Canada, 2020; American Speech-Language-Hearing Association, n.d.). Further, the Interprofessional Education Collaborative (IPEC), which represents 21 professional health associations, including The American Association of Colleges of Pharmacy and the American Speech-Language-Hearing Association, aims to promote interprofessional learning efforts to prepare future healthcare professionals (IPEC, 2023). The IPEC identified four key competencies for interprofessional collaboration, with the goal of improved health for people and populations across the continuum of care: (a) Values and Ethics, (b) Roles and Responsibilities, (c) Communication, and (d) Teams and Teamwork (IPEC, 2023). The IPEC encourages the use of their four key competencies in a variety of ways, including curriculum development and monitoring of learner progress (IPEC, 2023).

Systematic reviews exploring the use of IPE indicate that most interventions aim to improve the attitudes of healthcare students about other professions, increase student knowledge of other professions, or change clinical practice behaviours, all with the larger goal of improving patient care (Reeves et al., 2016; Spaulding et al., 2021). Research on IPE continues to report positive outcomes (Reeves et al., 2016; Spaulding et al., 2021); however there is heterogeneity with respect to the measures used, the settings described, and the participant demographics, all of which make generalizability to specific contexts and professions challenging. Interprofessional interventions are typically delivered in classrooms, clinical settings, or using a hybrid model (i.e., online and in-person); other formats, however, such as grand rounds, can also be used to engage trainees and clinicians in IPE activities (Ludwig et al., 2019; Namazi et al., 2019; Spaulding et al., 2021). Contexts that use small group discussion and project-based learning may be particularly beneficial for trainees, as larger groups with experienced practicing clinicians may result in reduced participation and risk-taking. Although the benefits of IPE are well demonstrated in the literature, there are many barriers to implementation. Logistical constraints such as time allocation, financial resources, facilitation requirements, and physical space are frequently cited as barriers to organizing and implementing IPE activities (Reeves et al., 2016; Ward et al., 2018). Researchers and clinical educators can consider creative solutions, such as synchronous and asynchronous learning in an online environment to mitigate some of these barriers.

Meaningful IPE occurs when learners are exposed to immersive, challenging, and complex tasks that are reflective of real-world practice experiences (D'Eon, 2005). Pharmacist education has prioritized IPE, and research indicates a growing number of collaborations between pharmacy, medicine, and nursing students (Hamilton et al., 2021; Olsen et al., 2021; Wheeler et al., 2019). Findings from research on IPE in pharmacy programs has demonstrated increases in perceived positive experience for learners (Wheeler et al., 2019); however, there are limited examples exploring IPE opportunities between pharmacy and rehabilitation programs, such as occupational therapy, physiotherapy, and speech-language pathology. Collaboration between pharmacy and speech-language pathology (SLP) is an authentic working relationship that could lead to improved care and enhanced safety for patients diagnosed with dysphagia (swallowing difficulties).

Risks associated with poorly managed dysphagia include aspiration, malnutrition, pneumonia, and increased mortality (Carrión et al., 2015; Clavé et al., 2012; Hudson et al., 2000). Safe practices for oral medication administration are imperative, as modification to dosage forms, such as crushing tablets or opening capsules, can increase risk for adverse drug events, medication non-compliance, and treatment failures (Jackson et al., 2008). There is a growing body of research on IPE in speech-language pathology programs, however much is focused on collaborations with other rehabilitation professionals (e.g., occupational therapy), nurses, and dietitians (Curro et al., 2022; Miles et al., 2016; Wallace et al., 2022). While there is a paucity of research exploring IPE activities for pharmacy and SLP specifically, research in adjacent areas, such as audiology and dietetics, further supports the utility of IPE for rehabilitation and other allied health students (Brothers et al., 2022; James et al., 2017; Ludwig et al., 2019).

Purpose. Despite the potential benefits of collaboration between pharmacy and SLP students, there are currently no IPE opportunities in Canada between the two disciplines. There are 12 SLP and 10 pharmacy programs across all of Canada; however, only half are co-located in the same university, which may contribute to the paucity of research and IPE experiences between disciplines. With the rise and expansion of virtual and asynchronous education, there is a clear opportunity to expand IPE for SLP and pharmacy students via interdisciplinary and inter-university endeavours. The current study aimed to explore student perceptions of working with professionals from different disciplines before and after their engagement in an interprofessional learning activity and determine any changes in their willingness to work in interprofessional teams. There are no programs facilitating pharmacy and SLP student collaboration at this time, therefore the IPE activity described in this study was a novel interdisciplinary and inter-university event that included pharmacy students from the University of Manitoba and SLP students from McMaster University.

Methods

The study was approved by the University of Manitoba's Health Research Ethics Board (HREB #HS25695) and the Hamilton Integrated Research Ethics Board (HiREB #15255). Students enrolled in their third year of the Doctor of Pharmacy (PharmD) program ($n = 42$) in the Applied Pharmacy Practice Lab (University of Manitoba) and second year SLP students ($n = 29$) enrolled in the Master of Science (MSc) program (McMaster University) during the 2022-2023 academic year completed the interprofessional module, "A Tough Pill to Swallow", which was held virtually on November 23rd and 25th, 2022. All students ($N = 71$) were invited to participate in the study by email. The IPE event included three stages: (a) a 30-minute asynchronous lecture describing the role and scope of practice of each profession, (b) a 90-minute synchronous large group lecture on dysphagia management through the lens of both SLP and pharmacy, including various ways to support collaboration, and (c) a discussion of a case study in small interprofessional groups using problem-based learning. A complete description of the design and facilitation of an earlier iteration of the IPE activity has been previously published (Hamilton et al., 2022). All students had some previous interprofessional experience, either through IPE events at their respective institutions or through clinical placements ranging from two to eight weeks in length.

A mixed-methods approach was used to assess interprofessional activity outcomes. The Interprofessional Socialization and Valuing Scale (ISVS-9B) (King et al., 2016) is a tool used to capture attitudes towards interprofessional teams before and after an IPE experience. The ISVS-9B tool was selected specifically for its brevity, clear language, and particular relevance to the goals of the IPE experience. Student attitudes, beliefs, and behaviours toward interprofessional collaborative practice were captured through use of the tool, which uses a 7-point Likert scale (one = "Not at All", four = "To a Moderate Extent" and seven = "To a Very Great Extent") to assess student ability, value, and comfort in working with others.

Volunteer participants were provided with detailed information about the study via email, and consent was confirmed before completing the online surveys. Participants were invited to complete the ISVS-9B two days prior to the IPE activity, and then for a second time up to 14 days after the IPE activity. The ISVS-9B was used for both the pre-and post-activity survey to allow for a direct comparison of the interprofessional attitudes affected at the item level. Survey respondents were also invited to respond to open-ended questions during the post-survey. Open-ended questions were created by the authors and were designed to understand the benefits of the IPE event and how they could be improved in the future. The three questions used for thematic exploration were the following:

1. What did you learn with, from, and about your team members to enhance care? What were your primary "take-aways" from this IPE event?

2. Were any elements of this IPE event confusing? How do you think this IPE event could be improved?

3. Please explain how this interprofessional activity challenged some of your preconceived notions about the other profession.

Descriptive summary statistics were calculated as means and standard deviations for continuous variables given a normal distribution, medians, and quartiles for skewed distributions, and counts and percentages for categorical data. A Wilcoxon signed-rank test for non-parametric data was used to determine the degree of difference in ISVS-9B scores before and after the IPE event. Data from the ISVS-9B were treated as ordinal. All requisite assumptions and diagnostics were tested. All analyses were completed using IBM SPSS Statistics (Version 29) with a significance level of $p < .05$.

A reflexive thematic approach (Braun & Clarke, 2019) was used to generate codes and themes from the open-ended responses using a data-driven inductive approach. The six phases described by Braun and Clarke were recursively and iteratively used to generate initial codes and subsequent themes. All analyses were completed by the first author and reviewed by a senior researcher to support the reflexive process. All code and theme iterations, consolidations, changes, and removals were tracked throughout the analysis process.

Results

Of the 71 possible responses from both the PharmD program (University of Manitoba) and MSc SLP program (McMaster University), 20 students completed the pre-survey and 19 completed the post-survey. A total of 28 students started the pre-survey, with eight responses left uncompleted; PharmD students ($n = 12$; 60%), SLP students ($n = 8$, 40%). A total of 27 students started the post-survey, with eight responses left uncompleted; SLP students ($n = 14$, 74%) PharmD student ($n = 5$, 26%). A total of 10 students completed both the pre- and post-surveys.

The total median score of the pre-intervention ISVS-9B was 46 (Interquartile Range [IQR] = 39), and the total median score of the post-intervention ISVS-9B was 51 (IQR = 47). The median scores and interquartile range for each question of the ISVS-9B are shown in Table 1 Statistical analyses revealed an overall significant difference between pre-and post-survey scores ($p = .011$). A significant difference was also observed between scores for four questions relating to leadership and communication when working with an interprofessional team.

Table 1

Change in Median ISVS-9B Scores

ISVS-9B Question Numbers	Median ISVS-9B Pre-Intervention Scores	IQR	Median ISVS-9B Post-Intervention Scores	IQR	*p*-value (*z* score)
Q1	5	4	5	5	.096 (-1.67)
Q2	4	3	5	4	*.011 (-2.53)
Q3	6	5	7	6	*.038 (-2.07)
Q4	5	4	6	5	.059 (-1.89)
Q5	7	6	7	7	1.000 (.00)
Q6	5	3	5	4	*.023 (-2.27)
Q7	5	4	6	5	.196 (-1.29)
Q8	5	4	6	5	.589 (-.541)
Q9	4	4	6	6	*.023 (-2.27)
Total	46	39	51	47	*.011 (-2.53)

Note. IQR= Interquartile range, * indicates a significant difference (*p* < .05)

Reflective Thematic Analysis. Students were invited to elaborate on the IPE experience via three open-ended questions during the post-intervention survey. A total of 11 students (*n* = eight SLP; *n* = three PharmD) completed the open-ended question portion of the post-survey. A total of four themes were generated from the reflexive thematic analysis process.

Theme 1: Collaboration Optimizes Patient Care. After the IPE event, participants perceived collaboration to be central to optimal patient care. Participants noted they were eager to collaborate in future work settings with the corresponding health professional. Further, participants noted that collaboration and shared decision making was central to factors such as patient safety, advocacy, and overall health.

Theme 2: Collaboration is Fostered by Clear Communication. Many participants identified language as a factor influencing collaboration. For example, many identified the use of professional jargon as intimidating and a barrier to effective communication. Others suggested explicit education of the other profession's specific terminology to facilitate communication and understanding between the trainee groups.

Theme 3: Learning From Peers Results in Increased Knowledge and Appreciation of Professional Roles. Each group of students expressed an increased understanding in the complexities of the other's profession. For example, many SLP students noted a deeper appreciation and respect for work of pharmacists, particularly in their role of managing and modifying medications. PharmD students noted that they were previously unaware that speech-language pathologists did "more than speech" and were able to expand their understanding of the SLP role in dysphagia assessment and management.

Theme 4: IPE Fosters the Potential for Future Collaborations. Overall, the responses indicated a desire by both groups of students to collaborate in future work environments. Each group expressed a limited understanding of the other's role prior to the IPE event; however, all respondents indicated growth in knowledge and appreciation of the other's profession. The responses show that the IPE event was effective in fostering collaboration as a major take-away for participants.

Discussion

The results of this exploratory mixed-methods study indicate that an interdisciplinary online SLP-Pharmacy IPE event is effective in laying the foundation for successful future IPCP. Student participants who completed the surveys increased their willingness to work in interprofessional teams as demonstrated by significant changes in four ISVS-9B questions related to team leadership and communication, which increased overall ISVS-9B scores. Further, participants expressed that they felt collaboration fostered optimal patient care, and that learning with and from peers was effective in increasing knowledge of the roles of other healthcare professionals. Participants also identified clear communication and explicit definitions of terminology as an important facilitator to collaboration. Future areas of research and adaptations to the IPE event format are also identified and discussed below.

The results of this study are consistent with a growing body of literature that suggests IPE events are effective in changing attitudes and behaviours, and our findings show that a virtual inter-university, inter-provincial, and interdisciplinary context can reduce previously identified implementation barriers (Reeves et al., 2013; Spaulding et al., 2021). Collaborative practice models of care are becoming the standard in many healthcare settings as they are shown to consistently improve patient outcomes, and IPE is the first step in training these skills (Reeves et al., 2013; Spaulding et al., 2021). Spaulding and colleagues' systematic review (2021) identified that it is currently unclear whether IPE events can move beyond changing attitudes to also increase knowledge of the roles of other providers. Within the present study, however, increased knowledge of professional roles, as well as respect and appreciation of the intricacies of each role, were identified as a theme within the open-ended questions completed by the SLP and PharmD students. Participants expressed that the small-group exploration of a case study allowed for informal discussion of training and clinical placement experiences. Longitudinal assessments of how maintenance of interprofessional collaboration between SLP and pharmacy will be beneficial to determine the continuing success of IPE events attended during graduate programs. Research by Zheng and colleagues (2019) suggests that positive attitude changes from IPE events during training programs decrease as trainees begin working in their fields; therefore, ongoing strategies, such as interprofessional continuing education for early career clinicians, may support more long-lasting collaborative relationships and the breakdown of silos and hierarchies that exist within healthcare institutions (Zheng et al., 2019).

The effectiveness of IPE events in improving specific trainee skills has also been identified as an area requiring additional research (Spaulding et al., 2021). While the present study did not assess changes in skills directly, future research may consider the use of patient simulation activities to develop the six essential competencies for effective collaboration outlined by the Canadian Interprofessional Health Collaborative, which include patient centered care, interprofessional communication, role clarification, team functioning, collaborative leadership, and interprofessional conflict resolution (CIHC, 2010). The PharmD-SLP IPE event described in this study used hypothetical case studies for students to then answer specific questions about medication management in the presence of dysphagia. While this method was effective in changing attitudes and increasing knowledge of other professions, a simulation-based IPE event may provide trainees with unique opportunities for skill building, team problem solving, and communication (Watts et al., 2020; Weir-Mayta et al., 2020). Simulations can be valuable learning for healthcare trainees; however, they are also time and resource intensive (Watts et al., 2020). Strategies to mitigate implementation barriers include developing relationships between various interdisciplinary faculty members, using existing teamwork and interprofessional collaboration frameworks during the planning

stages, and allowing for sufficient time for learner pre-briefing and de-briefing (Watts et al., 2020). Previous research by Weir-Mayta and colleagues (2020) has shown that simulation-based IPE events have been successfully implemented for students in the fields of medicine, nursing, and SLP to practice clinical skills in a safe environment to increase trainee confidence. Simulations may be an effective next step for future integrated PharmD-SLP IPE events to build skills and ultimately improve patient safety in future clinical practice. While simulation offers high-fidelity IPE by incorporating interactive performance-based learning, logistical barriers can make it more challenging to execute. The design of our study maintained a high-fidelity IPE environment by using case-based learning, followed by dedicated in-depth facilitator-led debriefing. Use of a virtual learning platform allowed the research team to address some common barriers such as distance, physical space requirements, number of facilitators required, and financial burden. Other programs may consider use of a similar virtual delivery model to help mitigate barriers to IPE event implementation.

A major theme identified through the open-ended survey questions was the importance of clear communication. The language of healthcare professionals is powerful and is an important tool when communicating with patients and other providers. Research by Pitt and Hendrickson (2020) indicates that the language used during healthcare visits is frequently misunderstood by patients. Further, healthcare providers misidentify the level of patient understanding and the amount of jargon used during patient encounters (Pitt & Hendrickson, 2020). While there is limited research exploring misunderstandings and level of understanding during interactions between healthcare providers, it is likely that jargon and acronyms are a barrier to clear communication and optimal patient care. Further, the WHO has identified "miscommunications" between health professionals as a cause of adverse patient outcomes (WHO, n.d.). The findings of this study indicate that IPE events may offer an important opportunity for students to practice communicating critical information with limited jargon. Where discipline-specific terminology is required, IPE events may be tailored to provide instruction and examples for how to deliver succinct and informative definitions to ensure understanding.

Limitations. This study has limitations. Firstly, only the ISVS-9B was presented to respondents. This was done intentionally, as specific item level responses from the ISVS-9B were of greatest interest. Future work should consider administering the ISVS-9A before the IPE event and the ISVS-9B afterwards to better use the ISVS tool as intended. Secondly, the qualitative analysis for this study was limited due to the lack of responses and limited potential for follow-up. Future work should consider more in-depth qualitative analysis in the form of focus groups or semi-structured interviews with a greater number of participants to further understanding the factors that contribute to fostering collaboration and a successful IPE event. More in-depth qualitative analysis would also allow for consideration of discipline specific questions to delve into the differences between the SLP and pharmacy student experiences. Open-ended questions or interview questions should also be field tested to ensure they capture all necessary information. Thirdly, no demographic details were collected from participants; future studies should include these details for improved levels of rigor, transparency, and generalizability. Finally, additional strategies should be considered to encourage participation in the surveys, as only 28% of potential participants completed the pre- and post-surveys. For example, a clearer explanation of the study goals, or explicit time during the IPE event to complete the surveys may be beneficial for future work. Due to the low proportion of respondents, the results may also be skewed towards the experience of students who had a more positive experience of the IPE event.

Conclusion

Online interdisciplinary and inter-university IPE activities between student healthcare providers can change attitudes and beliefs while increasing appreciation of other professional roles and reducing logistical barriers. While further research is required to determine how best to deliver and measure the long-term

effectiveness of IPE, these events lay the necessary foundation for long-lasting collaborative relationships which support optimized patient care.

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