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A pilot study on interprofessional education: how prepared are faculty to teach?

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ABSTRACT

Faculty development for interprofessional (IP) teaching and learning is a complex and evolving part of educators' preparation for IP teaching and learning. A review of the literature highlighted a gap of rigorous research in the area of faculty development for interprofessional education (IPE). This pilot study used a mixed-methods approach to explore how faculty development affected educators' preparedness for IP teaching and looked at the possible effects of IP and teaching experiences. Pre- and post-faculty development evaluations were captured using validated instruments and helped to explore the impact faculty development had on educators' preparedness for IPE. The qualitative data offered insights using participants' perspectives about IPE where the quantitative method could not. This pilot study offers findings that explored important characteristics that may have a role in faculty preparation for IPE teach and learning and could possibly be used in future research.

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Faculty development; faculty preparedness; interprofessional education; best practices; experience; mixed methods

Introduction

In 1988, the World Health Organization (WHO) suggested that there was a need to bridge the gap between health education and practice to ensure that future care providers could adapt to the needs of the health-care system and its users. The WHO (1988) also proposed interprofessional (IP) learning as an important strategy to bridge that education–practice gap. Since the time of the WHO report, interprofessional education (IPE) interest has grown, often in response to drivers such as changing demographics, improved quality of care models, and a general shortage in health-care providers (Health Council of Canada 2005, WHO, 2010, Institutes of Medicine 2012). Reeves (2016) argued that IPE is an important strategy to improving the delivery of safe, effective care, as did the WHO (2010) in its report *Framework for Action on Interprofessional Education and Collaborative Practice*. Both called for IPE as a way to prepare a more collaborative workforce. Based on its review of the literature, the World Health Organization (2010) stated, IPE has a positive effect on the quality of care delivery and on patient outcomes and may be able to, in part, address the workforce shortage. A key mechanism for the development of IPE is the training of faculty involved in the development and delivery of health professional curricula (World Health Organization 2010). While the literature on IPE is extensive, research on faculty development in IP teaching and learning is only now emerging.

Educators may have the experience and expertise to teach within their home profession, but may not be well prepared to teach interprofessionally (Howkins and Bray 2008). For health

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professional students to understand the value of IPE, the skill of a facilitator is critical; however, it is frequently assumed that all educators are skilled in facilitating in an IP context (Howkins and Bray 2008, Anderson *et al.* 2009, Silver and Leslie 2009, Freeman *et al.* 2010). This is not always the case. According to Rodgers and Hoffman (2010), only 69% of IP learning is delivered by trained IPE facilitators. While IP collaboration is one strategy for resolving some of the challenges facing health-care systems, and while IPE may well be an effective strategy for training future health-care providers to contribute to IP collaboration, Barr noted that IPE is only as effective as its educators (as cited in Howkins and Bray 2008).

Purpose of study

The purpose of this pilot study was to examine the effect of an IPE intervention on educators' preparedness to engage in IPE and to determine whether these individuals were influenced by the research variables of years of IP practice experience and/or years of experience as an educator. Preparedness refers to the attitudes, knowledge, skills, and behaviours that educators should possess to facilitate IPE competently. Educator preparedness involves reflection on their own teaching and learning practices, and on a solid understanding of the issues and processes involved in IPE to promote IP learning in students. The intent of the study was to try to answer the following research questions:

(1) How do previous IP practice experiences affect educators' preparedness for IPE?
(2) What effect do the years of teaching experience have on educators' preparedness for IPE?
(3) How do the years of teaching experience influence what types of pedagogical strategies educators use or would consider using to facilitate IPE?

Methodology

A mixed-methods design involving pre- and post-intervention questionnaires, a face-to-face (F2F) faculty development workshop consisting of two separate sessions, and online activities was used to explore the research questions. The mixed methods design was chosen to enhance results because such a method can provide rich data that confirm, cross-validate, or corroborate findings. This type of design provides a deeper understanding of research questions than either approach alone can.

Prior to the start and upon completion of the intervention activities, participants completed an online questionnaire. At each of the workshop sessions, participants met F2F to discuss and learn about the IP competencies including: roles, communication, group function, and conflict resolution by using a variety of teaching and learning strategies. Between F2F sessions, participants joined in online discussions and self-reflection activities to share learning experiences. These activities helped the researcher understand how an educational intervention prepares educators for IPE and whether previous teaching and/or IPE experiences had any effect on their preparedness. Such activities provide a rich contextualized understanding of the human experience related to the intervention and through the in-depth probing can increase internal validity by triangulating qualitative and quantitative data (Polit and Tatano-Beck 2010).

Ethical considerations

Ethical approval was granted by two institutional review boards, Thompson Rivers University and A.T. Still University. All procedures were followed in accordance with the ethical standards of both boards and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2010).

Sample

Faculty members from Nursing, Respiratory Therapy, Social Work, and Human Services programs were sent an email invitation outlining the project and asking them to participate. There were 70 tenured, tenure-track, and sessional faculty members within the identified programs eligible to participate. These faculty members were either academic and/or clinical instructors from one of the participating programs, regardless of tenure. Interested faculty members were given a unique identification code and electronic link to access and complete the online questionnaire before and after the intervention.

Twelve of 70 (17%) faculty members volunteered to participate. Seven (58.3%) of the 12 participants completed both pre- and post-intervention surveys and the two faculty development sessions of the workshop for this study. The five individuals who did not complete the project after volunteering cited time constraints as the reason for withdrawing from the study. Data from participants who withdrew were not included in the data analysis. Of the seven participants, six were female and one was male.

Instrumentation

Two pre- and post-intervention questionnaires were used in this study. The *Interprofessional Education for Collaborative Patient-Centred Care* (IECPCP) questionnaire (Curran *et al.* 2007) is a combination of three previously validated scales. In their study, Curran *et al.* (2007) modified versions of the original *Readiness for Inter-professional Learning* questionnaire, identified in this current study as sub-scale A, by Parsell and Bligh (1999), the *Attitudes towards IP Learning in the Academic Setting* (sub-scale B) developed by Gardner, Chamberlin, Heestand, and Stowe. (2002), and the *Attitudes Towards Healthcare Teams* (sub-scale C) questionnaire developed by Heinemann *et al.* (2002) to understand faculty perspectives of IPE. A five-point Likert scale was used for each scale with Scales A–C using *Strongly Disagree* to *Strongly Agree*. Permission to use the IECPCP scale was granted by the lead author.

The researcher also developed a survey to assess faculty knowledge related to the pedagogical strategies that could be employed in IPE. The *Interprofessional Educational Pedagogical Survey* (sub-scale D) asked participants to rate the effectiveness of teaching and learning methods or strategies identified as best practices for IPE (Payler *et al.* 2008, Clark 2009, Sargeant 2009, Hean *et al.* 2012, McCann *et al.* 2012, Barr 2013). Sub-scale D used a Likert scale where 1 = *very ineffective* and 5 = *very effective*. This instrument, based on the research and experiences of IPE experts found in the literature (Payler *et al.* 2008, Clark 2009, Sargeant 2009, Hean *et al.* 2012, McCann *et al.* 2012, Barr 2013), was reviewed by a panel of three experts to increase validity. Sub-scale D was tested with a Cronbach alpha statistic to assess for validity and of the 16 items originally included, 2 items, *self-directed learning* and *lecture or didactic instruction,* were removed to improve the overall Cronbach α score to 0.81, which is an indicator of strong validity.

Data collection

The faculty development workshop consisted of two sessions held 1 week apart and facilitated by experts in IPE. Both facilitators used a variety of teaching and learning strategies conducive to IPE, such as small group work and discussions, think/pair exercises, and large group activities and discussions. The first session focused on IPE and how it leads to IP collaboration. The Canadian Interprofessional Health Collaborative (2010) National Interprofessional Competency Framework was introduced, and the facilitator asked the participants to develop teaching elements for the framework competency domains. In the second session, the facilitator engaged the participants in working through activities that they could use for effectively

facilitating IPE. In both sessions, as the facilitators taught about IPE and facilitation, they demonstrated and actively engaged the participants so they could observe and experience IPE facilitation.

Data were collected in two stages during the study. Participants were asked to complete the IECPCP questionnaire prior to the start of the workshop and again after the post-workshop activities. Informed consent was embedded into the online questionnaires and completion of the questionnaires implied consent. The questionnaires were posted online using the secure Verint survey system. The questionnaires were posted for 2 weeks and at the end of week 1, a reminder email was sent to all participants encouraging them to complete the survey.

Qualitative data collection for this study consisted of online discussions that participants posted in a web-based discussion learning management system. At the first workshop session, participants were again given information about the study, consent was read, and each participant signed an informed consent form. There were two posted discussions, one after each workshop session. For the online discussions, questions were broad enough to ensure what learners thought about and reflected on their understanding of the workshop F2F interactions. Open-ended questions were also posted to guide participants' reflections on their learning experiences related to IPE during the intervention. The self-reflective activities provided participants with the opportunity to examine and explore issues that surfaced from the experience to help clarify their understanding and create deeper learning about IP teaching and learning. The self-reflective activities helped the researcher to understand what the participants had learned during the sessions about their own understanding of IPE.

Data analysis

This pilot study used a mixed-methods design to collect quantitative and qualitative data. Changes in participants' preparedness related to IPE were assessed. The analysis of the quantitative data was completed using descriptive statistics (mean, frequency, standard deviation) and parametric (paired *t*-test) tests to assess for changes in mean scores from pre- and post-intervention questionnaires using a statistical significance value of $p < 0.05$. Negatively phrased questions were reverse-coded prior to analysis. Using Pearson's *r*, years of teaching and IPE experiences were compared to the mean scores of the IECPCP questionnaire responses to determine statistical correlations. A Pearson's *r* was used to determine any positive or negative relationship between variables. The statistical analysis, while conducted on a small sample size is not generalizable, does help to triangulate the qualitative methods. It can be helpful to organizations undertaking similar educational activities.

Qualitative data were collected through participants' online discussion posts and reflections. Responses were elicited with opened-ended questions posted by the researcher to facilitate discussions and reflections. For example, some questions focused on how participants' views may have changed because of the workshop, or what participants believed they still required to better prepare them to teach interprofessionally. Other questions focused on how participants integrated or could integrate IPE into the curriculum or courses they teach. Such data were used to explain or enhance the quantitative data results (Graneheim and Lundman 2004). Inductive content analysis was completed by reviewing the raw data several times looking for themes to determine and validate changes in attitudes and knowledge about what was required of educators who facilitate IPE and to strengthen quantitative findings (Graneheim and Lundman 2004). At the end of the intervention, participants shared their views in a summative online reflection to elicit participants' overall views, perceptions, and understanding of IPE.

Results

Faculty development effectiveness

The effectiveness of the IPE faculty development for educator preparedness for IP teaching opportunities was assessed and mean scores were calculated from the participant pre- and post-intervention IECPCP questionnaires. All post-intervention scores were higher than the pre-intervention scores for each scale (Table 1). The participants' aggregate pre- and post-intervention mean scores were combined to create an instrument mean; a *t*-test was used to determine significance. The difference in the mean scores using a two-tailed *t*-test was statistically significant ($M = -0.235$; SD = 0.08; t (3) 5.426; $p = 0.0103$) (Table1).

Paired-samples *t*-tests were performed on the four sub-scales to compare participants' preparedness before and after attending the IPE workshop intervention (Table 2). For sub-scale A, there was a significant difference between the pre- and post-workshop scores which suggest that a faculty development workshop did have an effect on educator preparedness for IPE. Specifically, the results suggested when educators learn about IPE, their attitudes about IP health-care teams improve. When a paired-samples *t*-test was performed on sub-scale B to compare participants' preparedness before and after attending the IPE workshop intervention, there was no significant difference found between the pre-workshop and the post-workshop scores, meaning a faculty development workshop did not have an effect on educator attitudes toward IPE. Sub-scale C was analyzed similarly and no significant difference was found between scores, suggesting that the workshop did not have an effect on educators' perceptions about IP learning in academic settings. Finally, sub-scale D resulted in significant difference between the pre-workshop and the post-workshop scores and suggested that a faculty development workshop did have an effect on educator preparedness for IPE. Specifically, the results suggested when educators learn about IPE, their knowledge of best practices for IPE teaching improved.

Years of IPE and teaching experience

The researcher further explored the sub-problem variables, years of IPE and/or practice experience and years of teaching experience. Pearson's *r* was used to look for correlations

Table 1. Aggregate pre- and post-intervention paired-samples *t*-test.

	Paired differences							
Mean		SD	SEM	CI_{95}		*t*	df	Sig.(two-tailed)
				Lower	Upper			
Pre-scores/Post-scores	−0.235	0.08	0.04	−0.366	−.0105	5.426	3	0.0103*

* Significant at the 0.05 level.

Table 2. Pre- and post-intervention paired-sample *t*-test.

	Paired differences							
	Mean	SD	SEM	CI_{95}		*t*	df	Sig. (2 tailed)
				Lower	Upper			
Pair 1 Scale A pre Scale A post	−0.750	−0.45	0.06	−0.569	−.0327	8.003	13	0.0001*
Pair 2 Scale B pre Scale B post	−0.160	−0.16	0.08	−0.329	−0.004	−1.332	14	0.0545
Pair 3 Scale C pre Scale C post	−0.200	−0.20	0.17	−0.545	0.146	1.190	24	0.2457
Pair 4 Scale D pre Scale D post	−0.370	−0.37	0.14	−0.662	−0.076	2.586	26	0.0157*

* Significant at the 0.05 level.

between the four individual sub-scales of the IECPCP questionnaire with the variables. The results were mixed.

For the variable: *how do previous IP experiences affect educators' preparedness for IPE?*, the results showed no statistical correlations between previous IP experiences and individual sub-scales. While no correlations were found related to the variable, other correlations were identified in sub-scales B and C pre- and post-intervention. Sub-scale B, attitudes toward IPE showed a strong correlation ($r = 0.733$; $p = 0.031$; $N = 7$) post-intervention. A strong correlation was similarly found on sub-scale C ($r = 0.676$; $p = 0.048$; $N = 7$), indicating that attendance at the IPE workshop intervention had a positive effect on participants' preparedness for IPE, specifically related to attitudes about IPE and IPE learning in academic settings.

For the variable, *how does teaching experience affect educators' preparedness for IPE*, only sub-scale A demonstrated statistical significance and a strong negative correlation ($r = -0.801$; $p = 0.015$; $N = 7$), indicating that as the years of teaching experience increased, attitudes toward health-care teams tended to be less positive. No correlations between the variable and the other three sub-scale scores were found. However, changes were noted with pre- and post-intervention scores with two sub-scales. Sub-scale B showed a strong positive correlation and statistical significance ($r = 0.733$; $p = 0.031$; $N = 7$), as did Scale C ($r = 0.676$; $p = 0.048$; $N = 7$), suggesting that attendance to the IPE workshop intervention had a positive relationship with participant preparedness for IPE, specifically related to attitudes about IPE and IPE learning in academic settings.

The third variable, *how do the years of teaching experience influence what types of pedagogical strategies educators use or would consider using to facilitate IPE?*, was also assessed for correlations with sub-scale D specifically. No correlation with the variable was found when a Pearson's r analysis was performed on each of sub-scale D items except item 7; *practice-based learning* showed statistical significance ($r = 0.782$; $p = 0.038$; $N = 7$).

Online discussions and reflections

Qualitative data were gathered from the intervention workshop, online discussions, and reflective postings of the participants using inductive content analysis (Graneheim and Lundman 2004). Data were scanned and read several times to identify categories and themes. Three reoccurring themes were identified: workshop influence, preparation, and teaching strategies.

Workshop influence

Participants described how the workshop influenced perceptions of IPE and what they needed to better prepare for IPE teaching. Some participants stated having familiarity with IPE citing such comments as 'reaffirmed what I already know,' 'I have a fairly good understanding of IPE and have been a proponent of this.' While others commented 'feeling quite comfortable with the idea and excited about the possibilities,' and 'the workshop showed me again how much commonality there is rather than difference.'

Participants with less teaching experience commented that the workshop highlighted where they thought they were at in their level of preparedness. To increase IPE skills and competency, the participants felt that they needed to learn more and that it would be 'beneficial to have experienced mentors.' 'I would feel I was a novice in this; it would be a very different class for me,' commented one educator. Two of the participants who were novices noted the need to develop facilitation skills. Similarly, the more experienced participants had similar suggestions, noting, 'There is a need to learn more about facilitation.' Participants described the need for more opportunity to experience IPE teaching with comments, such as 'observing and participating in an IPE session first would be a bonus.'

Preparation

A second theme that surfaced from the online discussions and reflections was the need for preparation for IPE. The participants all provided comments specifically related to facilitation; five participants felt educators needed to be prepared to facilitate IPE. One participant commented, 'You don't need to be an expert in your profession, but you do need facilitation skills.' Two other participants highlighted the need to learn from others; 'educators require the knowledge/workshops from other IPE experts on facilitating an IPE session' and 'the key to facilitating IPE is…to observe and then practice.'

Participants with more teaching experience were comfortable with their knowledge and skill to teach IP. One participant with more than 25 years of experience commented, 'My experience has provided me with the skills in facilitation, communication, and conflict resolution that would be helpful in facilitating IPE.' Both participants who had taught more than 25 years believed their experience as educators prepared them to engage in IP learning activities. Participants with less teaching experience provided comments about the need for IP experiences such as, 'as an educator, it is also essential that we have had the experience of working in IP teams,' 'I think I do more IP collaboration work in the clinical setting,' and 'health educators usually have experience working with other disciplines.' The more experienced participants deemed 'IPE requires expert educators, not beginner teachers' and was echoed by the more novice participants.

Teaching strategies

The third theme identified from the qualitative data was teaching strategies. Participants were asked how they integrated or could integrate IPE into courses and how they prepare students for IP practice. All participants described student exposure to IPE through one-off opportunities. All stated that they have had guest speakers from other professions or disciplines come into classrooms, had students shadow professionals from other disciplines, attending multidisciplinary rounds, exposure in theory classes, as well as encouraging students to speak to other disciplines in clinical practice.

Participants reflected on ways to bring students from different health-related programs on campus together for learning. One participant described IPE integration as 'the process of students learning and working together' while another noted, 'IPE can have very diverse teaching strategies from didactic to having co-learning/discussions to practice learning together.' When discussing the idea of case studies as a strategy, one participant stated, 'I think it would be exciting to have interprofessional groups on campus working through case studies to see how each would approach the situation.' Two participants commented on the need for facilitation strategies that could be used in groups or classrooms. Finally, one participant summed up teaching strategies, 'IPE is the best approach for educating health care students about each other's roles and responsibilities.'

The researcher used the CIHC (2010) National Interprofessional Framework developed in Canada for the intervention activities and asked participants how the framework could be used in their practice. Comments from participants described the usefulness of the framework, such as 'thorough' and 'easy to use.' The framework highlighted the 'pieces necessary for interprofessional practice…I thought it was really useful.' Four of the participants described how the framework was useful for guiding them in the development of IPE learning objectives and activities. Suggesting the use of the framework could be a useful teaching strategy as well.

Discussion

The discussion of the research results is organized according to the research problems described previously. The research problem addressed whether attendance to a professional development workshop on IPE improved educators' preparedness (knowledge, skills, and attitude) for IP teaching and learning. Specific research questions explored:

- How previous IP practice experiences affect educators' preparedness for IPE?
- What effect the years of teaching experience have on educators' preparedness for IPE?
- How the years of teaching experience influence what types of pedagogical strategies educators use or would consider using to facilitate IPE?

The aggregate results from this pilot study indicated some positive change in participant preparedness from pre-intervention to post-intervention and supported the potential use of faculty development to increase participant preparedness for IPE teaching. This result suggested that the faculty development intervention was effective in increasing participants' knowledge, skills, and attitudes about IP teaching and learning, and may have had an effect on participant preparedness for IPE. For example, one participant stated, 'The workshop helped broaden my understanding of the specific strategies that could be used' and another stated, 'I feel better prepared' to teach interprofessionally. The participants commented the workshop was 'valuable,' 'made me think,' and '⋯improved my understanding of IPE' which supported the statistical results of the research. Such results corroborate findings of a qualitative study by Anderson *et al.* (2011) where positive attitudinal changes occurred from before to after learning about and facilitating IP learning. Furthermore, the use of an interactive workshop and reflective exercise to increase IPE knowledge and skill was demonstrated to be effective teaching and learning strategies. Steinert *et al.* (2006), in their literature review of faculty development studies of medical educators, reported a consensus of positive changes in attitudes and knowledge had occurred with faculty development activities. Providing facilitator training without providing the participants the necessary underpinnings of IPE highlights the value of learning about IPE through faculty development activities and may likely be an important component for educator preparedness for IPE teaching and learning (Anderson *et al.* 2011, Racine *et al.* 2016). To determine the most effective strategies for IPE, more research is needed.

Overall, preparedness for IPE teaching in this pilot study was similar to previous studies on IPE and faculty development. Kwan *et al.* (2009) found no significant change in attitudes, but they did see improvement in IPE knowledge, perhaps due to the already high level of IPE work their participants were involved in. Hall and Zierler (2015) reported in their pilot faculty development program for IPE teaching. Participants in the Hall and Zierler's study also valued IPE development opportunities and described how there was deep learning among faculty; unfortunately, no quantitative data were described.

Although not statistically significant, Lash *et al.* (2014) found in a study on faculty perceptions of IPE, there was a need for additional faculty development to help build faculty confidence. It is reasoned, participants in this current pilot study had similar perceptions about building confidence as comments from their online discussions and reflections highlighted the need for more education and mentorship in IPE and facilitation skills. As other researchers have found, exposure to and involvement in IPE learning opportunities tended to increase knowledge and skills for collaborative practice (Mann *et al.* 2009, Racine *et al.* 2016). Having more practice and exposure could possibly build one's confidence and lead to positive changes in attitude (Olenick and Ryan-Allen 2013, Racine *et al.* 2016). Exploring how years of experience may improve educator confidence for IPE teaching is another area that may benefit from further research.

When the research variables were explored for relationships with the individual sub-scales of the questionnaire, the results were mixed. No correlations were found with the variable, IPE experience and each of the four sub-scales. This could be because all participants had at least 5-year IPE experience and no comparison could be made with participants with less experience. Comments from participants' online discussions and reflective activities also highlighted their experience of having worked in IP teams in clinical settings, implying such experiences have prepared them to teach IP. In the only other study to measure years of IPE experience, Curran *et al.* (2007) found of the 194 faculty who completed baseline surveys, faculty with IPE experience had more positive attitudes about IPE, health-care teams, and IPE learning, than faculty who had

no experience. Kwan *et al.* (2009) postulated that no changes in faculty attitudes were related as faculty were routinely involved in IPE activities. Such findings suggest that faculty with IP experience may have had enough IPE exposure to change attitudes.

There were also mixed results when participants' years of teaching experience were explored with the four sub-scales of the IECPCP questionnaire. The only statistically significant result was a negative relationship between years of teaching experience and participant attitudes toward health-care teams after having participated in this study, meaning participants with more teaching experience may have had more negative attitudes about health-care teams. One possible explanation for this may be educators have developed the necessary skills for IPE through the many years of teaching as one senior participant highlighted, 'reaffirmed what I already know,' and 'the skills I have developed can be transferred to IP teaching and learning.' Another possible reason could be due to the small sample size with nursing faculty constituting the majority. The negative result in the study is interesting as previous studies exploring attitudes toward IP health-care teams showed positive changes in attitudes (Curran *et al.* 2007, Davis *et al.* 2015). However, empirical research on faculty preparedness to teach interprofessionally is limited to date and to better understanding the effects of previous IPE and teaching experiences on educator preparedness warrant further examination.

There was also no correlation found between years of teaching experience and IPE teaching strategies; however, the two participants with greater than 25 years of teaching experience described their teaching experience related to IPE. One stated, 'As an experienced educator, I feel it would be easier to engage in interprofessional teaching and learning activities' and the other, 'with experience in the health field and experience as a teacher, creating [IPE] learning activities would not be challenging.' All participants provided comments about the need for educators to be prepared with the skills to facilitate IPE, implying the need for more specific teaching strategies to do so. Although no other studies were found on teaching experience and IPE, Gatbonton's (2008) study on novice and experienced English as a Second Language educators found experienced educators were more likely to be concerned about teaching strategies and student learning than novice educators, suggesting that novice educators may require more teaching experience to become comfortable with teaching IP.

Limitations

This pilot study had one crucial limitation. Only a small sample was achieved but not a representative sampling of the population of health-related educators at the study site or elsewhere. The researcher used quantitative analysis on the completed surveys to compare before and after measure to look for relationships between variables. Having a small sample size when conducting quantitative analysis usually provides low statistical power, which, in turn, increases the margin of error, causing less conclusive results (Polit and Tatano-Beck 2010). With such a limitation, findings in this pilot study cannot be generalized. Quantitative data analysis generally requires a larger, more representative sampling in order to confirm results or make broader inferences about an intervention (Polit and Tatano-Beck 2010). Ideally, the number of participants would have been larger and more evenly distributed across health programs at the institution to include educators with little-to-no IPE experiences and broader range of teaching experiences. In future studies, the sample size should be increased by determining the best times, days of the week, and semester timing to ensure the participation of as many faculty members as possible.

While small sample results are limited to detecting large differences, small samples are justified, for example, during early-phase trials or pilot studies to ensure the validity of instrumentation and research procedures before they are deployed to a larger population. Using a mixed-methods design, as was done in this pilot study, can compensate for the weaknesses of each individual method by exploring and analyzing data in the same study through observations and statistical analysis. A mixed-methods approach used in a single study provides additional evidence and

support for the findings (Polit and Tatno-Beck, 2010). Through inductive analysis of the qualitative data, this researcher attempted to increase the robustness of the findings and to offer insightful impressions about the intervention (Polit and Tatano-Beck 2010). To ensure insightful and inductive generalizations about the area of faculty development as part of the preparation for IP teaching and learning, it is important to replicate this study using a larger and more representative sample in future research.

Conclusion

Faculty development for IPE teaching and learning has been shown to be a complex and evolving part of educators' preparation for IPE teaching and learning. The development of the workshop activities for this pilot study was designed on best practices for teaching and learning for IPE content. The evaluation of the pilot study used valid instruments used in previous IPE research studies and helped to explore the impact faculty development had on educators' preparation for IPE. The use of quantitative and qualitative methods strengthened the study. The qualitative data offered insights using the participants' perspectives about IPE where the quantitative method could not. While the results showed some positive effects, the results were mixed when years of IPE and teaching experience were explored. In spite of what has been offered in existing literature on the benefits of faculty development preparing educators for IPE, little has been evaluated empirically and few have studied how experience impacts faculty preparedness to teach IP. This pilot study offers findings that explored important characteristics that may have a role in faculty preparation for IPE teach and learning, and could be used in future research.

Disclosure statement

No potential conflict of interest was reported by the authors.

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