

Can We Realize Our Collaborative Potential?

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Can We Realize Our Collaborative Potential? A Critical Review of Faculty Roles and Experiences in Interprofessional Education

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Abstract

Purpose

Faculty within interprofessional education (IPE) are essential contributors to IPE implementation efforts. Although the majority of existing IPE literature consists of reports on IPE innovations, few insights are available into the experiences of the faculty members who deliver IPE. This critical narrative review was designed to synthesize the knowledge available about (1) roles assigned to IPE educators and (2) IPE faculty members' experiences of fulfilling these roles.

Method

Six databases for English-language studies published between 2000 and March 2021 were searched: PubMed, Embase, Web of Science, MEDLINE, CINAHL, PsycINFO, ERIC, and MedEdPortal. A total of 1,717

manuscripts were identified for possible inclusion. After applying inclusion/exclusion criteria, 214 articles constituted the final literature corpus. Harden and Crosby's original framework of 6 roles of medical educators augmented with the manager role introduced in Harden and Lilley's 2018 framework informed the analysis.

Results

IPE faculty take on all 6 roles identified by Harden and Crosby: facilitator, planner, information provider, examiner, role model, and resource developer, as well as the manager role. Faculty were most commonly identified as facilitator and planner, and rarely as role models. The authors identified 3 main struggles experienced by IPE faculty: personal (e.g., confidence as a cross-professions

educator), interpersonal (e.g., co-teaching IPE), and institutional (e.g., supporting IPE logistics).

Conclusions

This review highlights the complexity of the roles taken on by IPE faculty and the struggles they experience in the process. The results suggest that attention to the different roles that IPE faculty play in educational interventions and to equipping faculty with the necessary competencies, tools, and support, is fundamental to the success of IPE. Future research should harness the explanatory power of theories to help explain dynamics at play between personal, interpersonal, and institutional barriers to identify interventions that can aid IPE faculty in delivering collaboration-ready professionals.

Interprofessional education (IPE) holds the promise to transform health systems and patient care by fostering cooperative, effective, and safe team collaboration.¹⁻⁶ The literature teems with examples of IPE innovations that help learners acquire and refine interprofessional team

competencies.⁷⁻⁹ Despite this robust body of work, there is concern that IPE is failing to fulfill its transformative potential.¹⁰ Some scholars suggest that a root cause of this unfulfilled possibility is social. IPE cannot counter power imbalances between collaborators from different professions^{11,12}; it cannot thwart a lack of understanding and appreciation for the roles of all care team members¹³; and it cannot upend the rigid hierarchies that stratify modern health systems.¹⁴ Other researchers propose that IPE is not achieving its potential because something is going awry somewhere along the educational continuum. While successful IPE interventions are commonly reported as part of Undergraduate Medical Education (UME) and Graduate Medical Education (GME) curricula, any connection between those IPE efforts and successful interprofessional collaboration or improved patient outcomes has yet to be identified.^{2,11} We

agree that these social and continuum factors are plausible causes impeding IPE's potential, but we suggest that another factor has yet to be recognized as contributing to IPE's constrained success: the faculty delivering IPE programming to learners. IPE faculty are keystone contributors to IPE implementation efforts, and yet, to date, their experiences have not informed our understanding of IPE's stunted growth.

IPE faculty are teachers, coaches, and role models to learners from multiple different professions.¹⁵ However, research indicates that IPE faculty often feel ill-prepared for these roles: they are not prepared to work with student populations, each with its unique skill levels, professional responsibilities, and social background—all of which is shaped by a context characterized by power imbalances and hierarchical tensions.¹⁶ To compound this problem further, researchers have

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recently begun to explore the culture, power, conflicts, and system structures that exist in practice settings, suggesting that these forces underpin failures in IPE.^{2,14} It is precisely in the midst of these contexts that IPE faculty must not only teach interprofessional collaboration skills but also prepare learners to counter the forces that obstruct their collaboration efforts.

IPE learners are keenly aware of the dissonance between stated IPE values and actual educational practices.^{17,18} For instance, while multidisciplinary teams in one GME setting were highlighted as essential to patient care, learners reflected little understanding of that collaboration in the clinical setting, and they noted concerns about communication issues, tribalism, hierarchical behaviors, disrespect, microaggressions, distress, and negative role modeling.¹⁷ Standing at this crossroads between IPE's ambitions and clinical setting realities is the IPE faculty member.

There is much to be learned in exploring the roles that faculty fulfill in IPE and their experiences of engaging in those roles. Developing a deeper understanding of the impact of faculty members on the success of IPE is required to help target faculty development interventions. Yet, faculty members themselves are rarely the focus of IPE research. In fact, in 2020, in the *Journal of Interprofessional Care* (i.e., the highest-impact journal dedicated to disseminating interprofessional research in health and social care, encompassing IPE and collaborative practice), by our count, only 1 of the 118 papers published therein focused on IPE faculty (JIPC). IPE is not a one-way street; the role of the educator is crucial to its success.

This study was designed to review how the existing literature constructs IPE faculty members' roles and their experiences in those roles. Specifically, we sought to synthesize the knowledge available about (1) the roles assigned to IPE educators and (2) IPE faculty members' experiences of fulfilling these roles.

Method

The aim of this research was (1) to engage in an interpretive analysis of the data to explore how discourses in the literature cast IPE faculty into specific roles and (2) to listen to the voices of IPE faculty

reported in the literature to understand their experiences of fulfilling these roles. Therefore, working from a constructivist orientation,¹⁹ we chose to engage in a critical literature review. A critical review is a type of narrative literature review that generates a subjectively informed synthesis of literature.²⁰ This form of knowledge synthesis goes beyond a description of relevant publications to include analysis and interpretation of the collected literature.^{20,21}

Generating a literature corpus

We used a range of databases to capture manuscripts about IPE that may have been published in a variety of domains. The research team searched 6 databases for English-language studies published between 2000 and March 2021: PubMed (Legacy format), Embase (OVID), Web of Science, MEDLINE (OVID), CINAHL (EBSCO), PsycINFO (EBSCO), ERIC, and MedEdPortal. The search terms used for each database are presented in Supplemental Digital Appendix 1 at <http://links.lww.com/ACADMED/B319>. The corpus of manuscripts consisted of research articles, book chapters, commentaries, published graduate theses, and published educational toolkits/resources.

The research team held regular meetings to discuss the focus of the literature review, to consider the research questions to be addressed, and to refine the nature and scope of the insights we sought to develop. The team determined that the review would encompass manuscripts that met the following 2 sets of criteria: (1a) the roles of IPE instructors were explicitly stated at least once in the manuscript (e.g., "2 faculty facilitated the discussion") and/or (1b) the experiences of IPE instructors engaging in the IPE were explicitly reported; and (2) medical learners were involved in the IPE activity (i.e., medical students, physicians, faculty of medicine). The first inclusion criteria ensured that each manuscript included some mention and/or discussion of IPE faculty roles. The second inclusion criteria ensured that the power dynamics between physicians and other health care providers—a factor that has been suggested as impacting IPE delivery¹¹—would be captured if they were recognized by IPE faculty members.

Based on these criteria and after duplicates were removed, 1,717 manuscripts were identified for possible inclusion in the

study. After we (F.M.C., A.K., A.B., L.V.) reviewed the title and abstract of each text, 1,207 manuscripts were removed leaving a total of 510 articles for full-text review. During the first review, 279 were removed for not meeting inclusion criteria leaving 231 for a second full-text review. During this second review, an additional 17 manuscripts were removed for failing to meet inclusion criteria. Therefore, 214 articles constituted the study corpus, wherein 194 articles contained descriptions of the roles of IPE instructors and 46 articles had descriptions of IPE instructors' experiences (note: 26 articles included fit in both categories). Figure 1 illustrates these processes.

Analyzing the corpus

In keeping with the critical review tradition, we sought to find a theory or existing empirical findings to inform our interpretation of the literature.²⁰ We chose to analyze the corpus in relation to the framework presented in Harden and Crosby's²² paper where they identify the roles taken on by medical educators as clustering into 6 areas: information provider, role model, facilitator, assessor, planner, and resource developer.²² We augmented this with the manager role from Harden and Lilley's²³ framework since our initial reviews of the corpus indicated that managerial work was part of IPE faculty's roles. Therefore, our analytical framework consisted of 7 roles.

Two team members (F.M.C., T.-L.M.) coded a sample of the manuscripts to identify the roles adopted by IPE faculty members. There was good alignment between the data and the framework, and so coding of the entire corpus was carried out by the team (note: F.M.C., T.-L.M. acted as primary analysts coding most of the data; A.K. and A.B. acted as supporting analysts coding substantial parts of the corpus; and R.E.S. and L.V. acted as verifying analysts coding manuscripts that were unclear to another team member). The team engaged in iterative discussions when questions arose until consensus was reached. In this coding, there were cases wherein some IPE faculty roles were not explicitly described; instead, they were implicitly inferred. This often happened when authors used passive voice (i.e., "The feedback sheet was handed out"). To distinguish between explicit and implicit references to faculty roles, we coded data as "implicit" if we could infer from the paragraph's context that the faculty served a specific role.

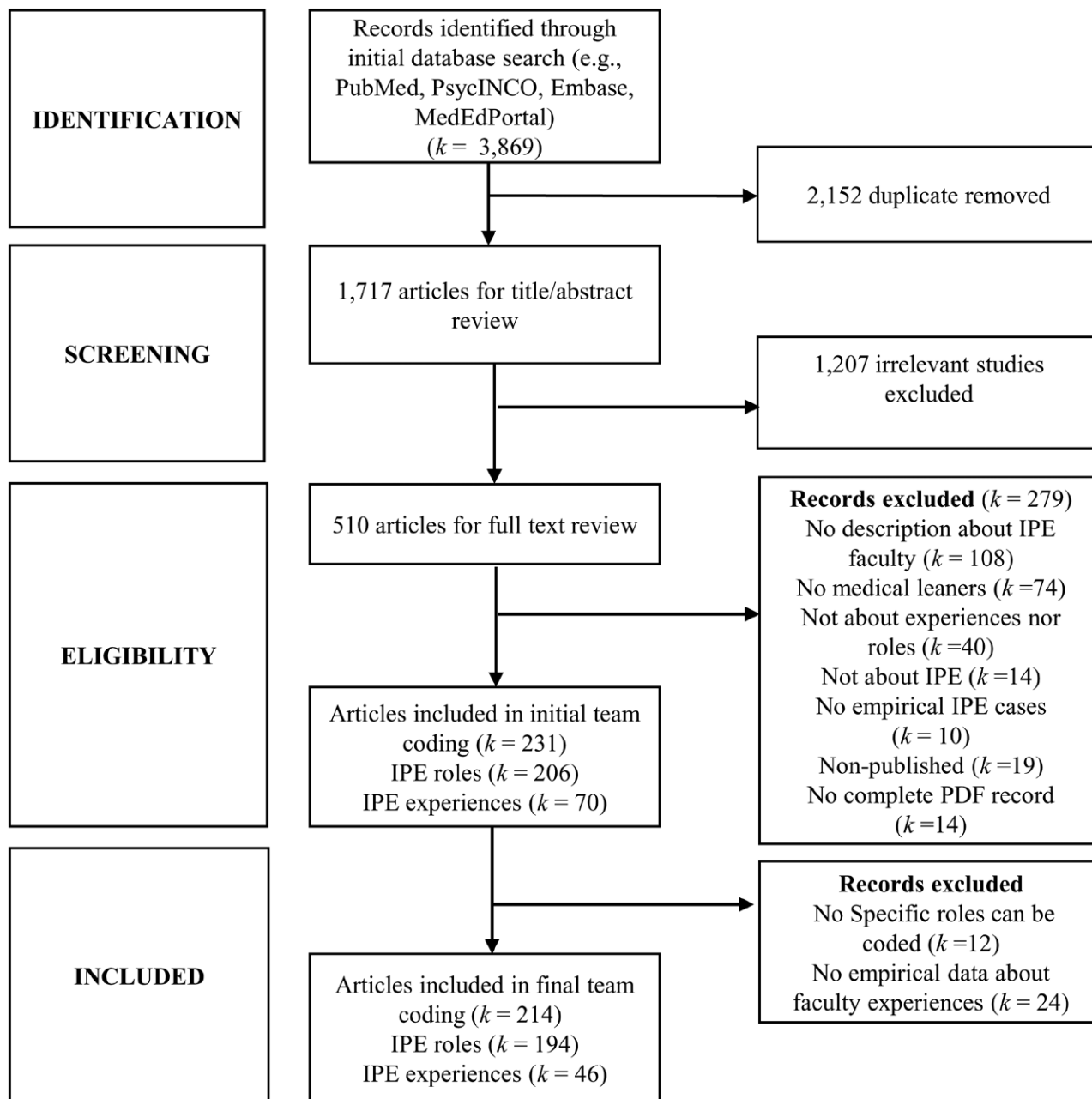


Figure 1 PRISMA chart of inclusion process. Abbreviations: PRISMA, preferred reporting items for systematic reviews and meta-analyses; IPE, interprofessional education.

During this analysis, the research team also noted, extracted, and collected all data from the literature that addressed IPE faculty members' experiences of fulfilling their IPE roles. Using inductive thematic analysis,²⁴ 4 members of the research team (F.M.C., T.-L.M., A.K., A.B.) organized these experience data into 3 codes: (1) facilitators of IPE, (2) barriers to IPE, and (3) what resources and strategies IPE instructors wished to have. Then, through conversations with the entire research team, we analyzed and interpreted these data to understand faculty experiences of IPE. The team eventually identified

3 themes that lay beneath the initial codes; these themes related to notable experiences of struggle perceived by IPE faculty members. The team coding these data (F.M.C., T.-L.M., A.K., A.B.) met weekly to code the IPE faculty experiences data to these 3 themes. Discussion was used to resolve any discrepancies.

Reflexivity

In critical reviews, the research team relies on their subjective experiences and areas of expertise to flexibly and critically review and critique the literature to construct new insights into a body of

work.²⁰ Therefore, personal reflexivity is important to consider throughout the research process.

The research team consisted of 6 investigators with a broad range of roles and experiences in health professions education. The lead author (F.M.C.) is a clinically active family physician and residency program director who taught in and led the primary IPE programming at her affiliated medical school from 2017 to 2021. This investigator is an enthusiastic supporter of IPE and committed to teaching UME and GME learners how to

effectively collaborate in interprofessional teams in clinical work. Another member of the investigator team (A.B.) is a physician assistant who engages in patient care as a member of interprofessional teams within musculoskeletal clinics and teaches medical residents in a musculoskeletal IPE program. Given that both these researchers (F.M.C., A.B.) are clinicians and clinician-educators, they offered insights into the lived experiences of IPE faculty and the multidimensional factors that impact on the roles of IPE faculty. Three members of the research team (A.K., R.E.S., L.V.) are active medical education researchers with expert knowledge of constructivist research orientations and qualitative methods. Two of these researchers (R.E.S., L.V.) have long-standing programs of research into IPE and interprofessional collaboration. These 3 researchers (A.K., R.E.S., L.V.) brought advice about inductive and deductive data analysis to the study as well as perceptions of the full body of IPE literature to help contextualize the team's evolving understandings of the literature. One research collaborator (T.-L.M.) is new to the field of medical education but has expertise in literature reviews and both qualitative and quantitative research methods. This collaborator (T.-L.M.) helped the team develop practical coding schemes, performed data screening and analysis, and synthesized the results. Team research discussions involved deliberating on issues like: Should the scope of inclusion encompass all IPE efforts regardless of the professions of learners involved in the educational interventions or should it be narrowed so that at least one profession is consistently present

in all the texts included in the review? How can we move beyond identifying facilitators and obstructors impacting IPE faculty performances to more deeply understand the factors that create these facilitators and barriers?

The team also engaged in methodological reflexivity and so discussed the impact of all research decisions on the knowledge generated via the literature review. For instance, we wanted to ensure that we captured insights from IPE faculty that may not be present in peer-reviewed literature. Therefore, we broadened the review's scope of inclusion to capture books, commentaries, and other texts that did not report on empirical research. For this and all other research decisions, the team considered how the design choice would impact the study findings and recorded these decisions and their justifications in research memos. Ethical approval was reported as not applicable.

Results

The corpus of manuscripts ($n = 214$) included in this study is presented in Supplemental Digital Appendix 2 (with references) at <http://links.lww.com/ACADMED/B319>. Supplemental Digital Appendix 3 presents the coding for each of these articles at <http://links.lww.com/ACADMED/B319>.

Faculty's roles in IPE

Using our framework of 7 roles, we coded 194 articles. The distribution of papers across these role areas is summarized in Table 1. Facilitator was the most common role identified for IPE faculty

($n = 174$; 90%). As noted in Harden and Crosby's paper,²² work involved in this domain includes being a mentor, a student advisor, a reflective practitioner, or an encouraging supporter to medical learners. On many occasions, faculty in this role acted as learning facilitators who helped with the prebriefing and debriefing processes of a particular IPE intervention. They also frequently took on the facilitator work of leading small- and large-group discussion.

Acting as planner was the second most commonly identified role ($n = 142$; 73%). This work involved participating in the overall IPE planning, leading the work of developing the IPE curriculum and course content, and organizing the IPE offering to ensure smooth implementation.

The next 2 roles were represented in approximately half of the manuscripts. When IPE faculty worked as information providers ($n = 104$; 54%), they served either as lecturers in didactic teaching or as clinical educators in practice settings. When IPE faculty took on the role of examiners ($n = 100$; 52%), they were involved in planning and/or giving formal or informal evaluations to the learners. In some cases, IPE faculty were also required to conduct course evaluations and so needed to evaluate and reflect on their own teaching and the program's efficacy.

In approximately a third of all manuscripts, faculty were noted to be role models or resource developers. As

Table 1
Faculty's Role Areas in IPE Literature Based Primarily on Harden and Crosby's²² Categories

Roles ^a (N = 194)	Explicitly described, N (%)	Implicitly described, N (%)	Not described, N (%)
Facilitator	174 (90)	7 (6)	13 (4)
Planner	142 (73)	10 (5)	42 (22)
Information providers	104 (54)	26 (13)	64 (33)
Examiner	100 (52)	54 (28)	40 (20)
Role models	69 (36)	4 (2)	121 (62)
Resource developer	59 (30)	23 (12)	112 (58)
Manager ^b	27 (14)	N/A	167 (86)

Abbreviations: IPE, interprofessional education; N/A, not applicable.

^aRoles are not mutually exclusive. The percentage within each individual row adds up to 100%.

^bThe first 6 roles are drawn from Harden and Crosby's framework²²; the manager role is drawn from Harden and Lilley.²³

role models ($n = 69$; 36%), IPE faculty engaged in classroom teaching or on-the-job role modeling (e.g., during ward rounds). The work of acting as resource developers ($n = 59$; 30%) was not frequently expanded upon in the literature. If the IPE faculty developed study guides or online learning resource materials, these efforts were only briefly mentioned. In fact, in 23 texts (i.e., 12% of the corpus), the work of developing resources was mentioned in the passive voice and so did not indicate who developed them (e.g., “a study guide was developed”). In these instances, the role was included in our count only if IPE faculty were also mentioned as being involved in the course planning in the same study.

In 27 texts ($n = 27$; 14%), IPE faculty were described as engaging in manager work. Within this role are clustered references to IPE faculty working on logistical aspects of the IPE curriculum, supporting the curriculum, and overcoming obstacles.²³ Examples of manager roles included: securing funding; recruiting students; reviewing resumes; coordinating faculty volunteers; assembling the faculty teaching team; advocating for the inclusion of IPE to curriculum committees and

administrators; and providing logistic support to the IPE faculty.

Faculty's experiences in IPE

When IPE faculty experiences were reported in the manuscripts ($n = 46$), we identified 3 different areas of struggle that these educators faced: IPE faculty experienced struggles at personal, interpersonal, and institutional levels (see Figure 2 for the distribution of these 3 levels of struggle over time across the manuscripts). These areas of struggle did not exist in isolation of each other; instead, they were intertwined together.

First, IPE faculty members' personal struggles were related to aspects of themselves, things that were intrinsic to them as teachers. They grappled with lacking confidence (“As a facilitator, I was a little hesitant—didn't feel well prepared”^{25(p16)}); feeling that they would not be effective IPE instructors (“Faculty recognized effective [interprofessional practice] communication was not taught”^{26(p3)}); and requiring more skills for teaching and giving feedback to learners from other professions (“What means something in one discipline doesn't necessarily translate to meaning the same thing in others”^{27(p4-5)}). In these data, IPE faculty described feeling—at varying

degrees of intensity—ill-equipped for or somehow deficient to the challenge of acting as IPE educators. Their misgivings contributed to frustration around IPE: “One of the first questions is ‘well who's going to teach me to speak nurse so that I can actually be credible to these students that I'm supposed to be teaching?’”^{27(p4)}

Next, IPE faculty experienced significant interpersonal struggles. In some cases, those struggles were with the learners. Faculty perceived significant variations in learners' motivation to engage in IPE; while some students were enthusiastic IPE participants, others were not (“Students' reluctance or even resistance to learn from 'other' faculty may be seen.”^{28(p332)}) Most frequently, interpersonal challenges involved negotiating with other IPE faculty members about their roles and the expectations involved in delivering IPE. These educators were teaching at the meeting point of different professions where power differentials turned the work of offering the IPE programming into an exercise of navigating the borderlines among factions. As several manuscripts explained, the turf wars among the professions created significant challenges for IPE faculty:

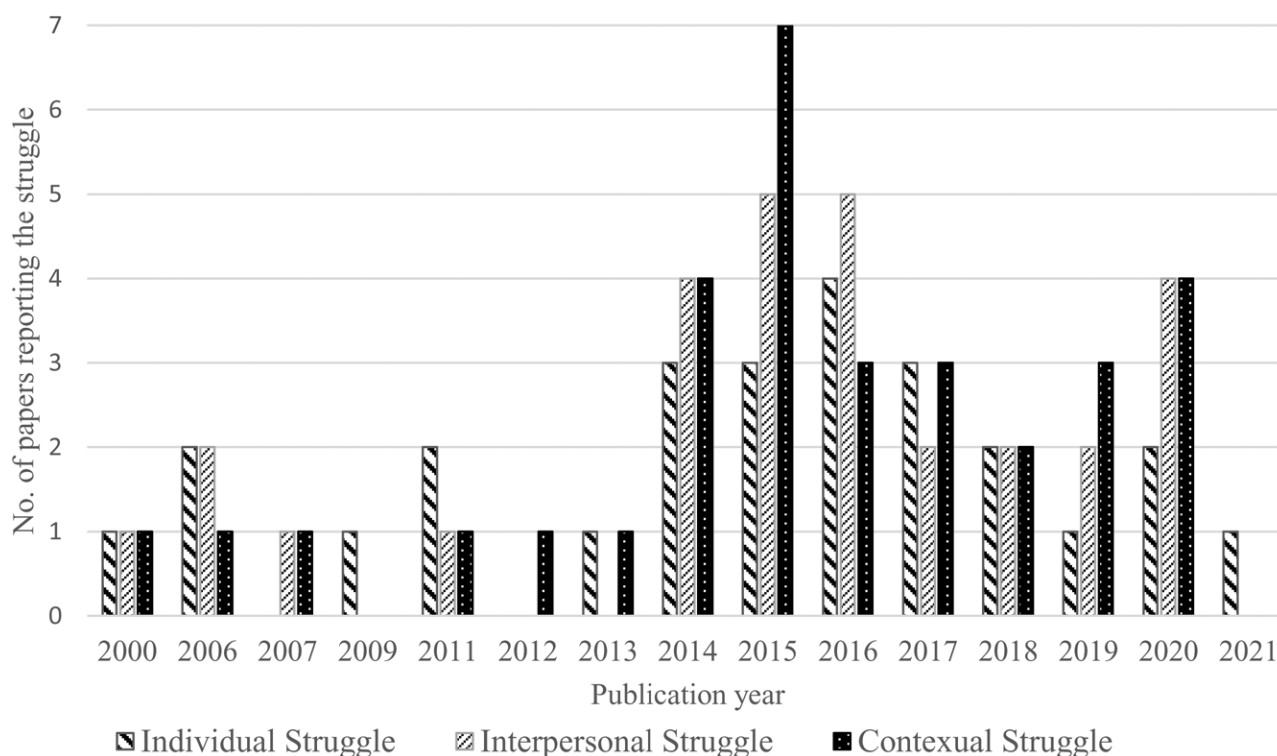


Figure 2 Number of papers reporting interprofessional education faculty's struggles by publication years.

Territorial issues, and attitudes between and toward other disciplines were the main factors that prevented HCFs [IPE faculty] from effectively engaging in IPE. Subjects in this study [IPE educators] cited territorial disputes, the lack of cooperation between disciplines, and discipline elitism as factors impeding IPE.^{29(p8)}

We are talking here about a major shift in the working relationships between physicians and other disciplines. And coming from a nursing perspective, this is a 150-year-old problem. And there has to be a will on the part of medicine to give up power; it is not really giving up power, but that's the way they will see it. And if they don't want to do that, then interprofessional education is not going to work.^{30(p8)}

Finally, IPE faculty regularly reported being at odds with the institutional context where the IPE was being delivered. Many manuscripts pointed to ways in which the institution was not committed to supporting IPE, including: a lack of administrative support and recognition,^{31–33} a lack of departmental infrastructure to support IPE directly,³⁴ unstable financial commitments,³⁵ and logistical difficulties such as scheduling conflicts.^{33,36} Underpinning these institutional struggles was weak or nonexistent organizational buy-in from the educational and clinical context leaders, as well as from the different health professions organizations. Without that support, successfully managing the administrative, logistical, and financial demands of IPE was extremely difficult. As these data excerpts illustrate, without institutional support, IPE was frequently stymied or even thwarted:

A final consideration is the necessity for high-level administrative support from partner institutions. This ensures the financial stability of the program and the recognition of the time spent by the faculty leaders.^{37(p373)}

While boards of nursing encourage and even mandate IPE, antiquated policies may remain in place and should be investigated early. To illustrate, it would not be unusual that registered nursing regulations require only RNs may mentor their own students.^{28(p333)}

Running successful IPE programs requires financial support, but if the institutions where IPE is being held do not secure these resources, the IPE faculty often found themselves shouldering

heavy workloads simply to fulfill their expected roles^{31,38–41}: “No unit advocated for interprofessional education, so the leaders could not allocate resources specifically for that purpose.”^{42(p130)} IPE requires considerable logistical management, but if the institutions do not powerfully support IPE, then logistical challenges quickly become insurmountable barriers:

Struggle with the clinical context made scheduling and adapting to the new preceptorship difficult; bridging the divide between nursing and medical rotations was never going to be easy.^{43(p15)}

As these examples illustrate, when institutional support for IPE was not firmly established, the IPE faculty members bore the brunt of the blow.

Discussion

In this critical review, we found that IPE faculty take on all 6 roles identified for medical educators in Harden and Crosby's²² original paper: facilitator, planner, information provider, examiner, role model, and resource developer. We also identified another role—manager, from Harden and Lilley's²³ framework—as being part of IPE faculty members' responsibilities. Our analysis revealed that IPE faculty contend with foundational struggles that exist at the interpersonal, intrapersonal, and institutional levels. We suggest that these data provide 3 insights into why IPE is failing to fulfill its transformative potential.

First, it is notable that the descriptions of faculty roles in the literature reflect Harden and Crosby's²² framework of 6 role areas and Harden and Lilley's²³ manager role. In fulfilling all these roles, IPE faculty report experiencing personal struggles associated with not feeling confident as IPE educators, not feeling capable of being effective IPE instructors, and not feeling well prepared to be an IPE faculty member. Clearly, there are many roles that IPE faculty need to fulfill, but they have serious misgivings about their ability to be successful across all these roles. Perhaps one of the reasons, then, that IPE is not fulfilling expectations is because the faculty are swamped in the work of being an information provider, a role model, a facilitator, an assessor, a planner, a resource developer, and a manager so that IPE can be implemented,

but they do not feel efficacious across those roles. An important implication of this review, then, is that institutions must better support faculty so they can acquire the knowledge, skills, and attitudes associated with all these IPE roles. If IPE is to act as a catalyst for reshaping interprofessional health care team collaboration, IPE faculty need the resources and protected time to master these different roles and to contend with non-IPE competing responsibilities. This kind of support may ease faculty members' struggles and shore up their feelings of self-efficacy.

A second reason why IPE has not reached its full potential may be linked to the frequency with which IPE faculty engage as role models. Only 36% of the manuscripts in our review noted that IPE faculty act as role models to learners. Harden and Crosby²² define role modeling as happening in clinical spaces and involving “on-the-job role modeling” where the learner observes the educator working in clinical settings. Role modeling is especially important within IPE.⁴⁴ Lack of exposure to good role modeling of interprofessional collaboration across the training continuum may make trainees “question the very nature of interprofessionalism and IPE.”^{44(p130)} Linked to professional identity⁴⁵ and interprofessional identity formation of trainees,⁴⁶ a lack of role models for good interprofessional collaboration may result in a lack of motivation to engage in interprofessional practice by trainees.^{2,47} Furthermore, given the omnipresence of co-teaching by different health professionals within IPE, Freeth and colleagues⁴⁸ underline that co-teachers must “role model high quality interprofessional collaboration, otherwise the credibility of the learning experience may be damaged.”^{48(p199)} The papers in our corpus reported that IPE faculty can experience interpersonal struggles with fellow IPE teachers.^{35,36,49,50} Another implication of these findings, then, points to the need for IPE faculty to be trained to act as interprofessional collaboration role models and co-teachers. We can't assume that such skills will come naturally to these educators; instead, if IPE is to deliver on its promise to train collaboration-ready professionals, faculty training in role modeling and IPE co-teaching needs to be provided. This is a challenge that

future faculty development research could address.¹⁵

Thirdly, we suggest that IPE has not yet been able to meet its transformative promise because of a complex combination of barriers experienced by IPE faculty. This complex combination of barriers to IPE has previously been documented in a well-cited literature review by Lawlis and colleagues.⁵¹ Taking the perspective of the different levels of stakeholders involved in successful IPE implementation, Lawlis et al⁵¹ identified both enablers and barriers to IPE on individual, institutional, and government/professional levels. Our review echoes several of the barriers identified in this study, mainly on the individual and institutional levels. We, however, chose to construct interpersonal struggles as a separate theme within our review given its clear prominence within our corpus and the fundamental nature of collaborative teaching within IPE. Despite an abundance of published literature in the 7 years separating our research from that of Lawlis et al,⁵¹ the fundamental elements impacting IPE remain largely the same. While their research looked across key stakeholders' insights, our attention to the roles and experiences of IPE faculty reveal that these enablers and barriers continue to contribute to the unmet potential of IPE. Moreover, Figure 2 highlights how reports of barriers experienced by IPE faculty seem to only have increased since the 2014 publication of the Lawlis et al's⁵¹ review. This could partly be explained by the prominence of the manager role we identified which incorporates logistical aspects all the way to securing funding to support IPE. Lawlis et al⁵¹ identified the requirement of securing government and institutional funding and obtaining organizational support for IPE into various curricula as 1 of 5 fundamental elements that may either make or break IPE. Our research indicates that 3 of the elements that Lawlis et al⁵¹ identified as belonging to government/professional and institutional stakeholders have become burdens for IPE faculty to bear. Given this, a further implication of this review is that it is not sustainable to expect IPE faculty to take on an ever-growing list of responsibilities. One solution could be for institutions to offload unnecessary work from the shoulders of these educators (e.g., securing funding, arranging rooms) so

that they can focus their energies on realizing IPE's transformational potential.

There are limitations to this critical review. First, we only explored IPE faculty roles and experiences from published academic literature, and so the insights that we can glean about and from IPE faculty are limited to details provided in the manuscripts in our corpus. We could not, for example, elucidate how many faculty were involved in different IPE initiatives, nor which professional backgrounds these educators represented, nor their clinical and/or academic appointment status (e.g., part-time, full-time). If we want to deeply understand how faculty influence IPE, focused research into who these educators are and the specificities of the work they carry out must become a priority. Our corpus was also constrained by our inclusion and exclusion criteria. We excluded literature that did not include medical learners, and there may be lessons from other health care providers that are not present in our review. Future work examining IPE across all allied health professions could ensure that those lessons are gleaned and incorporated as appropriate.

Despite its limitations, our review points to a complex network of influencing factors that need to be better managed to deliver on the promise of IPE. The complexity of this challenge requires future research which harnesses the explanatory power of theories that can explain the dynamics at play between individuals (e.g., IPE faculty members), social groups (e.g., medical school administrators), and the attainment of educational goals (e.g., prepare future clinicians to be effective collaborators in interprofessional teams). A theory such as Cultural Historical Activity Theory could help scholars to understand the activity systems at play either enabling or hindering IPE.⁵² Similarly, Brofenbrenner's Bioecological Model may help us to understand the nature of the struggles that IPE faculty experience within the educational ecosystem.⁵³

Conclusions

This review specifically analyzed the collective body of IPE literature to describe the roles and experiences of IPE faculty. We found that IPE faculty are required to fulfill 7 different roles and experience struggles at the personal,

interpersonal, and institutional levels while endeavoring to fulfill these roles. There is plenty of evidence that high-functioning interprofessional teams create better patient outcomes, enjoy less burnout, and generate more satisfaction for patients and providers.⁵⁴⁻⁵⁶ But until we fully acknowledge their work and struggles, and then act to enable IPE faculty to be successful in their efforts,⁵⁷ we fear that the promise of IPE will remain unfulfilled.

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References

- Hammick M, Freeth D, Koppel I, Reeves S, Barr H. A best evidence systematic review of interprofessional education: BEME guide no. 9. *Med Teach*. 2007;29:735-751.

2. Paradis E, Whitehead CR. Beyond the lampost: A proposal for a fourth wave of education for collaboration. *Acad Med.* 2018;93:1457.
3. Rawlinson C, Carron T, Cohidon C, et al. An overview of reviews on interprofessional collaboration in primary care: Barriers and facilitators. *Int J Integr Care.* 2021;21:32.
4. Seaton J, Jones A, Johnston C, Francis K. Allied health professionals' perceptions of interprofessional collaboration in primary health care: An integrative review. *J Interprof Care.* 2021;35:217–228.
5. Doekhie KD, Buljac-Samardzic M, Strating MMH, Paauwe J. Who is on the primary care team? Professionals' perceptions of the conceptualization of teams and the underlying factors: A mixed-methods study. *BMC Fam Pract.* 2017;18:111.
6. Lee JK, McCutcheon LRM, Fazel MT, Cooley JH, Slack MK. Assessment of interprofessional collaborative practices and outcomes in adults with diabetes and hypertension in primary care: A systematic review and meta-analysis. *JAMA Netw Open.* 2021;4:e2036725.
7. Thistlethwaite J. Interprofessional education: A review of context, learning and the research agenda. *Med Educ.* 2012;46:58–70.
8. Spaulding EM, Marvel FA, Jacob E, et al. Interprofessional education and collaboration among healthcare students and professionals: A systematic review and call for action. *J Interprof Care.* 2021;35:612–621.
9. Grace S. Models of interprofessional education for healthcare students: A scoping review. *J Interprof Care.* 2021;35:771–783.
10. Reeves S, Pelone F, Harrison R, Goldman J, Zwarenstein M. Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database Syst Rev.* 2017;6:CD000072.
11. Paradis E, Whitehead CR. Louder than words: Power and conflict in interprofessional education articles, 1954–2013. *Med Educ.* 2015;49:399–407.
12. Baker L, Egan-Lee E, Martimianakis MA, Reeves S. Relationships of power: Implications for interprofessional education. *J Interprof Care.* 2011;25:98–104.
13. Chen AK, Rivera J, Rotter N, Green E, Kools S. Interprofessional education in the clinical setting: A qualitative look at the preceptor's perspective in training advanced practice nursing students. *Nurse Educ Pract.* 2016;21:29–36.
14. Brandt BF, Kitto S, Cervero RM. Untying the interprofessional Gordian knot: The National Collaborative for Improving the Clinical Learning Environment. *Acad Med.* 2018;93:1437–1440.
15. Watkins KD. Faculty development to support interprofessional education in healthcare professions: A realist synthesis. *J Interprof Care.* 2016;30:695–701.
16. Silva JAMD, Viana da Costa M, Mininel VA, Rossit RAS, Xyrichis A. The effectiveness of faculty development activities for interprofessional education: A systematic review protocol. *J Interprof Care.* 2021;1:4.
17. Gilligan C, Outram S, Levett-Jones T. Recommendations from recent graduates in medicine, nursing and pharmacy on improving interprofessional education in university programs: A qualitative study. *BMC Med Educ.* 2014;14:52.
18. Leedham-Green KE, Knight A, Iedema R. Intra- and interprofessional practices through fresh eyes: A qualitative analysis of medical students' early workplace experiences. *BMC Med Educ.* 2019;19:287.
19. Colliver JA. Constructivism: The view of knowledge that ended philosophy or a theory of learning and instruction? *Teach Learn Med.* 2002;14:49–51.
20. Kahlke R, Lee M, Eva K. Critical reviews in health professions education research. *J Grad Med Educ.* In press.
21. Grant MJ, Booth A. A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Info Libr J.* 2009;26:91–108.
22. Harden RM, Crosby J. AMEE guide no 20: The good teacher is more than a lecturer—The twelve roles of the teacher. *Med Teach.* 2000;22:334–347.
23. Harden RM, Lilley P. The Eight Roles of the Medical Teacher: The Purpose and Function of a Teacher in the Healthcare Professions. Edinburgh, UK: Elsevier Health Sciences; 2018.
24. Kiger ME, Varpio L. Thematic analysis of qualitative data: AMEE guide no. 131. *Med Teach.* 2020;42:846–854.
25. Margalit R, Thompson S, Visovsky C, et al. From professional silos to interprofessional education: Campuswide focus on quality of care. *Qual Manag Health Care.* 2009;18:165–173.
26. Hinderer KA, Klima D, Truong HA, et al. Faculty perceptions, knowledge, and attitudes toward interprofessional education and practice. *J Allied Health.* 2016;45:e1–e4.
27. Ward H, Gum L, Attrill S, et al. Educating for interprofessional practice: Moving from knowing to being, is it the final piece of the puzzle? *BMC Med Educ.* 2017;17:9.
28. Fahs DB, Honan L, Gonzalez-Colaso R, Colson ER. Interprofessional education development: Not for the faint of heart. *Adv Med Educ Pract.* 2017;8:329–336.
29. Olenick M, Flowers M, Munecas T, Maltseva T. Positive and negative factors that influence health care faculty intent to engage in interprofessional education (IPE). *Healthcare (Basel).* 2019;7:29.
30. Soklaridis S, Oandasan I, Kimpton S. Family health teams: Can health professionals learn to work together? *Can Fam Physician.* 2007;53:1198–1199.
31. Brashers V, Owen J, Haizlip J. Interprofessional education and practice guide no. 2: Developing and implementing a center for interprofessional education. *J Interprof Care.* 2015;29:95–99.
32. Luebbers EL, Dolansky MA, Vehovec A, Petty G. Implementation and evaluation of a community-based interprofessional learning activity. *J Interprof Care.* 2017;31:91–97.
33. Shaw-Battista J, Belew C, Anderson D, van Schaik S. Successes and challenges of interprofessional physiologic birth and obstetric emergency simulations in a nurse-midwifery education program. *J Midwifery Womens Health.* 2015;60:735–743.
34. Loversidge J, Demb A. Faculty perceptions of key factors in interprofessional education. *J Interprof Care.* 2015;29:298–304.
35. Byakika-Kibwika P, Kutesa A, Baingana R, et al. A situation analysis of inter-professional education and practice for ethics and professionalism training at Makerere University College of Health Sciences. *BMC Res Notes.* 2015;8:598.
36. Livingston LL, West CA, Livingston JL, Landry KA, Watzak BC, Graham LL. Simulated Disaster Day: Benefit from lessons learned through years of transformation from silos to interprofessional education. *Simul Healthc.* 2016;11:293–298.
37. Peluso MJ, Hafler JP, Sipsma H, Cherlin E. Global health education programming as a model for inter-institutional collaboration in interprofessional health education. *J Interprof Care.* 2014;28:371–373.
38. Gelmon SB, White AW, Carlson L, Norman L. Making organizational change to achieve improvement and interprofessional learning: Perspectives from health professions educators. *J Interprof Care.* 2000;14:131–146.
39. Bennett PN, Gum L, Lindeman I, et al. Faculty perceptions of interprofessional education. *Nurse Educ Today.* 2011;31:571–576.
40. Baily L, Bar-On M, Yucha C, Snyder SJ. Six challenges encountered in the opening of a multi-institutional, interprofessional simulation center. *Clin Simul Nurs.* 2013;9:E219–E223.
41. Gordon M, Box H, Halliwell JA, Farrell M, Parker L, Stewart A. Enhancing health care non-technical skills: The TINSELS Programme. *Clin Teach.* 2015;12:413–417.
42. Cahn PS. In and out of the curriculum: An historical case study in implementing interprofessional education. *J Interprof Care.* 2014;28:128–133.
43. Jackman D, Yonge O, Myrick F, Janke E, Konkin J. A rural interprofessional educational initiative: What success looks like. *Online J Rural Nurs Health Care.* 2016;16:5–26.
44. Thistlethwaite JE, Vlasses PH. Interprofessional education. In: Dent JA, Harden RM, Hunt D, eds. *A Practical Guide for Medical Teachers.* Edinburgh, UK: Elsevier; 2017:128–134.
45. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. Reframing medical education to support professional identity formation. *Acad Med.* 2014;89:1446–1451.
46. Khalili H, Orchard C. The effects of an IPS-based IPE program on interprofessional socialization and dual identity development. *J Interprof Care.* 2020;1:11.
47. Tong R, Brewer M, Flavell H, Roberts L. Professional and interprofessional identities: A scoping review. *J Interprof Care.* 2020;1:9.
48. Freeth D, Savin-Baden M, Thistlethwaite J. Interprofessional education. In: Swanwick T, Forrest K, O'Brien BC, eds. *Understanding Medical Education: Evidence, Theory and Practice.* 3rd ed. Oxford, UK: Wiley Blackwell; 2019:191–206.
49. Neff J, Holmes SM, Knight KR, et al. Structural competency: Curriculum for medical students, residents, and interprofessional teams on the structural factors that produce health disparities. *MedEdPORTAL.* 2020;16:10888.

50. Hermann CP, Head BA, Black K, Singleton K. Preparing nursing students for interprofessional practice: The interdisciplinary curriculum for oncology palliative care education. *J Prof Nurs*. 2016;32:62–71.
51. Lawlis TR, Anson J, Greenfield D. Barriers and enablers that influence sustainable interprofessional education: A literature review. *J Interprof Care*. 2014;28:305–310.
52. Larsen DP, Nimmon L, Varpio L. Cultural historical activity theory: The role of tools and tensions in medical education. *Acad Med*. 2019;94:1255.
53. Hamwey M, Allen L, Hay M, Varpio L. Bronfenbrenner's bioecological model of human development: Applications for health professions education. *Acad Med*. 2019;94:1621.
54. Varpio L, Bader Larsen K, Hamwey M, Semelrath K, Paradis E. Interprofessional education in the US military: Harnessing simulation for team readiness. *J Interprof Care*. 2021;35:55–63.
55. Epstein NE. Multidisciplinary in-hospital teams improve patient outcomes: A review. *Surg Neurol Int*. 2014;5:S295–S303.
56. Uhlig PN, Doll J, Brandon K, et al. Interprofessional practice and education in clinical learning environments: Frontlines perspective. *Acad Med*. 2018;93:1441–1444.
57. Stalmeijer RE, Varpio L. The wolf you feed: Challenging intraprofessional workplace-based education norms. *Med Educ*. 2021;55:894–902.