

Building the plane while it's flying:

A critical review of faculty roles and experiences in interprofessional education

by

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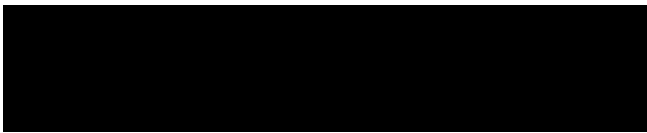
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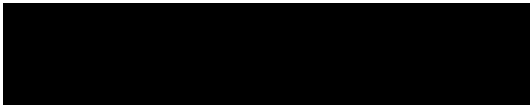
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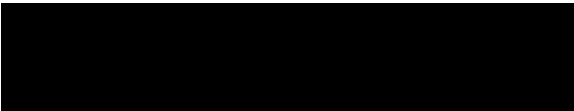
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DEDICATION

To my family: Justin, Valentina, Giovanni and Rocco.

You sacrificed more than you should have and more than you knew to allow for this. I hope I can make it worth your effort.

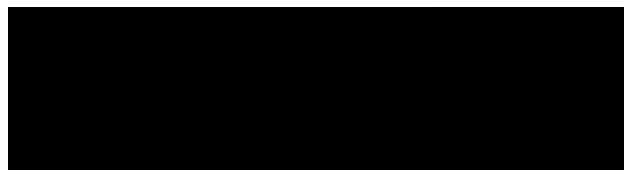
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ABSTRACT

Thesis directed by: Lara Varpio, PhD, Professor and Associate Director of Research at the Center for Health Professions Education, and Abigail Konopasky, PhD, Assistant Professor at the Center for Health Professions Education, Uniformed Services University of the Health Sciences in Bethesda, MD

Introduction

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, very 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 (a) roles assigned to IPE educators and (b) the IPE faculty members' experiences of fulfilling these roles.

Methods

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 1717 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 facilitators and planners, and rarely as role models. We identified three main areas of struggle 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).

Conclusion

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

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....	6
BACKGROUND.....	6
CONCEPTUAL FRAMEWORK.....	9
RESEARCH QUESTION.....	11
REFERENCES	12
CHAPTER 2: BUILDING THE PLANE WHILE ITS FLYING.....	13
ABSTRACT.....	13
BACKGROUND.....	15
METHODS.....	17
RESULTS.....	23
DISCUSSION.....	25
CONCLUSION	31
TABLES AND FIGURES.....	33
CHAPTER 3: DISCUSSION.....	58
MILITARY RELEVANCE.....	59
LIMITATIONS/FUTURE DIRECTIONS	60
CONCLUSIONS.....	61
REFERENCES.....	62

CHAPTER 1: INTRODUCTION

BACKGROUND

Interprofessional education (IPE) is regularly suggested as having the potential to transform health systems and patient care.^{1,2} The literature teems with examples of robust educational programming that help learners acquire and refine interprofessional competencies. However, there is concern that IPE, as it is delivered both in UME and GME, is falling short of its potential.^{2,3} Recent publications point to a lack of acknowledgement and understanding of the different professional roles⁴, imbalances of power,⁵ and rigid hierarchies² that characterize modern healthcare systems.

IPE is on everyone's agenda. Most bodies in health professions hold it up as foundationally important to effective, efficient, and safer healthcare delivery -- the Accreditation Council for Graduate Medical Education, the Accreditation Council for Continuing Medical Education, the Liaison Committee for Medical Education, Commission on Collegiate Nursing Education, Accreditation Commission for Education in Nursing, just to name a few. Each of these organizations, and many others not tied to school accreditation (e.g., Interprofessional Education Collaborative), have clear recommendations for interprofessional competency development.⁶ The body of research that has grown in even just the last 15 years suggests that many tactics have been employed to try to study these competencies, measure outcomes in learners, and try to measure outcomes for healthcare.^{7,8}

Recent literature has looked at IPE with a critical lens, and highlighted gaps in addressing culture, power, conflict, and systems as part of the influence in the success of IPE in creating

more interprofessional collaborative practice.^{2,4} Notably, a small body of qualitative studies have described dissonance between stated faculty values and actual educational practice.^{9,10} As these investigations suggest, while multidisciplinary teams were touted as essential in patient care, learners reflected little understanding and application of that in the clinical setting, and they also noted concerns for communication issues, tribalism, hierarchical behaviors, disrespect, microaggressions, distress, and negative role modeling.⁹ More hopefully, learners also recognized interprofessional respect and friendship, teamwork in managing complexity, and sharing of workload and expertise.¹⁰ As reported in these investigations of the lived experiences learners have of watching and engaging in IPE in clinical contexts, there is clearly much to be learned in dissecting how we address the ‘adults in the room’ with regard to practicing what they preach.

Faculty development may be one way to help the purveyors of interprofessional collaboration overcome some of these areas of dissonance. While maintaining focus on the learner is vitally important to IPE success, a myopic focus on the learners may be obscuring the ways in which the teaching faculty impact the effectiveness of IPE. More specifically, considerably less research has attended to the impact of faculty on the delivery, success, and lasting influence of IPE. In the research that does exist, there are descriptions of IPE events (Appendix A), papers about best practices,^{7,11} and evaluations of the enablers and barriers.^{10,11} In reviewing these publications, we were unable to clear descriptions or analyses of how faculty implicitly and explicitly impact the IPE process.

Our lack of understanding of the explicit and implicit impact of faculty delivering IPE events may explain why IPE has not consistently achieved the goal of transforming healthcare

delivery. Faculty, and faculty-specific barriers such as IPE preparation, experience, enthusiasm, administrative time, etc, have been shown to be key contributors to successes in IPE.¹³ However, as the literature has grown, it is also clear that the evolution of those challenges have not waned over time; furthermore, there continues to be missing appreciation for and insight into the ways professional roles, power, and knowledge shape interprofessional practices.^{3, 5, 13} Developing a deeper understanding of the impact of faculty members on the success of IPE is required to help target faculty development interventions.

As we prepared for this research, we noted that the literature focusing on faculty development, exploring faculty reflexivity, and considering faculty roles and experiences has not been well described in IPE interventions. There are examinations on best practices for faculty delivering IPE, but many of these do not look specifically at the role of medical educator, many are more than 10 years old, and most do not look for the factors that may influence the ultimate success of interprofessional education, particularly from the point of view of the educator.^{5,12,14-16} While there is an abundance of IPE literature, our initial exploration of that literature suggested that scholars have paid more attention to the learners than they have to the faculty members delivering instruction. IPE cannot be a one-way street; the role of the educator is crucial in its success. Therefore, this is the gap that I sought to address through my research.

CONCEPTUAL FRAMEWORK

There are several frameworks we considered that could act as analytical lenses to inform our review of the roles and experiences of faculty in IPE. One prevailing theory that underlies IPE in general is *contact theory*, which suggests that exposure to different professions will create opportunities for better understanding and then lead to better teams.² Paradis² notes, ‘enabling contact among health care professionals during an educational intervention may not be enough to make differences and hierarchies disappear, no more than coexistence has enabled the disappearance of racial conflict.’ IPE opportunities often situate faculty *near* each other. Others have faculty interacting, developing content, and delivering *with* each other. But how often are we seeing what happens beyond a single learning event? Is it enough to have interprofessional faculty teaching together? Or are there more pervasive ideologies that are demonstrated when the educational event is over, in a way that suggests a learner should ‘do what I say, not what I do/think/feel?’ We felt that contact theory—though often a foundational premise of IPE initiatives—would not be an effective theoretical lens since the existing literature often fails to present data that can address these questions.

In a slightly different framework that we also considered, Edmunson¹⁷ suggests that part of the issue may be the initial frame: “individual expertise, provided by separate experts, is key to solving patient problems and adds up to optimal care.” This ‘expertise mindset’ - a mindset that deeply values individual training, knowledge, and action - may make it difficult for health professionals to look past their individual roles and their biases about others’ roles in collaborative patient care. This frame may keep individual ‘experts’ from effective *teaming*.¹⁷ This theory suggest that perhaps the issue is not that we are not doing a good job sharing

expertise, but is instead that we haven't addressed the particulars of working truly interdependently, across our previously role-defined borders. Despite how this theory could help us to understand faculty's IPE experiences, the reflections from individual faculty members about their mindsets is not often part of reported IPE initiatives or research papers. Therefore, while we think Edmonson's theory could be informative, it is not well positioned to help us synthesize literature on the role of faculty on IPE.

We also considered the use of cultural history activity theory (CHAT), which looks at the relationship between what people think and what people do.¹⁸ It uses the organizing tool of the activity system, which evaluates the relationships between *subject*, *object*, *objective*, *tools*, *rules*, *community*, and *division of labor* as a way to better understand how stakeholders interact with each other and the systems and artifacts around them to pursue their goals.¹⁸ CHAT would provide a useful lens for the issues surrounding IPE faculty, and maybe even highlight the most successful pathways that could shape IPE going forward. However, the published literature does not yet have enough focus on the faculty role or enough description of the pieces of the triads to make meaningful conclusions, so we were unable to use this to evaluate the corpus of papers we had accumulated.

We finally settled on the framework put forth in the paper by Harden and Crosby,¹⁹ which describes the roles of faculty as *facilitator*, *planner*, *information provider*, *examiner*, *role model*, and *resource developer*. We also drew in the faculty *manager* role found in Harden and Lilley's expansion of this framework.²⁰ We used these proposed roles to examine how the literature describes faculty work in IPE. The IPE literature generally has some kind of data reporting on the roles fulfilled by IPE faculty and so this framework could be applied in our literature review. We began by simply examining the frequency of different roles used, and

then exploring qualitatively which roles were strongly represented and where there were gaps in the kinds of roles employed. This role-based framework allowed us to identify what is missing in our knowledge and support of IPE faculty to build towards true interprofessional collaboration in the future.

RESEARCH QUESTION

Informed by the background literature and the conceptual framework described above, we sought to answer the following question:

How does the existing literature construct the IPE faculty's role and present their experiences?

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CHAPTER 2: BUILDING THE PLANE WHILE IT'S FLYING: A CRITICAL REVIEW OF FACULTY ROLES AND EXPERIENCES IN INTERPROFESSIONAL EDUCATION

Introduction

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 professions¹¹⁻¹²; it cannot thwart a lack of understanding and appreciation for the roles of all care team members¹³; nor can it 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 UME and 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 focus, 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 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 a GME setting were touted 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 for 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 the IPE faculty's role and presents their experiences. Specifically, we sought to synthesize the knowledge available about (a) the roles assigned to IPE educators and (b) IPE faculty members' experiences of fulfilling these roles.

Methods

The aim of this research was (a) to engage in an interpretive analysis of the data to explore how discourses in the literature cast IPE faculty into specific roles, and (b) 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 six 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 Appendix A. 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 two sets of criteria: (1a) the roles of IPE instructors were explicitly stated at least once in the manuscript (e.g., “two 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 healthcare 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, 1717 manuscripts were identified for possible inclusion in the study. After we (FC, AK, AB, LV) reviewed the title and abstract of each text, 1207 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 (FC & TM) 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: FC & TM acted as primary analysts coding most of the data; AK & AB acted as supporting analysts coding substantial parts of the corpus; RS & LV 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.

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 four members of the research team (FC, TM, AK, & AB)

organized these experience data into three 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 three 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 (FC, TM, AK, & AB) met weekly to code the IPE faculty experiences data to these three 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 six investigators with a broad range of roles and experiences in health professions education. The lead author (FC) 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 (AB) 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 (FC & AB) 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 (AK, RS, & LV) are active medical

education researchers with expert knowledge of constructivist research orientations and qualitative methods. Two of these researchers (RS & LV) have long standing programs of research into IPE and interprofessional collaboration. These three researchers (AK, RS & LV) 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 (TM) is new to the field of medical education but has expertise in literature reviews and both qualitative and quantitative research methods. This collaborator (TM) 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.

Results

The corpus of manuscripts ($n = 214$) included in this study is presented in Appendix B (with references). Appendix C presents the coding for each of these articles.

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 pre-briefing 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 two 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 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 Interprofessional Education

When IPE faculty experiences were reported in the manuscripts, we identified three 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 three 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:

"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(p3)}

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 recognition³¹⁻³³; a lack of departmental infrastructure to support IPE directly³⁴; unstable financial commitments³⁶; and logistical difficulties such as scheduling conflicts.^{33,35} Underpinning these institutional struggles was weak or non-existent 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^{31,38-40,41}: *“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 three 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 delivering this education are learning to ‘build the plane while it’s flying.’ In other words, IPE 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 (i.e., the work of flying the plane), but they do not feel efficacious across those roles (i.e., they are learning to build the plane while also flying it). Clearly, these faculty need more support to master the range of IPE roles before they are required to be effective IPE educators. Building the plane while it’s flying is a recipe for deep-seated frustration, apprehension, and—potentially—disaster.

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 experience interpersonal struggles with fellow IPE teachers.^{35,36,49,50} If IPE is to deliver on its promise to train collaboration-ready professionals, it is imperative that role modeling both within individual and co-teaching IPE settings receives more in-depth attention during faculty development for IPE teachers.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 level. 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 it is clear that the key 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 al⁵¹ 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 one of five fundamental elements that may either make or break IPE. Our research indicates that three of the elements that Lawlis et al⁵¹ identified as belonging to government/professional and institutional stakeholders, have become burdens for IPE faculty to bear. We contend that downloading these responsibilities onto IPE faculty contributes significantly to impeding the success of IPE programming to achieve transformational change.

There are limitations to this critical review. First, we only explored IPE faculty roles and experiences from published academic literature. From our experiences as IPE faculty and as scholars who research IPE, we are confident that our findings reflect only a small sample of what these educators experience. However, the insight that we can glean about and from IPE faculty in the published literature is sparse. If we want to deeply understand how faculty influence IPE, focused research into their work must become a priority. We also specifically excluded literature that did not include medical learners, so there may be insights from IPE interactions in other disciplines that could help us better understand the role of faculty in supporting (or hindering) IPE mandates.

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, Bronfenbrenner's Bioecological Model may help us to understand the

nature of the struggles that IPE faculty experience within the educational ecosystem.⁵³

Conclusion

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.

LIST of TABLES and FIGURES (in order of appearance):

1. Table 1: Faculty's Role Areas in IPE literature based primarily on Harden and Crosby
2. Figure 1: PRISMA Chart of Inclusion Process
3. Figure 2: Number of Papers Reporting IPE Faculty's Struggles by Publication Years
4. Figure 3: Study search terms / APPENDIX A
5. Figure 4: Corpus of included Manuscripts/ Appendix B
6. Figure 5: Coding Distribution of IPE faculty Roles and Experiences / Appendix C

Table 1. Faculty's Role Areas in IPE literature based primarily on Harden and Crosby²²

Categories

Roles (Total <i>N</i> =194)	Explicitly Described <i>N</i> (%)	Implicitly Described <i>N</i> (%)	Not Described <i>N</i> (%)
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	27 (14%)	N/A	167 (86%)

Note: Roles are not mutually exclusive. The percentage within each individual row adds up to 100%.

*The first six roles are drawn from Harden and Crosby's framework²²; the manager role is drawn from Harden and Lilley.²³

Figure 1. PRISMA Chart of Inclusion Process

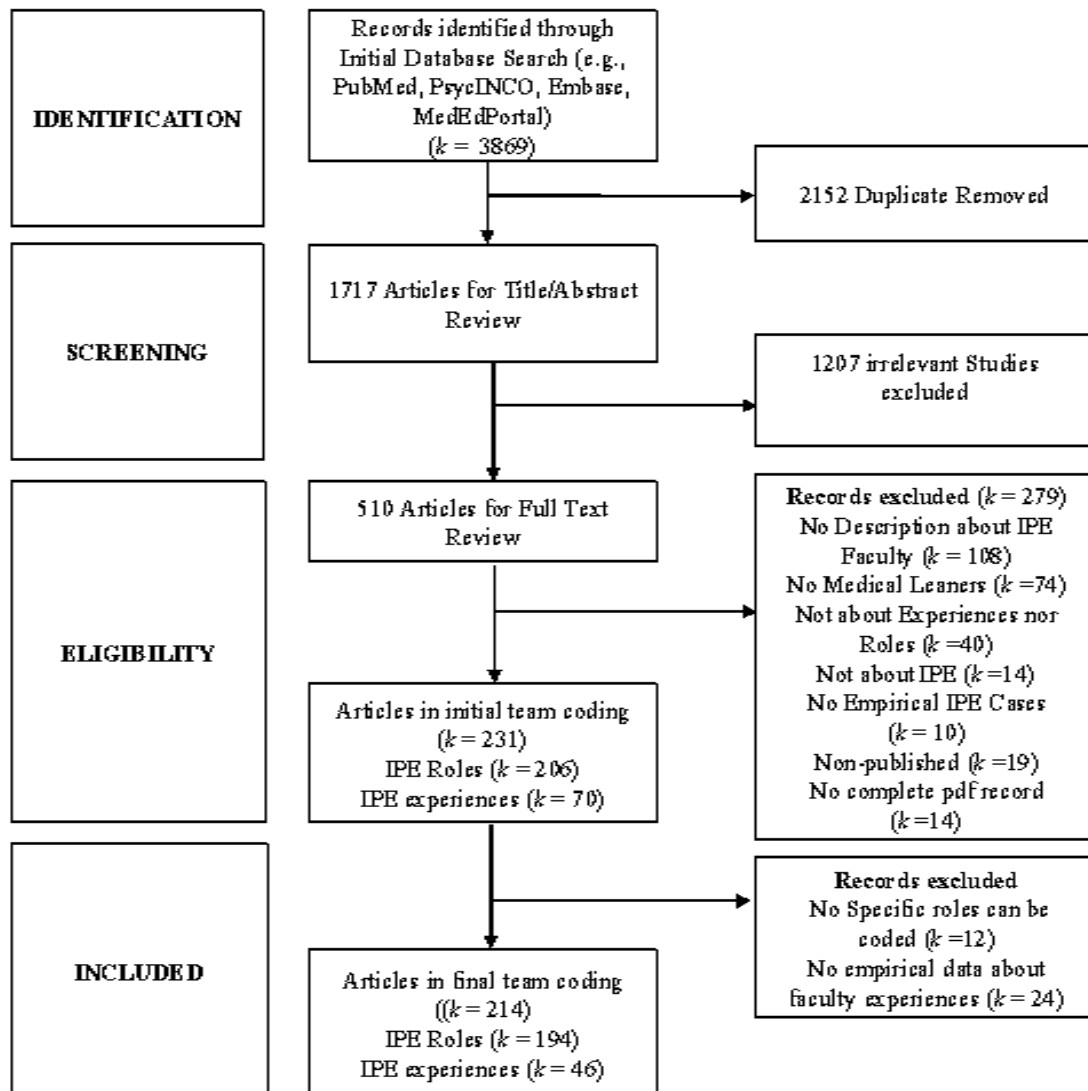


Figure 2. Number of Papers Reporting IPE Faculty's Struggles by Publication Years

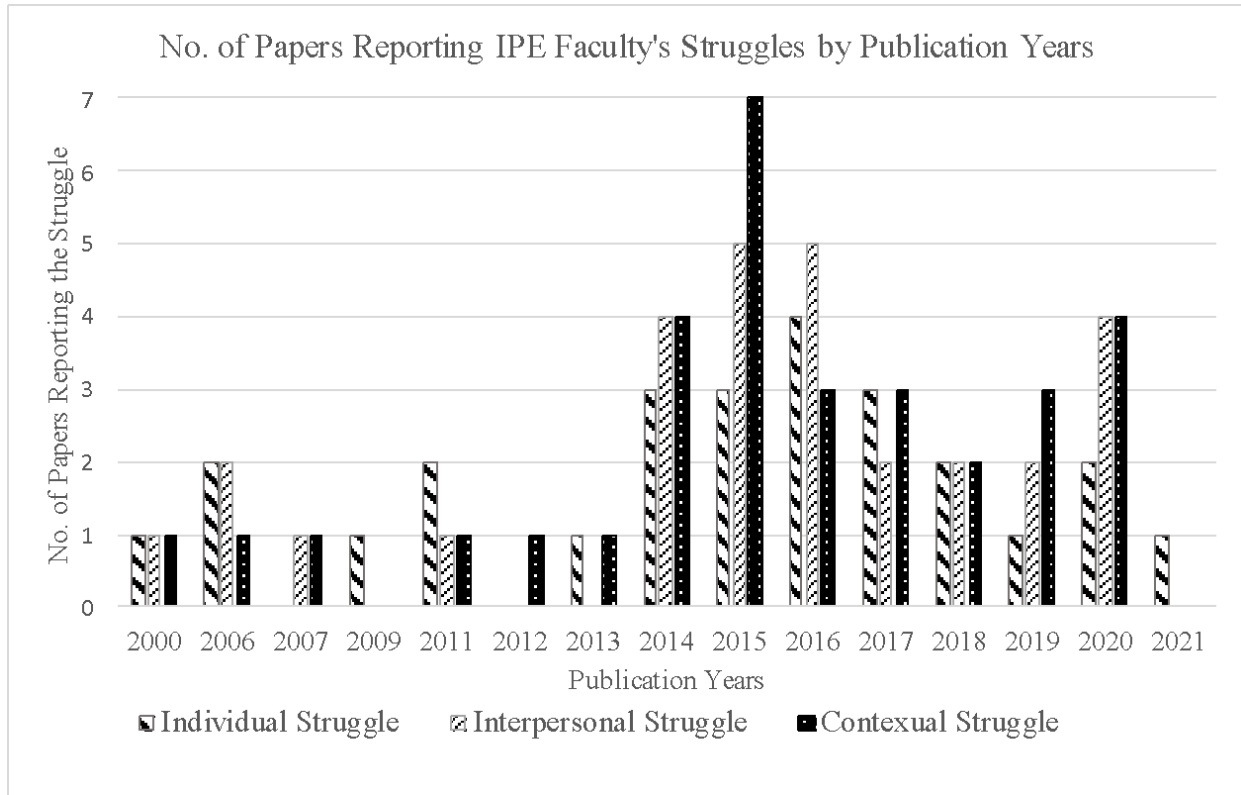


Figure 3: Study search terms / APPENDIX A

PubMed

(inter-professional-education[tiab] OR interprofessional-education[tiab] OR "interprofessional education"[tiab] OR "interprofessional learning"[tiab] OR "interprofessional collaboration"[tiab] OR "interprofessional team"[tiab] OR "interprofessional teams"[tiab] OR "collaborative practice"[tiab]) AND (Faculty[mh] OR faculty[tiab] OR preceptor*[tiab] OR teacher*[tiab] OR educator*[tiab] OR lecturer*[tiab] OR "Education, Medical, Undergraduate"[MAJR] OR "Education, Medical, Graduate"[MAJR]) AND ("Medicine"[MAJR] OR "health professions"[tiab] OR "health professionals"[tiab] OR "Physicians"[MAJR] OR Physician[tiab] OR "Physician trainee"[tiab] OR resident[tiab] OR "Students, Medical"[MAJR] OR "medical student"[tiab] OR "medical students"[tiab] OR medicine[tiab]) AND (2000:2020[pdat])

Embase

(inter-professional-education:ab,ti OR interprofessional-education:ab,ti OR "interprofessional education":ab,ti OR "interprofessional learning":ab,ti OR "interprofessional collaboration":ab,ti OR "interprofessional team":ab,ti OR "interprofessional teams":ab,ti OR "collaborative practice":ab,ti) AND (Faculty/exp/mj OR faculty:ab,ti OR preceptor*:ab,ti OR teacher*:ab,ti OR educator*:ab,ti OR lecturer*:ab,ti OR "Education, Medical, Undergraduate"/exp/mj OR "Education, Medical, Graduate"/exp/mj) AND ("Medicine"/exp/mj OR "health professions":ab,ti OR "health professionals":ab,ti OR "Physicians"/exp/maj OR Physician:ab,ti OR "Physician trainee":ab,ti OR resident:ab,ti OR "Students, Medical"/exp/mj OR "medical student":ab,ti OR "medical students":ab,ti OR medicine:ab,ti) NOT ([conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [letter]/lim OR [note]/lim) AND [2000-2020]/py

Web of Science

TS=(inter-professional-education OR interprofessional-education OR "interprofessional education" OR "interprofessional learning" OR "interprofessional collaboration" OR "interprofessional team" OR "interprofessional teams" OR "collaborative practice") AND TS=(Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR "undergraduate medical education" OR "graduate medical education") AND TS=("Medicine" OR "health professions" OR "health professionals" OR "Physicians" OR Physician OR "Physician trainee" OR resident OR "medical student" OR "medical students") Indexes=SCI-EXPANDED, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, CCR-EXPANDED, IC Timespan=2000-2020 CINAHL TI ((inter-professional-education OR interprofessional-education OR "interprofessional education" OR "interprofessional learning" OR "interprofessional collaboration" OR "interprofessional team" OR "interprofessional teams" OR "collaborative practice") AND

(TI (Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR "undergraduate medical education" OR "graduate medical education") OR MH (undergraduate medical education) OR MH (graduate medical education))

AND

(TI ("Medicine" OR "health professions" OR "health professionals" OR "Physicians" OR Physician OR "Physician trainee" OR resident OR "medical student" OR "medical students")) OR

AB ((inter-professional-education OR interprofessional-education OR "interprofessional education" OR "interprofessional learning" OR "interprofessional collaboration" OR "interprofessional team" OR "interprofessional teams" OR "collaborative practice"))

AND

(AB (Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR "undergraduate medical education" OR "graduate medical education") OR MH (undergraduate medical education) OR MH (graduate medical education))

AND

(AB ("Medicine" OR "health professions" OR "health professionals" OR "Physicians" OR Physician OR "Physician trainee" OR resident OR "medical student" OR "medical students"))

Medline (Ovid)

- Ovid MEDLINE(R) ALL 1946 to December 02, 2020; multi-field search then Title OR Abstract

(inter-professional-education OR interprofessional-education OR interprofessional education OR interprofessional learning OR interprofessional collaboration OR interprofessional team OR interprofessional teams OR collaborative practice)

AND

(Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR undergraduate medical education OR graduate medical education)

AND

(Medicine OR health professions OR health professionals OR Physicians OR Physician OR Physician trainee OR resident OR medical student OR medical students)

PsycINFO

- Use multi-field search and select Title OR Abstract from list
- Add date limit

(inter-professional-education OR interprofessional-education OR interprofessional education OR interprofessional learning OR interprofessional collaboration OR interprofessional team OR interprofessional teams OR collaborative practice)

AND

(Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR undergraduate medical education OR graduate medical education)

ERIC

- Added limits for peer-reviewed only
- Added education level "Higher Education"

(inter-professional-education OR interprofessional-education OR "interprofessional education" OR "interprofessional learning" OR "interprofessional collaboration" OR "interprofessional team" OR "interprofessional teams" OR "collaborative practice") AND (Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR "undergraduate medical education" OR "graduate medical education") AND (Medicine OR health professions OR health professionals OR Physicians OR Physician OR Physician trainee OR resident OR medical student OR medical students) AND (pubyear:2000 OR pubyear:2001 OR pubyear:2002 OR pubyear:2003 OR pubyear:2004 OR pubyear:2005 OR pubyear:2006 OR pubyear:2007 OR pubyear:2008 OR pubyear:2009 OR pubyear:2010 OR pubyear:2011 OR pubyear:2012 OR pubyear:2013 OR pubyear:2014 OR pubyear:2015 OR pubyear:2016 OR pubyear:2017 OR pubyear:2018 OR pubyear:2019 OR pubyear:2020)

MedEdPortal

(inter-professional-education OR interprofessional-education OR "interprofessional education" OR "interprofessional learning" OR "interprofessional collaboration" OR "interprofessional team" OR "interprofessional teams" OR "collaborative practice") AND (Faculty OR preceptor* OR teacher* OR educator* OR lecturer* OR "undergraduate medical education" OR "graduate medical education") AND (Medicine OR health professions OR health professionals OR Physicians OR Physician OR Physician trainee OR resident OR medical student OR medical students)

Figure 4: Corpus of included Manuscripts/ Appendix B

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doi:10.3946/kjme.2020.150

Figure 5: Coding Distribution of IPE faculty Roles and Experiences / Appendix C

First Author and Year of Publication	Faculty's Roles in IPE							Faculty's Experiences in IPE		
	Information Provider	Role Model	Facilitator	Examiner	Planner	Resource Developer	Manager	Individual Struggle	Interpersonal Struggle	Contextual Struggle
Aase 2016									✓	
Alfes 2018			✓	✓	✓					
Anderson 2006			✓	~	~			✓		✓
Angelini 2012	✓	✓	✓	✓						
Appleton 2015	✓	✓	✓	✓	✓					
Bagnasco 2014	~		✓	~	✓	~				
Baily 2013								✓		✓
Bainbridge 2010				✓	✓					
Barger 2021	✓		✓	~	✓	✓				
Becker 2014		✓	✓	✓	✓					
Behrend 2019			✓	✓	✓					
Bennett 2011								✓	✓	✓
Berger 2016			✓	~	✓					
Bland 2021			✓		✓					
Blue 2010	~	✓	✓	✓	✓	✓				
Bodenheimer 2018		✓	✓							
Boland 2016	✓	✓	✓	✓						
Bordman 2013	✓		✓	~	~	✓				
Borman-Shoap 2018	✓		✓	✓	✓	✓			✓	✓
Botash 2013	✓		✓	~	✓	✓				
Boylan 2020	✓			✓	✓					
Brashers 2012	✓		✓	✓	✓	✓	✓			
Brashers 2015					✓	✓	✓	✓	✓	✓
Breitbach 2019					✓					
Bridges 2011	~		✓	✓	✓					
Burgess 2017	✓		✓	~		~				

Byakika-Kibwika 2015								✓	✓	✓
Cahn 2014	~		✓		✓			✓	✓	✓
Cameron 2009	~		✓		✓	✓	✓			
Carpenter 2018			✓	✓	~					
Castillo-Parra 2017			✓	✓						✓
Castro 2019	~	~		✓	✓			✓	✓	
CavuotoPetrizo 2020			✓		✓					
Chambers 2020	✓	✓	✓	✓	✓	✓				
Christofilos 2015								✓	✓	✓
Clauser 2020	✓	✓		~	✓	✓	✓			
Coletti 2020								✓	✓	✓
Connolly 2014	✓	✓	✓	✓	~				✓	✓
Cooksey 2010	✓	✓	✓	✓	✓	✓	✓			
Cooper 2006	✓		✓	✓	✓				✓	
Cooper 2009	✓	✓	✓		✓	✓				
D 2011	~	✓	✓	✓						
Davidson 2020			✓		✓	~				
Derbyshire 2015	✓		✓							
Dounis 2014	✓		✓	~	✓					
Dulay 2020		✓	✓	✓	✓	✓				
Dulay 2020	✓		✓	✓	✓	✓				
Ellman 2012	✓		✓	✓	✓	✓				
Erickson 2016			✓	✓	✓					
Fahs 2017	✓	✓	✓	✓	✓		✓	✓	✓	✓
Fazel 2016	✓		✓	~	✓					
Feather 2017	✓	✓	✓	✓	✓					
Ferguson 2017			✓		✓	✓				
Fornari 2018	✓	✓	✓	~	✓	~				
Franko 2020	✓		✓		✓	~				
Freeth 2009			✓	✓	✓					

García-Huidobro 2013	✓	✓	✓	~						
Gelmon 2000								✓	✓	✓
Glassburn 2020	~	✓	✓		✓	✓				
Goldberg 2010			✓	✓	✓					
Goldberg 2018			✓	~	✓	✓				
Gonzalo 2019	✓	✓	✓	✓	✓	✓				
Gooding 2016	✓	✓	✓	✓	✓	✓				
Gordon 2015			✓	~	✓	✓			✓	✓
Gordon 2015	✓		✓	✓	✓					
Gould 2017	✓		✓	✓	✓					
Guilding 2020			✓	~	✓	~				
Haber 2017			✓	✓	✓	✓				
Halaas 2007	✓	✓	✓	✓						
Hall 2006			✓	✓	✓					
Hall 2011	~	✓	✓	~						
Haney 2018			✓	✓	✓	✓				
Haque 2017	~		✓	✓		~				
Hardisty 2014	✓		✓	~	✓	~				
Hatfield 2020			✓		✓			✓	✓	✓
Head 2014	✓		✓	✓	✓	✓				
Heflin 2014	✓		✓	✓	✓	✓				
Heinrichs 2011	✓	✓		✓						
Henley 2000		✓	✓	✓						
Hermann 2016	~	✓	✓	✓	✓	✓	✓	✓	✓	
Hinderer 2016								✓	✓	
Hinding 2019	✓			✓	✓		✓			
Hosny 2013		✓	✓	✓						
Hudak 2017								✓		
Hulen 2020										✓
Jackman 2016		✓	✓					✓	✓	✓
Jackson 2015	✓				✓					
Jacobs 2013	✓		✓	~	✓					
Johnson 2006			✓		✓					
Joosten-Hagye 2020			✓	✓						

Kaae 2014		✓	✓	✓					
Kaminetzky 2017	~		✓	✓	✓				
Kaplan 2015	✓	✓	✓	✓	✓				
Kaplan 2017	~	~	✓	✓	✓		✓		
Katoue 2021								✓	
Kent 2014		✓	✓					✓	
Kent 2016		✓	✓	~		~			
Ker 2003			✓	✓	✓	~			
Kiguli-Malwadde 2020	✓		✓	✓	✓	~			
Kim 2017	~		✓		✓	✓			
Kline 2020			✓		✓		✓		
Koffel 2015	✓		~	~	✓	~			
Kostas 2014			✓		✓	~			
Kostas 2018	~		✓	~	~				
Kreif 2018	✓	✓	✓	~			✓		
Kutaimy 2018	✓		✓	~	✓				
Laprise 2012	✓		✓	✓					
Larson 2016	✓	✓	✓	✓	✓	✓	✓		
Lawrence 2019	✓		✓	✓	✓	✓			
Lee 2017	✓		✓	✓	✓				
Lemoine 2015	✓		✓	~	✓	✓			
Lennon-Dearing 2009	✓	✓	✓	✓	✓	~			
Lestari 2018								✓	✓
Levine 2018	✓		✓	~	✓	✓			
Livingston 2016		✓	✓	✓	✓		✓	✓	✓
Lockeman 2017	✓		✓	✓	✓	~			
Loversidge 2015		✓	✓	✓				✓	✓
Lu 2016	✓		✓						
Luebbers 2017	✓	✓	✓	✓	✓				✓
Luetmer 2018	✓		~	✓					
MacDowell 2014	~			~	✓		✓		
Mackintosh, 2011	✓		✓	✓	✓	✓			

Maddock 2019			✓	✓				✓
Maeno 2019								✓
Mann 2009	✓	✓	✓	✓	✓	~		
Marcussen 2019	✓	✓	✓	✓	✓			
Margalit 2009	✓		✓	✓	✓	✓	✓	✓
Marie-Claude 2013	✓		✓	✓	✓	✓		
McCave 2019	✓		✓	~	✓	✓		
McCoy 2020				✓	✓	✓		
McGeehan 2013		✓	✓	✓			✓	
McIlwaine 2007	✓		✓	✓	✓			
McKay 2014			✓	~	✓			
McKimm 2010			✓		✓			
McManus 2017			✓	✓				
McNair 2001	✓	✓	✓	✓	✓	✓	✓	
Medves 2008	✓	~	✓	~				
Meffe 2012	~	✓	✓	~	~	~		
Meisinger 2016	✓	✓	✓		✓			
Miller 2015			✓	✓	✓			
Miller 2018	✓	✓	✓	~			✓	
Mitchell 2009	~	✓	✓	~				
Morton 2012		✓	✓		✓			✓
Mouradian 2006	✓		✓		✓		✓	✓
Muzyk 2019	✓	✓	✓	✓	✓			
Naegle 2017	✓	✓	✓	✓	✓	✓		
Neff 2020	✓		✓	✓	✓	✓		
Niekrash 2015	✓		✓	✓				
Nikiforova 2019	✓		✓	✓	✓			
Numer 2008	✓		✓	✓	✓		✓	
O'Brien 2018			✓	✓	✓			
O'Keefe 2019	✓	✓	✓		✓	~		
Olenick 2019							✓	✓
Peluso 2014							✓	✓
Perdomo 2019			✓		✓			

Pettignano 2017	✓		✓	✓	✓	✓	
Pippitt 2015	~	✓	✓	✓	~		✓
Pletcher 2019	~		✓	✓	✓	✓	
Prasad 2020	✓	✓	✓			✓	
Robins 2006	✓		✓		✓		
Robins 2008			✓	~	✓		
Salam 2012		✓	✓	✓	✓	~	
Saunders 2019	✓	✓	✓	✓			✓
Schapmire 2018	✓		✓		✓	✓	✓
Schramm 2017	~	✓	✓	✓	✓		
Seaman 2018	✓	✓	✓	~			
SHartzi 2018	✓	✓		~	✓		
Shaw-Battista 2015	✓	✓	✓	✓	✓		✓ ✓
Shaw-Battista 2015	✓	✓	✓	~	✓	✓	
Shrader 2018	~	✓	✓	✓	✓		
Smith 2018	✓		✓	✓	✓	✓	
Smith 2020			~	✓			
Snyman 2019	~	~	✓		~		
Soklaridis 2007							✓ ✓
Solai 2019	~		✓		✓		
Solberg 2015	✓		✓	~	✓	~	
Solomon 2011	✓	✓	✓	✓			✓ ✓
Solomon 2011			✓	~			
Solomon 2011			✓	~		~	
Sonney 2018	✓		✓	✓	✓	✓	
Sonney 2018			✓		✓	✓	
Stacey 2014	✓		✓	~	✓	✓	
Stallwood 2020	✓		~	~	✓	✓	✓
Stubbs 2017			✓		✓		
Sytsma		✓	✓				
Tan 2017	✓		✓	~			
Taylor 2014	✓		✓	✓	✓	✓	✓ ✓
Thompson 2020	~		✓	✓	~	~	

Tischendorf 2018		✓	✓		✓	✓	
Tong 2020	✓	✓			✓		
Topor 2018	~		✓		✓		
vanEeghen 2019	✓	✓	✓	✓	~		
Vinluan 2018	✓	✓	✓	~	✓	✓	
Wada 2019	✓		✓	~	✓	✓	
Walker 2016			✓		✓	✓	
Ward 2017							✓
Weinstein 2018	✓		✓	~	✓		✓
Wen 2019		✓	✓	~	✓		
West 2015				✓	✓		
Wharton 2017		✓	✓	✓	✓		
Wheeler 2019	✓		✓	✓	✓		✓
Wilkening 2017			✓	~	✓	~	
Willgerodt 2015			✓	✓	✓	✓	✓
Wilson 2016	✓	✓	✓	~	✓	✓	✓
Wong 2016	~		~	✓	✓	✓	
Wong 2016	✓		✓		✓	✓	
Wong 2018	✓		~	✓	✓		
Wongsirimete ekul 2016			✓	~	✓	✓	
Yune 2020							✓
Hamoen 2020	✓	✓	~		✓		✓

NOTE:

✓

Indicates that the specified role or experience was described in the manuscript

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Indicates that the specified role or experience was implicitly described in the manuscript

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Indicates that the specified role or experience was not addressed in the manuscript

CHAPTER 3: DISCUSSION

DISCUSSION

Health care systems cannot function without dynamic, high functioning, highly reliable collaborative teams. IPE efforts are designed to prepare future clinicians to engage in, enhance, and bolster interprofessional collaboration with the aim of safe and productive patient outcomes.⁵⁴⁻⁵⁶ Yet this will not happen simply by putting learners in close proximity to each other in training situations.⁵⁸ The faculty's role in IPE, and training in that role, is an essential piece of the puzzle. What they can do as mentors, planners, assessors, developers, and managers; what they say and don't say; and what they role model and what they don't all influence the outcomes of IPE and, hence, successful teaming in healthcare. Our knowledge synthesis efforts highlighted that IPE faculty wrestle with foundational struggles that exist at the interpersonal, intrapersonal, and institutional levels. While there are enthusiastic, earnest efforts by faculty to make IPE translate into future successful interprofessional collaboration, we must better support them by explicitly linking the fundamentals of IPE learning with the in-situ clinical opportunities that arise every day in the health care system. Interprofessional teams exist everywhere, but there are still opportunities missed to highlight and focus more on the actions of the team than on the role-specific expertise of who is on the team.

MILITARY AND SOCIETAL RELEVANCE

IPE and the collaboration that comes from it are critical in military medicine, where nothing happens without teamwork. It is a military ethos – even an assumption really – that we will work effectively in teams to take care of our members in harm’s way. However, we are just as susceptible to the issues that hinder effective interprofessional work as any other organization and hierarchy may even be more exaggerated in this population. This review, while not specifically centered on military teams, adds to the literature about military interprofessionalism, including work describing the nature of military teams⁵⁴ and the challenges of interprofessional teams on deployment.⁵⁹

As military health professionals, we are constantly managing unique configurations of teams in unique environments, and across multiple treatment facilities worldwide; it is imperative that we make these teams work so that our patients get the care they deserve. That starts with the fundamentals conferred in the educational process as medical professionals are learning their craft. And this study indicates that we are not role-modeling interprofessional collaboration enough for learners. While faculty are often enthusiastic about engaging in IPE, it seems that we quietly hold our biases and sometimes state them as we prepare to address role conflict in interprofessional teams. Because the military really should be the model for teaming - and military medicine even better than that - this data should be a call to action for our military medical learning sites to seriously invest in the preparation of faculty members to lead excellent interprofessional education and model exceptional interprofessional collaboration.

LIMITATIONS AND FUTURE RESEARCH

As noted, this is a snapshot in time, and it is largely centered around what is in the published literature, and all the constraints therein. Publishing this kind of research is not easy or simple, and there may be many more contributing factors than we are able to account for because it is simply too hard to get into the literature. The positivity bias in publishing (i.e., the idea that only successful interventions are reported on) likely plays a factor in the scarcity of in-depth articles on faculty roles in HPE as well. How commonly are we able to see, report, and discuss failures (rather than success) in interprofessional education? Moreover, it is difficult to link IPE to future success in *practice* in interprofessional collaboration and then even more challenging to see how patient outcomes and systems outcomes improve because of it. Future research must address these methodological challenges so that we can fully connect education and practice. Methods like direct observations and simulation may help us to begin to understand connections between IPE and successful interprofessional collaboration. Finally, we did not look at all of the ways non-physician collaborators may be successful. This was a choice, in part, due to the unique role physicians play in a medical team. It is also related to the idea that if IPE is working in the allied professions, but not when we integrate the physicians, then we need to take a much harder look at what role physicians are playing in the success or hindrance of IPE. Yet future work examining IPE across the allied health professions is certainly needed.

CONCLUSION

In this critical review about the roles and experiences of IPE faculty, we found that IPE faculty, in some form, fulfill all of the roles identified for medical educators in Harden and Crosby's²² and Harden and Lilley's²³ papers. The experiences of the faculty suggest that, while their roles are varied, there is still struggle around efficacy, negotiating roles and expectations, and around assessment. There continue to be contextual struggles that make the job of IPE harder, including financial, administrative, and clinical support and reward. However, IPE is still getting done.

We reference the idea that IPE faculty are 'building the plane while they fly it,' a nod to the fact that the creative and iterative process of health professions education almost always occurs within the time frame, framework, and limitations of a current educational platform. This being an area of health professions education that really only came into focus after the year 2000, and only became a 'requirement' in 2010,⁶⁰ we are still early in the development and delivery of IPE. The faculty are enthusiastic and positive about the need for IPE, and we need to work to understand how to bolster their feeling of self-efficacy and sense of financial and administrative support.

Health care has a responsibility to get healthcare right—and that means effectively harnessing the skills and competencies of the full interprofessional healthcare team. We know that high-functioning interprofessional teams create better patient outcomes, enjoy less burnout, and generate more satisfaction for patients and providers.⁵⁴⁻⁵⁶ It is even more important to note that airplanes, like medicine, fly with precarious precision. As we continue to build IPE, we need to consider the faculty are more than just the manual makers, the tools, and the pilots – they are also the passengers.

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