Health Professions Students' Perceptions of Their IPE Program

Potential Barriers to Student Engagement with IPE Goals

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BACKGROUND: Extensive evaluative efforts are underway to explore nuances of interprofessional education (IPE). Few studies, however, have utilized methodology that includes multiple interviews with students of various health disciplines, thereby potentially concealing factors that may be impacting students' attitudes and perceptions of IPE. By focusing on the students' perspectives, this case study explores potential barriers and facilitators to students' engagement with their IPE program. **METHODS**: In-depth, semi-structured interviews were conducted with 20 students from six health disciplines at the ends of years 1 and 2 of their IPE program. Data were analyzed utilizing multi-step coding processes to identify patterns of students' perceptions and attitudes. **FINDINGS**: Elements that were internal and external to the IPE program (e.g., assignments, time constraints, lack of accountability, anticipatory socialization, and insufficient professional identity formation) were found to impact students' perceptions of the program and possibly their engagement with IPE goals. **CONCLUSIONS**: This case study sheds new light on how factors related to an IPE program's structure and implementation, as well as factors outside the program, may affect students' perceptions of IPE and perhaps even their willingness and ability to engage in interprofessionalism. *J Allied Health* 2017; 46(1):10–20.

THE LITERATURE ON interprofessional education (IPE) and collaborative practice clearly acknowledges that high-functioning healthcare teams who use effective communication and collective decision-making approaches are better prepared to solve patient care issues and problems.[1–3] Furthermore, those healthcare systems that adopt a culture of teamwork are more likely to have a greater impact on patient outcomes.[4] In fact, the Institute of Medicine (IOM) warns of the potential disasters related to siloed knowledge and training, and challenges healthcare educators and practitioners to create IPE and collaborative practice opportunities among healthcare workers and students.[5–7] Therefore, there is little debate that healthcare providers of the future will need to be trained *in* teams, and that health professions education must be nested within a culture of teamwork and collaborative practice.[8]

Given the increasing attention to IPE within health professions education, numerous evaluative efforts have explored program development and implementation, as well as students' perceptions of their own IPE programs, attitudes regarding the abilities of other health professions, and thoughts on IPE in general.[9–30] Interestingly, findings from studies on students' perceptions and attitudes are somewhat mixed, with some showing that IPE does positively impact students' behaviors and attitudes toward other health professions and/or IPE in general, and others showing that IPE has little to no impact on students' perceptions.[31–39] However, a majority of this previous research employed scales [e.g., Students Stereotypes Rating Questionnaire (SSRQ), Attitudes Toward Health Care Teams Scale (ATHCTS), and Interdisciplinary Education Perception Scale (IEPS)] and other survey-based techniques. Attitudinal scales, although efficient, do not allow for in-depth understanding of students' perceptions. Furthermore, of the few studies evaluating students' attitudes through qualitative methods (i.e., focus groups, opened-ended survey questions, or interviews), there are notable limitations such as: sampling from only one health discipline, sampling students post-enrollment of an IPE program, focusing on the "impact" of a single IPE-related event or an IPE program that is not mandatory/required, and gathering data at only one time

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period (typically at the end of the program, thereby eliminating opportunities to explore potential shifts in attitudes and perceptions). These approaches, although certainly yielding valuable insights, may conceal the intricacy of factors that may impact students' attitudes and perceptions of IPE.

This case study addresses these gaps by focusing specifically on a mandatory 2-year IPE program and assessing the attitudes and perceptions of students from six different health disciplines involved in the IPE program. By gathering data through one-on-one in-depth interviews from the same students at multiple points during their IPE training, and by sampling from different health professions, we intend to shed new light on students' perceptions of their IPE program and IPE in general, as well as what factors may impact students' willingness to engage in IPE program goals and aims.

Methods

Description of Study Setting

Thomas Jefferson University (TJU) was founded in 1824 as the Jefferson Medical College, now the Sidney Kimmel Medical College, and also includes the Jefferson Colleges of Biomedical Sciences, Health Professions, Nursing, Pharmacy, and Population Health. The Jefferson Center for Interprofessional Education (JCIPE) at TJU was founded in 2007 and is dedicated to improving interprofessional care. The JCIPE offers robust training programs such as the Jefferson Health Mentors Program (JHMP) to help support emerging priorities in healthcare.

The JHMP is a 2-year IPE program that is mandatory for all students entering each of the six healthcare disciplines: couple and family therapy (CFT), medicine, nursing, occupation therapy (OT), pharmacy, physical therapy (PT).

Health profession students are split into groups where all attempts are made to have each discipline represented in each group,* and each group is assigned a health mentor—an individual from the local community currently navigating the healthcare system with one or more chronic conditions. During the 2 years, groups meet two to four times each year, and the capstone of the program is a group visit to the mentor's own home to further understand the entirety of mentor's illness experience as well as expand on treatment and care options. The health mentor is the group/discussion leader and facilitator. During the meetings, health mentors guide students through their own personal health and healthcare history, as a patient and as a person.

The JHMP faculty are coaches who aid in the debriefing of the health mentor experience and represent all health disciplines at TJU. Recently, Jefferson system clinicians and students who have completed the JHMP have been co facilitating the debriefing sessions, and students seem to respond favorably to this addition. The explicit goals/objectives of the JHMP are: a) students will understand the roles of their colleagues and be prepared to function as members of effective health care teams, and b) students will understand the point of view of individuals with chronic conditions and be prepared to provide patient- and family-centered care.

Study Design & Data Collection

This case study presents an intense exploration of students' attitudes and perceptions of one IPE program. A case study is a suitable approach as this type of research explores a particular phenomenon *within its context*, often utilizing a variety of data sources.[40] Whereas the focus of the study is clearly on the perceptions of students, these perceptions cannot properly be explored without considering the *context* (where the perceptions are cultivated and applied), the IPE program (JHMP) and the health education institution itself (TJU), including the various settings in which the IPE-related meetings took place.

Participants were health profession students (who entered in 2011) enrolled in the JHMP at TJU. Twenty students were randomly selected from six health disciplines (CFT, medicine, nursing, OT, pharmacy, PT) to partake in in-depth semi-structured interviews at the end of year 1 (T1, spring 2012) and then again at the end of year 2 (T2, spring 2013) of the JHMP. A stratified random sample was selected based on the distribution of students in each discipline. Although this was achieved with medicine and nursing students, OT and PT students were slightly over-sampled, and pharmacy and CFT students were slightly under-sampled in relation to total enrollments. Students were randomly sampled by selecting every *n*th student within each disciplines enrollment roster (e.g., from the list all students enrolled in the medical school for the class of 2015, every 25th student was selected to be interviewed)—*n* was determined by the size of the discipline-specific cohort. Once identified, potential participants were then emailed via their personal TJU-email accounts. The email included a description of the study, a statement that their participation was completely voluntary and would not impact their academic standing in any way, and the interview guide.

As noted, certain disciplines were over-sampled and others were under-sampled because potential participants declined to be interviewed or simply did not

*Given the enrollments of each discipline, this is not always possible. The larger enrollments of particular disciplines, namely medicine, mean some disciplines have more representation in groups compared to others. Therefore, there are often more medical students in each group than students from other disciplines, and sometimes OT or CFT may not be represented in a few student groups.

TABLE 1. Disciplines of Study Participants

Discipline	Male	Female	Total
Medicine	3	4	7
Nursing	1	3	4
Physical therapy	2	1	3
Occupational therapy	1	2	3
Pharmacy	1	1	2
Couple and family therapy	0	1	1
Total	8	12	20

respond to numerous interview requests. Students who declined to be interviewed cited hectic schedules and/or lack of time as their primary reasons. No student stated that they did not want to be interviewed because they disagreed with the study itself or found the questions to be sensitive or unimportant. The same students who participated in the T1 interview also participated in the T2 interview. The characteristics of the final sample of participants (gender and discipline of study) are available in Table 1. At T1, 19 interviews were conducted over the phone and 1 interview was conducted in-person. At T2, all 20 interviews were conducted over the phone. All T1 and T2 interviews were conducted by the same trained qualitative researcher (B.M.), were audio-recorded (with the participants' permission), and lasted approx. 30 to 45 minutes. The use of human subjects was approved by the institution's Institutional Review Board.

Given the study objectives (to explore students' perceptions of their specific IPE program and of IPE in general), participants were asked questions about how/why they chose their particular health profession, how/where they developed thoughts/perceptions of their own and other health professions, if/when they were able to interact with students from other health disciplines, their thoughts on and experiences within their own IPE program, and about IPE and team-based practice. These questions were developed in union with the case study approach so as to be mindful of the importance of *context* in examining the particular phenomenon. Although the same interview guide was used for the T1 and T2 interviews, and a majority of the same questions were asked to all participants at T1 and T2, certain follow-up questions and/or questions that were not on the interview guide were asked to some participants (and not others) at T1 and/or T2 depending on certain responses or directions the interview took—hence, the semi-structured nature of the interview process. However, all interviews at T1 and T2 followed a similar format and structure.

Qualitative Data Analysis

Data were analyzed using multi-step coding processes[41,42] to identify patterns in students' perceptions and attitudes toward their IPE program and factors that could impact their ability and willingness to engage in the aims and goals of their IPE program. First, a two-person team (B.M. and B.P.) transcribed each interview. The team then read through each transcription (40 total: 20 at T1 and T2 each) to identify reoccurring concepts, terms, and phrases. The inductive codes identified in this read-through stage (e.g., grades, health mentor, lack of role specificity, assignments, etc.) were then combined with deductive codes identified in previous research on students' perceptions of IPE (e.g., stereotypes, roles, teamwork, assessments, etc.) to develop the initial codebook. These codes were used in the second, more detailed coding process.

In order to fully conceptualize categories of perceptions and attitudes among health profession students, comparisons were then made between a) all T1 interviews and all T2 interviews (all students), and b) interviews from specific disciplines at T1 and T2 (e.g., only medical student interviews at T1 compared to only medical student interviews at T2). This particular analysis showed that there was little to no difference between the disciplines, as well as little to no change from T1 to T2 regarding to participants' perspectives of and attitudes toward their specific IPE program or their thoughts of IPE in general. Therefore, analyses focused on issues and factors that were *consistent* from T1 and T2 to identify persistent elements associated with IPE (both in general and specific to JHMP) that may be impacting students' engagement with IPE goals and aims.

In the final stage of the analysis, categories of perceptions and attitudes were then used as codes themselves to fully explore their nuances and intricacies within the data. Memoing and noting were conducted by both coders throughout the processes, and to ensure a satisfactory level of inter-coder reliability, the coding team met at the beginning and end of each stage of the analysis to discuss findings, memos, and notations. The minimal differences between team members regarding particular findings were discussed, and decisions were based on consensus.

Results

Although students expressed positivity toward particular aspects of and experiences with the JHMP program (i.e., the health mentors themselves and the space and opportunity to socialize with students from other disciplines), certain factors were found to negatively impact the students' perspectives of their IPE program and, in turn, their level of engagement with the aims and goals of program. Factors impacting students' attitudes toward and perceptions of their IPE program could be categorized into two related but distinct categorical models: a) factors that were nested within the IPE program itself, and b) factors that appear to be influenced by elements "outside" the IPE program (not specific to JHMP or TJU). Detailed discussion of the categories is

offered below. Data from the interviews are presented to provide evidence for (and to elaborate on) each model. Using the categorical models as codes themselves, it was found that the JHMP must balance the a) informal and formal nature of the program, and b) "teaching"/nurturing discipline-specific role specificity and team-oriented role blurring, which is discussed below.

General Perceptions of Program

When asked what particular aspects of the JHMP they found worthwhile to their professional development and learning, participants expressed a high level of satisfaction and enjoyment in working with the health mentor, the individual living with a chronic condition who was the subject of focus during their interactions. Students felt that this was a first look at the "real world" of patient care and learned a great deal in working with this community and patient representative. Many participants also expressed how much they enjoyed the opportunity to meet with and socialize (informally) with students from other disciplines. The participants noted that JHMP provided them with rare opportunities to interact with other students and learn more about their professions. When discussing how they found these opportunities beneficial, students consistently categorized them as being informal.

> *And we had an awesome health mentor. She's a really interesting person in her own right. So we enjoyed . . . when we had these meetings, we looked forward to kind of social hour with each other and our health mentor more than anything else.* (Medical Student)

> *Our health mentor is great, she's a really awesome person. I feel like I've learned a lot from her . . . about life. And I like getting to interact with different people that I wouldn't get to interact with otherwise.* (Nursing Student)

From the students' perspective, the health mentor, as well as the opportunities to connect with students from other disciplines, represented key positive elements of the JHMP. However, participants also discussed a number of issues that they felt negatively impacted their perceptions of JHMP specifically and of IPE in general.

Prominent Factors Internal to JHMP (IPE Program-Specific)

When asked about their thoughts regarding the JHMP, students frequently voiced their concerns with the *assignments* and *workload* associated with the program. They viewed these assignments as "busy work" or "extra work" that was redundant, overly detailed, and not necessarily conducive to their learning of interprofessionalism. They also expressed disappointment regarding the lack of feedback from JHMP faculty on their assignments, and the notion that working in a "team" for the assignments felt forced.

> *A lot of the assignments were very redundant. I noticed that they gave goals at the beginning of the program, but the goals were very vague. And it would always be fluffy questions, like 'What did you learn?' 'What did you learn about your interprofessionalization?' And we would give fluffy answers because that's what we felt we were supposed to do.* (PT Student)

> *The assignments were not helpful, no. I wish they were a little more clinically-based. We had to write out a list of our health mentor's medical history and surgical history and medication history. But there was no critical thinking involved. It's not like it was challenging us, so it didn't really require a great deal of teamwork or use interdisciplinarity because it's all easy and straightforward enough that one person could do it.* (Nursing Student)

Similarly, participants shared their frustrations with the *time constraints* they associated with the JHMP. Along with attempting to fit JHMP-related meetings into their own discipline-specific curriculum schedule, students also expressed that they had significant difficulty scheduling meetings with their group members, including their health mentor. This was not only discouraging to the students (which, in turn, impacted their perceptions of the program) but also influenced the number of times they could actually meet as a group and/or with their health mentor.

> *It's very difficult to schedule meetings with our health mentor, so we actually had two different health mentors. So that was one of the biggest complaints that I had too was that I felt we all are on different schedules, we all have exams, we all have financial aid deadliness. We all have this kind of stuff all looming over our heads, so it was very rare that we actually got together as a group.* (Medical Student)

Furthermore, participants expressed dissatisfaction with the general *lack of accountability* associated with the JHMP, specifically that their performance in the program was evaluated on a pass/fail basis. Students stated that it was generally understood among all the students (from each discipline) that they would indeed "pass" the JHMP if they just "do what they [JHMP faculty] wanted." This *lack of accountability*, especially in regards to the method(s) of evaluation, according to the participants, led to lackadaisical and apathetic attitudes among some of the students specifically pertaining to the amount of effort and energy they were willing to spend on JHMP-related tasks and assignments. Although not expressed as often as the issues with grading and evaluation, a number of participants also stated that they were disappointed by the lack of professional dress-code requirement, particularly when meeting with their health mentor.

> *But I think there's no way of really holding students accountable for the program in a way. So therefore it's kind of looked at by all the students as just being an extra thing that we have to do, and from that standpoint, is it really necessary? And no one is really getting anything out of it because we are just looking at it as an extra kind of annoyance along with all the other things we have to*

do. I think that in order to make it really beneficial, you've got to find a way to hold people accountable. I mean they [JHMP faculty] do say, 'Yea, you get a pass or fail grade,' but at the end of the day, it doesn't really seem like they could do anything to you either way. (PT Student)

[The HMP] not really a high priority. That's mainly because it's really pretty easy. It's not something I have to study for really. There's [sic] no tests. If we do any prep, it's usually like a quick meeting to decide how the interview with our health mentor is going to go. (Nursing Student)

Clearly, factors that can be considered internal and specific to the JHMP impacted students' perceptions of that program, and certain factors, such as *time constraints*, even affected how often students were actually able to participate in meetings associated with the program. It is therefore evident that these factors influenced how much students were willing and able to engage with the various aspects of the program. Along with these JHMP-specific factors, it was also found that there were factors *outside* JHMP that impacted students' attitudes toward the program as well.

Prominent Elements External to JHMP (Nonspecific to IPE Program)

The data suggest that students came into their own discipline-specific training, and the IPE program, with preconceived notions and expectations about the abilities (scholastic and healthcare-related) of their own and other health professions (i.e., *anticipatory socialization*). Moreover, students (especially nursing and medical students) frequently noted that they were aware of stereotypes associated with their profession and that these negative views were often reinforced and perpetuated in the school/training setting.

And I think it's related to the perceptions that people come into school with and the perceptions that are perpetuated in school. So I wouldn't say it's entirely the way our mentors are, what our professors are role-modeling for us. I also think it's a lot of people who come in. (Medical Student)

I definitely think that it perpetuates the hierarchy within the professions. It starts in the schools, so of course once medical students become doctors and nursing students become nurses [pause] there is still the expectation that doctors know more. Yea, I think it's bullshit. I think that the nursing profession deserves more respect. (Nursing Student)

Interestingly, although they did state that they had entered their discipline-specific training and JHMP with expectations associated their own and other health professions, participants, particularly medical students, consistently discussed that they did not yet fully grasp the role(s) associated with their own future profession. According to the participants, this *insufficient professional identity formation* made it very difficult for them to even attempt to comprehend the role(s) of other health professions and how the roles may/may not overlap with their own (i.e., role blurring). This, according to the participants, had a significant impact on their engagement with the JHMP and their ability and willingness to learn about other health professions, including those represented in their own JHMP work groups. They expressed difficulty in learning their own discipline-specific role(s) and the role(s) of others in part because of lack of "real life" experience with these roles. Put simply, having not had the opportunity to "try on" or even see the roles of their own or other health professions in actual health care settings, students had significant difficulty cultivating and adopting a professional identity, let alone embracing the tenets of interprofessionality or an inteprofessional identity. Given this confusion, concepts such as *interprofessional* and *team-based care* were difficult to grasp in the classroom.

One of the biggest issues I found was that none of us have practice in our professions. So, like myself, and another medical student on our team, we learn academic stuff. We haven't had a clinical rotation, so we barely have interacted with patients. And I have had the same feeling from the nursing students and the PT students. We're all taking exams, we're not really our professions yet. So I'm not a doctor, they're not a nurse, they're not a physical therapist. So when the assignment is that we need to learn how to do interprofessional teamwork, there is no interprofessional teamwork. We're all students. (Medical Student)

It's hard to really understand the roles of other health professions when you're all first-years. So it's hard to understand your own role, let alone how you incorporate yourself into other roles. (PT Student)

As is evident from the data presented above, these elements categorized as internal and external to the JHMP contribute to students' attitude toward their IPE program. These negative perceptions, in turn, were found to be associated with students' willingness to embrace the "team" mentality, to learn more about the professions other than their own, and to engage with the goals/aims of their IPE program. This is reflected in Figure 1.

I've heard from other students that those goals of the program weren't really met because of the way the program was structured. We had a wrap-up meeting where we talked about our thoughts on it and the problems that we had, and the common complaint was just that if the goal was to teach students to learn about the different roles of different health professionals, to serve a patient, but a lot of people didn't really seem to get that out of the program, me included. (Medical Student)

I know that their [JHMP faculty] point is to try and get us to work together, but a lot of the times, we're working together, but like separately. We're all doing the same assignment, but we're all doing it from our own departments. So we're not actually communicating with each other. We'll all do one section and the next person will do the other section, so I think we only really met as a group one time. So out of the 2 years that we were supposed to be meeting together, we met together one time. When all the rest of the times

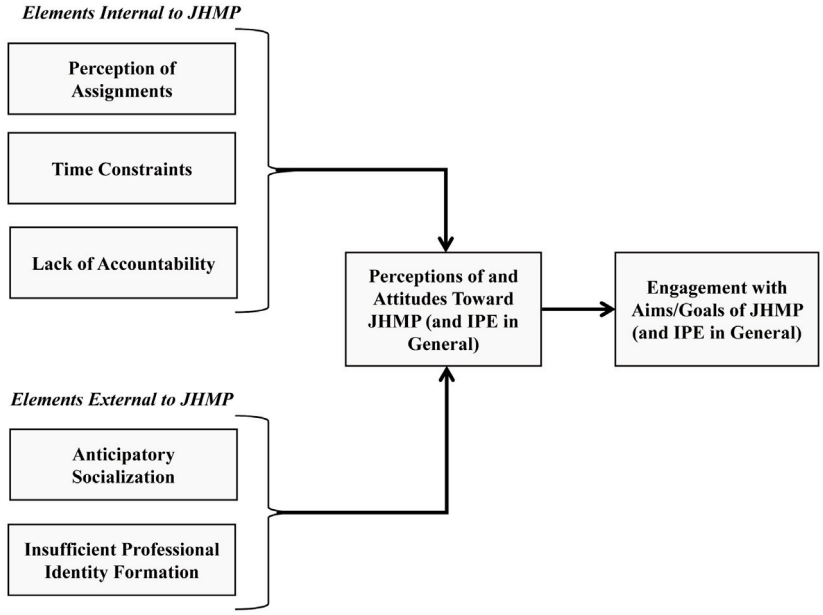

FIGURE 1. How elements internal and external to JHMP impact students' willingness to engage in goals and aims of JHMP.

we just were doing different parts on a project. So we weren't really talking about the interprofessional stuff, and I don't think getting out of it what they wanted us to. (OT Student)

As noted earlier, these categorical models were then used as codes to identify broader theme(s) regarding the factors that may impact students' perception of their IPE program and engagement with tenets of IPE**.** This specific stage of the analysis spotlighted the challenges for this IPE program in negotiating: a) *teaching/nurturing discipline-specific role specificity and team-oriented role blurring*, and b) *the informal and formal nature of the program*. The negotiation of *teaching/nurturing discipline-specific role specificity and team-oriented role blurring* reflects the difficulty faced by the JHMP in cultivating an interprofessional identity among students, battling anticipatory socialization, allowing their uni-profesisonal identity to blossom and flourish, and providing an arena for students to see, acknowledge, and accept role overlap. The negotiation of *the informal and formal nature of the program* speaks to the structure, design, and implementation of the IPE program. This includes the extent to which students and faculty were held accountable in regards to assignments, grading and evaluation, presence and consistency of feedback, requirements pertaining to professionalism, and frequency (and to some extent intensity) of meetings with groups members, including the health mentor.

Discussion

Facilitators of IPE Goals

All participants reported that their health mentor was the most rewarding aspect of their JHMP experience, in that they not only enjoyed interacting with a "real" patient, but also felt that they learned a great deal from the health mentor's experiences and perspectives. These accounts lend support to the value of including a patient representative in IPE programs as a group member, and even as a group leader. Furthermore, it could be argued, although not frequently discussed in previous literature, that having a patient work with the students may bolster students' professional growth and development of professional identity by providing opportunities to assume the caregiver role in some fashion. Including the patient may also allow students opportunities to practice interaction and patient-centered techniques that they may continue to hone as they progress through their training. Given the continuing debate regarding the role(s) of the patient in IPE and interprofessional collaboration (IPC),[43] future research should focus on these "patient-centered" IPE programs where patients are not only included but serve as group leaders.

Each of the participants also explicitly stated that they enjoyed having opportunities to meet and socialize with students from other health professions, noting that they learned more about other health professions through "informal" interactions (e.g., chatting about classes and coursework) rather than through formal assignments and required group work. Previous IPE and interprofessional collaboration research utilizing the Contact Hypothesis has suggested that the mere exposure or contact between groups through IPE has the potential to reduce stereotypes and negative perceptions that students have of other health professions and promote respect and understanding.[31,44] Within these works, however, contact is broadly conceptual-

ized, and the impact regarding the context, intensity, or frequency of contact between IPE students has yet to be fully dissected. Findings from this study suggest that the informal, perhaps organic, interactions are perceived by students as particularly beneficial. Similarly, participants stated that even though scheduling meetings with group members and health mentors was frustrating and often difficult, they wanted more JHMP-related meetings throughout the 2 years of the program, as well as more institution-sponsored, informal, multidiscipline social get-togethers throughout their training.

Somewhat related to these requests, participants also expressed the desire to witness and interact with professional members of their own and other disciplines in actual care delivery settings. Students felt they would learn a great deal from observing healthcare practitioners in action, which would aid in their professional identity development and the comprehension of their roles and the roles of other health professions. Although students did prioritize their own discipline-specific training and professionalization, it is clear that they were also very interested in learning more about the roles and responsibilities of other health professions.

Barriers to IPE Goals

The findings suggest that the JHMP must negotiate a delicate balance between informal opportunities for students to interact and formal elements requiring students to engage with each other. Furthermore, the students' accounts highlight the difficulty for the JHMP to teach students the roles of various health professions within a classroom setting. Without observing how the assorted roles actually work together, complement each other, or overlap to effectively deliver care to patients, students felt somewhat stunted in their ability to apply what they were being taught through the IPE program.

Similarly, participants discussed how their lack of professional identity and general understanding of the role(s) associated with their own profession severely hindered their ability and willingness to learn about the role(s) associated with other health professions, a key goal of IPE. This conflict is a principle topic within the ongoing "when to offer IPE" debate. Within this particular literature, some argue that IPE should come early in students' training before students are too locked into the specific perceptions, discourse, values, norms, and general culture associated with their future profession.[45–48] A primary concern of this IPE-early camp is that siloed learning and discipline-specific socialization and professionalization can create and sustain barriers between disciplines that can lead to distrust and disrespect and thus negatively impact students' willingness to learn and understand the roles of other occupations.[12,48–50] Proponents of this perspective appear to suggest that students can and will simultaneously learn and internalize the various intricacies related to their occupation-specific roles as well as learn, understand, and respect the roles associated with other occupations and how these roles coincide with their own.

Counter-arguments of the IPE-early perspective question how students can be expected to learn and respect the roles of other health professions, or learn how their own future profession can work with other professions, when they have yet to be exposed to the roles associated with their own future profession.[51,52] Those who advocate for security in ones' own profession-specific roles before being exposed to IPE and team-based teachings argue that students need to gain at least a fundamental comprehension of the expectations associated with the roles of their profession.[53,54] From this perspective, only students who come to IPE after participating in their profession in action can share with students from other disciplines what their profession brings to care delivery, where it may intersect with other professions, and feel confident and therefore open to understanding and respecting professions other than their own.

The "when to offer IPE" dispute reflects not only the struggle students feel in attempting to cultivate and adopt both uni-professional and inter-professional identities, but also spotlights the power of discipline-specific, siloed learning and socialization, along with the influence and command of anticipatory socialization, the attitudes and stereotypes students bring with them when they enter their training. Shields[55] referred to anticipatory socialization as "prior knowledge of cultural aspects of colleges and universities and the student role" and suggested that not only parental and sibling experiences, but also the student's own life experiences before starting college, could have an impact on preparing them for university life.

Although Shields was examining the influence of anticipatory socialization among university students, it is not difficult to see how anticipatory socialization could affect health profession students entering their training, especially in terms of how they view other health professions.[20] The role and impact of anticipatory socialization are evident in the students' accounts presented in this specific study. Participants explicitly acknowledged that they came to their training with ideas and beliefs regarding the care delivery capabilities and levels of health knowledge associated with their own and other health professions, and that these stereotypes were reinforced and perpetuated in the school/training setting. These preconceived notions and buttressed stereotypes hinder if and how students interact with one another as well as their willingness to engage with IPE goals. In this sense, IPE programs face an enduring battle to dispel negative stereotypes and

encourage respect and understanding of other health professions, addressing negative perceptions held by entering students but also constantly counteracting uni-professional ideologies and stereotypes.

Those factors that were categorized as external to the JHMP (i.e., *identity formation* and *anticipatory socialization*) clearly impact students' perceptions of their IPE program and, in turn, their willingness to engage with IPE. *Identity formation* and *anticipatory socialization* are indeed challenging factors for IPE faculty and administrators to address and/or attempt to control. Aside from influencing how their own and other health professions are presented and perceived at the societal level, there is very little IPE faculty and staff can do to curtail or curb if and how incoming students "learn" about health professions. Furthermore, given the ongoing "when to offer IPE" debate, it would appear that there is not an ideal time to offer IPE so that students are guaranteed to assume both a uni- and inter-professional identity. Therefore, perhaps it would be more fruitful and effective for IPE developers to address the more internal factors spotlighted in this study.

Participants offered their frustrations with the lack of accountability associated with JHMP, specifically in regards to grading, feedback, and the general method of performance evaluation. The perceived lack of a more formal structure of assessment left the students unwilling to spend much time or energy on their IPE assignments, exasperated with IPE-related tasks, and apathetic toward program-related goals. This suggests that enhancing student "buy-in" regarding IPE may be a worthwhile and effective means of altering students' attitudes toward their IPE program and instilling IPE goals and aims. This could be done through more formal evaluation techniques, such implementing a letter-grade basis for assessment, providing extensive and constructive feedback on IPE-related assignments, and even testing on IPE-related material. Heightening the "seriousness" of the program, the impact the program would have on students' academic progress and standing, and the faculty presence may positively impact students' attitudes toward the IPE program and, in turn, amplify their willingness to engage with IPE goals.

Testing on material improves learning and retention of that particular material; this is the fundamental axiom of the Testing Effect.[56] ''The direct effect of testing is based on research showing that when students are tested on material, they remember that material much better than when they are not tested on the material. This is called the testing effect."[57] Many educators and researchers attest to the notion that testing on subject matter motivates students to learn that material.[58,59] The testing effect supports the popular belief that assessment drives learning. Health profession students are formally tested on a wide range of concepts and principles such as microbiology, immunology, pathology, pathophysiology, anatomy, and others throughout their training to promote subsequent learning of these materials for their qualifying exams. From this perspective, it is recommended that IPE programs interested in cultivating and enhancing interprofessional qualities and attributes among their students increase the frequency of formal examinations of aspects of other health professions as well as tenets associated with interprofessional collaboration and team-based care. Although students could be tested on a variety of material related to other health professions (e.g., history of the profession, tasks and responsibilities related to delivery of care, etc.), it is understood that interprofessional team-based care, like "empathy" and "professionalism," is more of something you exhibit, rather than something you can recite for an exam.

In this sense, interprofessional team-based care could be tested through various standardized patient exercises for IPE students and having these exercises/tests formally graded in the areas of communication, interpersonally connectivity, and other IPC-related skills. Standardized patient exercises are considered effective ways to evaluate and educate medical students' history-taking and physical exam skills,[60] but researchers also argue that these simulations provide valuable opportunities for educators to assess students' humanistic attitudes[61] as well as degree of empathy[62] toward their patient. Previous research has shown the value in utilizing simulated patient, and simulated team, exercises within IPE programs,[63,64] but there has been minimal discussion on if/how these simulated patient exercises specific to IPE are evaluated or formally graded.

Frequent formally graded standardized patient exercises for IPE groups that are woven throughout the IPE program may also, to some extent, appease students' desire for more interactions with students of other health disciplines and more "real life" experiences in care delivery. Although standardized patients are certainly not "real life," it does provide students opportunities to engage in IPE and interprofessional collaboration goals and aims in a care delivery setting of sorts, allowing them to practice their professional roles and learn more about the roles of other health professions in action. In turn, such experiences could also promote professional identity and inter-professional identity formation.

A number of the findings from this study echo those from previous qualitatively-oriented research on students' attitudes and perceptions to their IPE program and IPE in general. In their examination of students' perceptions of an IPE event, Rosenfield, Oandasan, and Reeves[25] found that although students had generally positive perceptions of IPE, they had negative perceptions regarding particular aspects of their IPE program, notably the size of the event and the fashion/manner in which interprofessionalism and team-based

care were taught (via skits and forced interactions). The authors suggested that, in turn, the "message" of the IPE program may have been lost for some students. Cusack and O'Donoghue[26] noted that the IPE students in their study expressed a high level of enjoyment in collaborating with students from other disciplines but desired more clinically based opportunities to engage in more integrated teamwork. Similarly, participants of Ebert et al's study[27] stressed the value of their IPE program in learning the "roles" of other health professions, but many also stated that the interprofessional-ness of the program felt forced and trite, and that beyond that particular program, they (participants of varying disciplines) had little opportunity or need to interact. The authors noted, "when IPE is provided intermittently within the academic environment, it can be viewed as simply tokenistic and this approach does not help members of the healthcare team to overcome lack of role awareness and professional tribalism."

In their study of dental technology and dentistry students engaged in an IPE program, Evans et al.[28] found that their program heightened students' awareness of teamwork and collaboration, but they concluded that the program did little to improve students' attitudes towards/about each other—the authors cited the ingrained and nested occupational status hierarchy as prominent factor. Finally, in their study of health profession students' perceptions of a 5-week structured IPE program, Pinto et al.[29] found that time constraints, unequal representation of disciplines within groups, and students' varying level of commitment to the program were all challenges offered by the students regarding their level of engagement with the program. Therefore, the findings from this specific study not only confirm results from previous research, but also provide a more detailed and intricate understanding of the factors that impact students' perceptions of their IPE program and IPE in general.

Since students, in general, found the experience with the health mentor to be positive, any further development of the JHMP program would continue to capitalize on the relationship between the student and health teacher (the mentor). Further development of the JHMP must also include opportunities for students to collaborate together in the live laboratory of the clinical environment if they are going to embrace team approaches and overcome the professional tribalism that exist in the current healthcare systems. Similarly, witnessing their own profession "in action" in the clinical setting may facilitate the processes and mechanisms of professional identity formation. Furthermore, witnessing their own profession interact with other health professions and observing how the roles of various health professionals complement each other to provide effective and efficient patient care may also promote, or at the very least facilitate the engagement with, an inter-professional identity.

Limitations

Although efforts were made to gather a sample for the T1 and T2 interviews that was both manageable (in regards to retention) and representative of the disciplines involved in the institution-specific IPE program, it could be argued that interviewing 20 students was simply not enough to provide representative data regarding students' attitudes and perspectives of their IPE program. Similarly, interviewing each student twice during the 2 years of the program (and not more frequently or even before the program began) could also be viewed as a limitation of the study. Furthermore, selection bias may have impacted the data in that the students who were willing to be interviewed may have harbored a significant desire to express their concerns or accolades of their IPE program. Another possible limitation with the sample for this study is that only one health profession education institution (and their IPE program) was studied. Therefore, the data from this case study may not be representative of students from other institutions that offer IPE programs.

Conclusion

This case study examined students' perceptions of and attitudes toward their own 2-year IPE program, focusing specifically on potential barriers and facilitators that may impact if and how students engage with the goals of the program (and IPE in general). In-depth, semi-structured interviews were conducted with 20 students from six health disciplines at the end of years 1 and 2 of their IPE program. The data show that although students felt they understood the value of interprofessionality and team-based care, there were elements internal and external to their IPE program that impacted their perceptions of the program, and that these perceptions, in turn, affected their level of commitment to the program and IPE goals. Further analysis of these factors suggests that students struggled with how their IPE program negotiated a) discipline-specific learning and team-based care, as well as b) the informal vs formal nature of the program itself. It is argued that IPE program faculty and developers interested in positively impacting students' attitudes toward IPE (the institution-specific program as well as the IPE goals in general) may face an uphill battle if they attempt to address identity formation and/or anticipatory socialization. Therefore, a more fruitful approach may be to focus on the more manageable factors that are categorized as internal to the program, specifically raising the level of accountability for students and faculty by integrated formal, systemic evaluation of students' knowledge of material related to other health professions and nuances of team-based care standards of practice.

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