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BREAKING DOWN THE SILOS: INTERPROFESSIONAL EDUCATION CERTIFICATE OF HONORS PROGRAM

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The University of New Mexico (UNM) Health Sciences, Office of Interprofessional Education designed and implemented an innovative interprofessional education (IPE) Honors program, the first in the United States, in the Summer of 2019. This program was built through a dynamic and responsive partnership with health professions students from multiple programs. The program was piloted in the 2019/2020 academic year and upon graduation in May 2020, the first twenty students were awarded a certificate of IPE Honors. The designed program addressed the barriers and challenges to IPE participation at the organizational level while facilitating creative engagement from the students. We designed the IPE Honors program to value and highlight the innovative interprofessional extracurricular and intercurricular student work. Individual program accreditation and documentation of outcome requirements are supported using a reflective learning IPE evaluation tool that captures the quality and quantity of student IPE experiences. We inventoried both intercurricular and extracurricular IPE activities and experiences. We then mapped these activities to seven categories that were correlated with the behaviors of Interprofessional Professionalism (Frost et al., 2019) and the Interprofessional Education Collaborative (IPEC) Competencies (Barr, 1998). Through group meetings and a pilot assessment, we felt confident that students could gain sufficient experience and practice with the interprofessional behaviors to achieve the IPEC competencies. We designed the IPE Honors program to highlight, build, and assess the quality of IPE experiences across the HSC while accounting for the extracurricular student IPE experiences. This program is innovative, flexible, sustainable, and can be replicated.

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INTRODUCTION

Interprofessional Education is defined as "when two or more professions (students, residents, and health workers) learn with, and from each other to enable effective collaboration and improve health outcomes". (WHO, 2010) As shown in Figure 1, IPE is a key element along the continuum from local health needs to improved health outcomes.

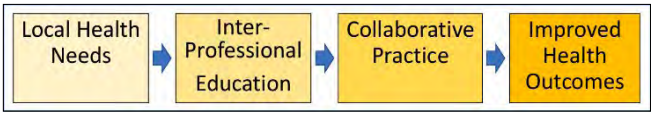

FIGURE 1. Improved health outcomes continuum.

The intent of Interprofessional Education (IPE) within health professions programs is to build a health workforce that has the capacity, leadership, and dedication for interdisciplinary collaboration across all sectors of healthcare (Homeyer et al., 2018). To ensure that health professions students are practice-ready, IPE is a requirement for most health professions program accreditation boards (O'Keefe et al., 2020). While the accreditation standards for IPE vary across programs, Figure 2 illustrates the Interprofessional Education Collaborative (IPEC) core competencies (2016), and Interprofessional Professionalism behaviors (Frost et al., 2019). While the desired outcomes and benefits of IPE are clear (IPEC, 2016), implementing IPE programs has been notoriously challenging (e.g., Carlisle et al., 2004; Lawlis et al., 2014; Huggins et al., 2021). The challenges are numerous but boil down to competing academic schedules, siloed courses, and unclear expectations for faculty and preceptors around the content.

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FIGURE 2. IPEC core competencies.

In addition, IPE continues to be tangled with complex power hierarchies and statuses across professions, and between professionals and patients.

Without a strong and well-communicated leadership mandate, appropriate funding, and the resources for IPE didactic and clinical experiences, the work to embed and support IPE at our University's Health Sciences Center (HSC)—like many other health science centers—struggled every semester to ensure that students were getting the experiences necessary to meet the desired outcomes. Our program needed to provide a consistent and inclusive curriculum that students from any of the programs can easily learn about and be inspired to participate in. However, the manifestation of that goal encountered numerous problems over the years. In this design case, we share the story of how we took our students' vision for IPE and implemented it in a way that started to break down the silos between our programs.

We wish to acknowledge our own positionality in this work. The first author, a white man, has the experience of working in a variety of staff positions at the University for 24 years. He started as the manager for the University's printing services and worked his way through numerous departments. These experiences and the relationships he built over the years, give him a unique pragmatic perspective on how to address bureaucratic challenges. His position as the Health Science Registrar (since 2011) allowed for a facilitated path to creating a departmental honors program. He has an MBA and is currently a Ph.D. candidate in the University's Learning Sciences and Organizational Learning Program. Even though the motivation for this project was to support students to value interprofessional partnerships, the first author became aware of the importance of such partnerships after the lack of communication dramatically affected the terminal outcome of his aunt's critical care.

The second author is a cisgender white woman who has a master's and doctorate in nursing and a bachelor's degree in humanities. She entered advanced practice nursing through an accelerated program and only worked in community and public health settings. This is a unique path and means that she does not have the traditional experience of being a nurse in a hospital system. She has, however, been a graduate faculty, student success mentor, and has taught masters level writing and theory courses for 12 years. She has listened to and read about the frustrating and often traumatic experiences that occur in hospital systems as experienced by nurses who are enrolled in graduate programs. She is frustrated with their shared experiences of bullying and othering that commonly occur in healthcare systems. She also recognizes from her colleagues in other health professions that these experiences are not unique to nursing. Her passion for IPE comes from her years of experience in primary care, public health, behavioral health/substance abuse treatment, and more recently planetary health. She has enjoyed the opportunities she has had to work with multidisciplinary teams to create healthcare communities that bring patients and health professionals into a place of belonging, respect, and partnership. She is inherently creative and uses this creativity to solve problems as they arise. She took on the role of IPE director in 2018 with a mandate to figure out a way for the program to become embedded and well-accepted by faculty and students.

This design case details the context prior to launching a new IPE Honors program designed to ensure IPE on our campus is sustainable. We describe the initial formation of our IPE office and our approach to IPE over the years. We share how we addressed barriers for our program by identifying the needs, expectations, and constraints for each health profession's program. We also discuss how we embarked on a deliberate process to design an IPE program with these in mind. We share our process, including how we navigated administrative barriers, then detail the resulting IPE Honors program we designed. We end by considering how the program is meeting identified and emergent (especially COVID-19-related) needs within the context of our health professions programs and our campus, and finally, we reflect on our design process.

CONTEXT

This design case is set at a university health science center (HSC). The university is a public, flagship university designated as R1, community-engaged, and Hispanic-Serving. The HSC is composed of four distinct educational units: College of Nursing, College of Pharmacy, College of Population Health, and School of Medicine, which includes eight allied health programs (see Figure 3). These units each operate

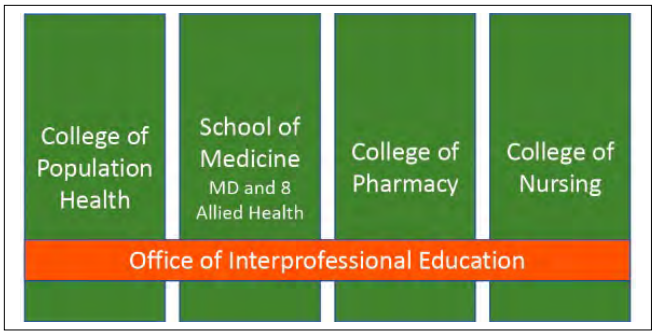

FIGURE 3. UNM Health Sciences academic units.

separately under the HSC leadership structure. They collectively report to the Executive Vice President of the University, but often compete for central resources: clinical placements, physical space, student services, and faculty support/training. In addition, there are several health professions programs at the University that are not a part of the health sciences campus. These include Athletic Training, Clinical Psychology, Speech and Language Pathology, and Nutrition.

Each college and program has its own accreditation requirements and expectations for IPE. Historically, pre-accreditation reviews for IPE content occur on 7-10-year schedules. This means that there has been infrequent, intermittent interest in IPE content and documented outcomes. Given the challenges of implementing IPE (e.g., Carlisle et al., 2004; Huggins et al., 2021), such intermittent interest was not an effective path to meaningfully implement IPE through collaborations across programs.

To address this issue, our HSC leadership funded and formalized the office of IPE in 2012. The office had a 0.5 FTE director and one full-time staff. From 2012 to 2015, the office of IPE largely focused efforts on events where students might have breaks in their individual curricular schedules and could attend a working lunch or structured lecture. Indeed, this reflected trends of the time, visible in a review showing that in 2012, most IPE programs were less than five years old and predominantly involved one-time events (Abu-Rish et al., 2012). However, the office of IPE encountered challenges with this approach, namely that the HSC has three different calendars shown in Figure 4: Some departments are on a traditional fall, spring, and summer term schedule, the College of Nursing has three terms of equal length, and the College of Pharmacy and the School of Medicine MD program have two, 6-month terms with few breaks. These differences made it practically impossible to schedule events that students from all programs could attend. The scheduling complexity prompted the first author, as Registrar, to become involved in IPE activities.

The office of IPE acquired funding and support for additional full-time staff to embed IPE across all programs. This additional staff provided the means by which in the spring of 2015, the office of IPE delivered a semester-long

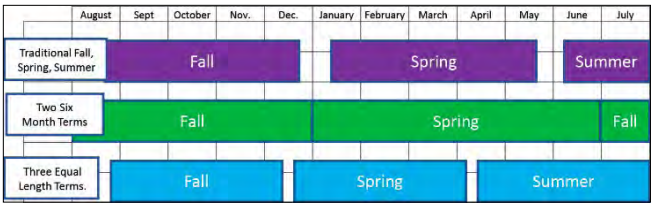

FIGURE 4. Three schedule types at UNM Health Sciences.

Community-Engaged Curriculum (CEC) with over 400 students and 40 faculty in 10 community centers across the metropolitan area. It was intended to be a long-term solution for IPE and a way for HSC students to build community relationships while learning about community engagement. The curriculum was centered on the social determinants of health and included facilitated learning through case studies and community interviews. Each group of students created a project proposal at the end of the semester that would address an identified health issue that their community was experiencing. This was a major feat in coordination, curriculum development, and collaboration across programs and disciplines. This grant-funded program was highly successful, but there were concerns from some of the students. Their concerns included the material was repeated from previous courses additionally it was difficult for them to enter communities they did not have ties with while attempting to forge relationships necessary to complete a robust project in just one semester. The community-engaged curriculum was shelved after that trial run.

From 2017-2019, the office of IPE worked with individual faculty to move some of the content from the community-engaged curriculum (CEC) into courses that might be able to overlap across programs. The office also worked to construct tools and rubrics that would guide faculty on IPE content development. This work paved the way for the development and evaluation of the IPE Honors program.

It is important to note that there was insufficient long-term funding (and program commitment) for the CEC and similar shared curriculum endeavors. A consequence is that many of the programs depended heavily on volunteerism and extramural grant funds. This contributed to the IPE program being vulnerable to discontinued funding, which occurred in the Spring of 2020. In addition, the IPE offerings in courses have relied on the engagement of a faculty champion—someone who went out of their way to organize a learning experience with faculty and students from other programs. When faculty left or course loads changed, the IPE experiences were abandoned. Having dedicated faculty enables the program to have continuity and a permanent connection to all academic programs. The connection builds a collaborative community that is easily seen and accessed by faculty and students alike.

Another challenge of this system is the production of consistent and aligned IPE offerings that meet the outcomes

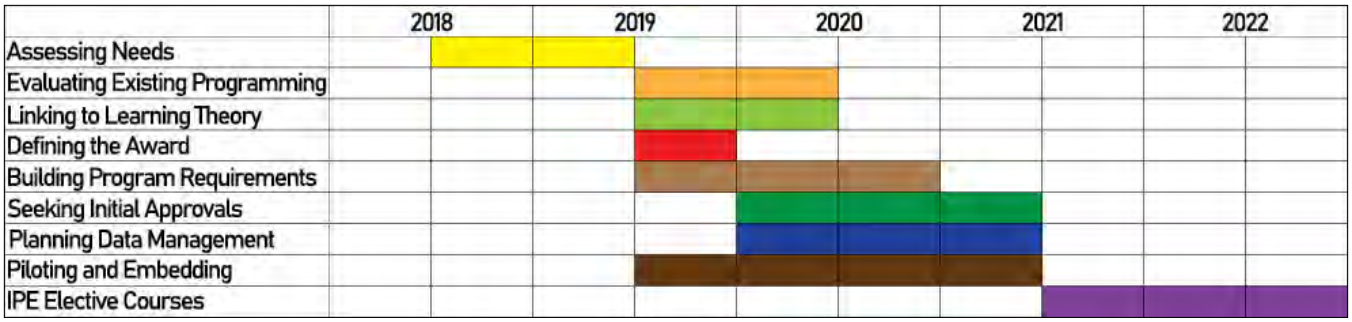

FIGURE 5. IPE design and development timeline.

needed. To address this, the team created an internal tool for IPE offerings that tracked to the IPEC competencies and addressed the disciplines represented. This tool was intended to assist and guide the faculty in creating IPEC content Yet even with a tool to help, accounting for and encouraging such offerings remained challenging.

Therefore, to enhance the consistency of programming, the office of IPE focused its energy, time, and small budget on extracurricular activities that they could deliver themselves. Unfortunately, this meant that not all students at the HSC had the opportunity to participate in IPE activities. It also meant that the onus for IPE was on the office of IPE, and not on the programs or the faculty. In our opinion, IPE should be woven through all aspects of the health professions programs, and not having that responsibility sit squarely with the faculty of the health professions program is an inherent problem.

DESIGN PROCESS

Assessing Needs

In 2018, when the second author became the director of the office of IPE, she launched a listening tour to better understand the perceptions of the current IPE program, as well as the barriers and facilitators of IPE for our campus. She met faculty and program leadership with a process of appreciative inquiry.

Through this experience, she was able to identify what worked, why people wanted and needed IPE, and she noted promising ideas to work into the future of IPE. One barrier she found at the time was the complex challenges to embed cross-disciplinary course content. Those challenges were both curricular and administrative. It was during this listening tour that the two authors decided to start working together. They realized that they had complementary skills and strengths to address both the curricular and administrative challenges. It helped that they both shared an interest in designing and implementing a new IPE program that would help our students become better healthcare professionals.

After the CEC was shelved, most of the IPE office programs shifted to being extracurricular and optional. The IPE program staff spent their time and resources supporting and trying to build several service-learning community outreaches. We hosted a hospital safety training program and a lunch series with speakers from different disciplines with pizza for the students. We also responded to student requests to support a variety of student-led initiatives. We were not satisfied with the quality and reach of IPE on our campus. We also felt that the time and resources we had were being spent on endeavors that were short-term.

It was in this context that we set out to create a sustainable IPE program. We realized in the listening tour that the students were the most enthusiastic about IPE. To capitalize on this, we initiated a deeper collaboration with the students. In the Spring of 2019, we started this process by holding a 90-minute co-design/needs assessment session with students. We brought them to the faculty club and provided lunch. We explored what we should continue, asked about the IPE experiences that were built into their clinicals, and finally, facilitated a brainstorming session on how we could make the program better for all the health professions students.

The students who participated in this session were representatives of each of the HSC programs and had been participating in IPE outreach and extracurricular events. We had connections with each of them, and we hoped that through these connections and an established level of trust, the students would provide meaningful insights. We also wanted to see how the students saw existing IPE programming, and what suggestions they had for improving the quality and quantity of the IPE experiences.

The students identified that the mostly extracurricular nature of IPE was frustrating. They discussed numerous options for embedding the current IPE programming in the respective curricula, such as using 2-day social determinants of health event that all attended, getting credit for outreach efforts, and organizing multiple health professions students to do their clinical rotations together. They also suggested interprofessional student service-learning days, modeled on one of the programs run for our pharmacy students. The

students recognized the barriers IPE faced with funding, varied calendars, differing program start times, and varied modality (some programs are fully online, some hybrid, and others face-to-face).

They also recognized the administrative work and funding needed to successfully coordinate community engagement events or experiences. The students noted that the IPE program was seen as "adding" to the faculty workload, and they recognized that there was a lack of centralized support for collaboration across programs. This interfered with some of what they wanted to see. In addition, they pointed out that the program was relying heavily on outreach clinics, which had limited slots for students. Other insights from students were recognizing that certain programs might be averse to working together because of hierarchies that were major barriers to such an approach. Students were forthright about the challenges they faced, including critiquing the teaching they experienced.

Fundamentally, the students wondered if there was a way to acknowledge the work they were doing together. They also wanted to support the involvement of students in programs that were not participating. The students themselves came up with the idea of an IPE Honors program, where they would graduate with a certificate of IPE Honors and graduation cords. They imagined building a student community that would work together to create what they wanted to see from their IPE experiences. It was a unique solution to our problem—have the students be the driving force behind the design and widespread adaptation of the IPE program. We also realized that this would help us gather the outcome data we needed to design and pilot a unique program rooted in learning theory that would allow students to easily participate in and account for their interprofessional knowledge and experience.

In the process of partnering with the students to design an IPE program that would work for them, we also realized the most important factor that facilitates participation in IPE, is that when we do it well, the students and the faculty love it and want to do more. So, with that in mind, we set out to create something that the students and faculty would enjoy doing, that would be meaningful for their learning needs, and that they would receive credit for. We also needed to account for how and when the students achieved the IPE learning competencies and demonstrate their experiences with the interprofessional professionalism behaviors. It was our hope that this process would also help us build a road map for all the health professions programs to incorporate IPE.

Partnering in this way allowed us to benefit from students' insight and excitement for IPE. This allowed us to account for (and get outcome measures on) the embedded IPE activities that were already in place, and to recognize (and give credit for) the numerous extracurricular activities that were not previously acknowledged or accounted for. The goal for developing this new IPE Honors program was to give the students a more robust opportunity to develop as interprofessional professionals.

Because we divided some of these tasks based on our availability and our expertise, these steps were accomplished in parallel at times rather than in sequence (see Figure 5). In the Spring of 2020, we started offering the program to students.

Evaluating Existing Programming and Exploring Options

We engaged next in a process program mapping and evaluation. At the time, the IPE program was using a tool named, Process for Interprofessional Education System (PIPES; Center for Interprofessional Education 2021), that evaluated the quality of an IPE experience and the IPEC competencies that were covered. However, there was a disconnect in only the IPE program was using this tool for our programmatic offerings while most of the IPE experiences (clinical rotations and cross-disciplinary didactic) were occurring outside of the IPE program. Further complicating evaluating the IPE experiences was that we did not know exactly where students had their clinical rotations. So, we set out to locate the places where IPE is or could be occurring in all 11 of our health professions programs. We considered a wide range of IPE activities including interdisciplinary lectures, problem-based/case study learning with IPE students, community outreach programs, interdisciplinary student leadership, interest groups, program capstone projects, quality improvement and research projects, interdisciplinary courses, learning day events, and clinical rotations. One example of an IPE experience many of our students have is through ECHO telemedicine clinics that are inherently interdisciplinary and give our students insight into how to collaborate across disciplines to improve patient outcomes. One of these clinics in particular, the Primary Care Area Health Education Consortium (AHEC), connects health professions students and clinical faculty from around the state. Students present current patient care cases and receive interdisciplinary feedback on complex patient care issues. Students and faculty also work together across disciplines to present timely and pertinent health lectures. It was clear to us that this program exemplified ideal IPE and that we should account for it as an important component of the IPE program for our campus.

We created a way to catalog all the possible IPE experiences in our Learning Central system, which is used for mandatory annual Health Insurance Portability Act (HIPAA) and Occupational Safety and Health Administration (OSHA) training. We worked with faculty across programs to find and track all the IPE on the campus. Using the PIPES tool, we named and set a "value" for each IPE experience we could find. We had the idea that students would use this system

Program Outcomes	ICCAS Competencies	IPA Behaviors
Demonstrate knowledge, skills and behaviors of teamwork/collaboration, values/ethics, and quality/safety as an interprofessional team member.	X	X
Articulate a shared, interprofessional identity as a healthcare professional.	X	
Identify the unique roles and responsibilities of each healthcare professional within the interprofessional team.	X	X
Demonstrate collaboration, teaming skills and behaviors as an interprofessional team.	X	X
Demonstrate the knowledge and skills necessary to collaborate as a member of an interprofessional team in patient care simulations.	X	X
Demonstrate skills and behaviors of teamwork/collaboration as a member of an interprofessional team in patient care simulations.		X
Identify and reflect upon ethical considerations as a member of an interprofessional team in patient care simulations.		X
Engage in Interprofessional practice and academic collaborations.	X	
Demonstrate teamwork and collaboration skills in clinical interprofessional practice settings.	X	

FIGURE 6. Desired program outcomes/IPE Event survey tools table.

to identify the IPE experience they had done and add it to their "courses taken" field. This method allowed us to have students fill out a short evaluation summary of their experience, so we could capture additional feedback on the quality and their perception of the experience.

While the Learning Central system works well for our annual required training, it proved to be very difficult for students to search for, add, and then evaluate the numerous options for IPE experiences. This created a barrier to student participation in the evaluation of and accounting for their experiences with IPE.

At the same time as we were cataloging programming using the PIPES tool, the Interprofessional Professionalism Assessment tool was published (IPA, Frost et al., 2019). This tool helped us to re-think how we were evaluating and tracking outcomes for IPE on our campus.

We began considering more deeply how we could further amplify and encourage the interprofessional professionalism behaviors (Holtman et al., 2011), which was essential for our students (and faculty). With the publishing of the IPA tool (2019) and the shorter Interprofessional Collaborative Competency Attainment Survey (ICCAS, Archibald et al., 2014) tool, we were able to detail more comprehensively the outcomes we wanted for our program. These tools were integral to the re-development of the outcomes and evaluation component of our program. The program outcomes we generated at this time were covered by the two surveys. (see Figure 6)

In the end, we wanted our students to understand what interprofessionalism is and give them the inspiration, skills, and strategies to pursue interprofessional collaborations upon graduation.

After we had a good grasp of where IPE was happening across the various curriculums, we determined that we had enough information to put those together and design a program that would ensure that students could be exposed to and can adequately achieve the IPE program outcomes. In this process, we also realized that the program had to be flexible to accommodate the variations in the health profession program semester configurations, length, clinical rotations, capstone requirements, and availability of outreaches. We also realized that we needed to build an IPE Honors program that was pragmatic for the various programs and influential for the students while allowing students to explore their own areas of interest. By offering the service of tracking and reporting IPE activities for departments, we thought it would become an easier choice for them to partner with us, and that students, looking for IPE opportunities in the pursuit of honors, would also make the faculty more aware of these opportunities.

Linking to Learning Theory and Planning Assessment

To create an IPE program that effectively taught the complex practices represented by the IPEC Core Competencies, while promoting the IP behaviors, we wanted to build on learning theory that would fit into our context and inform our program. We met as a core team and decided that in our program, students would learn together as a group over time and reflect incrementally as they went.

Fostering a community of practice in the IPE program would allow opportunities for students to explore their roles and responsibilities as healthcare professionals in a safe and well-structured IPE setting (Wenger et al., 2002). A community of practice is generally described as an informal learning organization. This construct works well with students as it supports curiosity and vulnerability, allowing students to be safe in spaces of unknowing and to explore how they can

lean on the knowledge, experience, and perspectives of others. A community-of-practice approach fosters connectivity among interprofessionals and helps to provide students with a greater sense of preparedness for practice (Roberts et al., 2017).

Since the IPE content occurs over the course of the student's health professional training (2-4 years), rather than being compressed into one experience or course at one point in time, we drew inspiration for the IPE program from the research on distributed practice. This is a well-documented phenomenon in which spacing study over time leads to more durable recall (Cepeda et al., 2006). Distributed practice—also termed the spacing effect—has been used in nursing education to develop psychomotor skills (Dunnack et al., 2021), and has repeatedly been shown to be effective in medical education (Kerfoot et al., 2009; Chugh & Tripathi, 2020). Scholars have called for a broader application of distributed practice in health education (Van Hoof et al., 2021). One way this theory influenced our design was in considering how students might meet the IPE outcomes criteria. Specifically, we realized that repeated engagement with related topics and content over time would jointly fit the constraints we had identified and support students to build a durable understanding of interprofessional behaviors.

One of the key mechanisms to support learning is through reflection. Reflection helps to turn experiences into applied understanding of frameworks (Kolb, 2014; Mann, et al., 2009). The practices of interprofessionalism depend on reflective practice, which allows for ongoing interpretation and reflection that builds the capacity to make situated, informed, in-the-moment decisions. Schön talked about a Reflective Practitioner knowing they are not the only one to have relevant knowledge about a particular situation. (Schön, 1983). This inspired us to realize that we needed to add a reflective practice to any IPE activity or experience our students had, regardless of whether our IPE program had a role in the delivery of the activity or experience. We wanted to make sure the reflections we asked students to do were meaningful, as we were also aware of the potential for ineffective reflection and sought guidelines about avoiding "zombie reflections" by emphasizing reflection as a practice (de la Croix, & Veen, 2018).

In tandem with our investigation of learning theories, in the literature (Mukhalalati & Taylor, 2019) we also consulted with key resources, such as those available on the IPE professionalization organization websites (e.g., Nexus, IPEC, CAIPE, University of Toronto). Specifically, we investigated tools we could adapt for students' reflections since the thought of creating and validating a tool was overwhelming. As the two of us were already doing most of this work outside our formal workload, we knew creating and validating a tool was not feasible for us.

Ultimately, we decided the Interprofessional Professionalism Assessment (IPA) tool (Frost et al., 2019) would give students an opportunity to work through and reflect on how longer events and clinical rotations shaped their understanding of interprofessional behaviors. This tool poses longer questions about IPE core values of altruism and caring, excellence, ethics, respect, communication, and accountability. We adapted the IPA tool to allow for reflection using a Likert scale with the stem, "to what extent did you experience your profession engaging in the following behaviors?" We also needed a tool for our shorter, didactic events. We chose the ICCAS tool (MacDonald et al., 2010; Archibald et al., 2014), adding the stem, "To what extent did this event or activity promote the following behaviors?" In both surveys, we included open text fields to prompt students to explain examples that illustrated the quality of the IPE events, experiences, and activities. Using these tools, we hoped to support students to reflect on what they experienced and how it related to their own development of interprofessional behaviors. Finally, we planned a cumulative reflection; to earn IPE Honors, students complete a thorough summative self-evaluation on their own interprofessional professionalism development at the end of their training.

We recognized that students' reflections could also provide valuable information for monitoring and improving the program, serving as a feedback loop of information about the various events and activities our program and the health professions programs were providing. We need good information to guide the quality improvement endeavors of IPE experiences, especially as most of the activities and events are outside of our control.

Defining the Award

One of the more creative parts of this process was defining the awards students take with them. We decided we wanted to address three areas. We wanted to give them something they could wear at their convocation ceremony, something they could hang on the wall, and something that they could use professionally.

There are different items one can wear with academic regalia. There are cords, stoles, and hoods being the main items. These all come in standard colors that signify the area of study one is receiving a degree from. We decided on cords over stoles because they can be multi-color and stoles generally are one color with a different color lettering. The cord colors we chose were green, which signifies health programs, and red, which is the main color of our institution. Other institutions can follow this model and use green with the main color of their institution.

The actual certificate follows a typical certificate format. (see Figure 7) It can be easily framed and hung on an office wall. We included the red and green colors with the institution logo and official signatures.

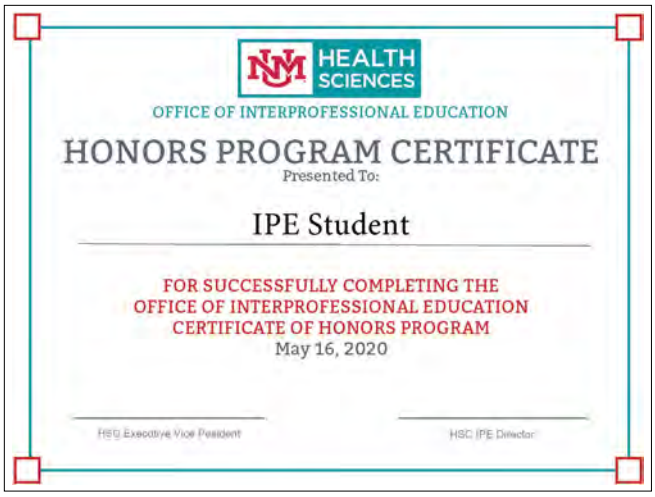

FIGURE 7. Honors Certificate Awarded.

The letter of reference lists and highlights the student's activities throughout the program. It also provides quotes and insightful comments about how the student embodies the interprofessional behaviors and how they met the IPEC competencies. This letter is intended to provide more information about the student to an employer or for a graduate school, residency, or fellowship application.

Building the Program Requirements

Given the first author's experience as a Registrar, I saw the advantages of building a program upon which we could run a degree audit. I knew there are several models we could use to accomplish this. Talking about this, we remembered when we started our own college experiences, the degree audit was two sides of an 8 ½ x 11-inch paper. One side of the paper had the university requirements, and the other side had the college major requirements. This would be better than an online form that could not be easily printed. I remember the advisor telling me to fill each of the "buckets" with the required classes and to not lose the paper. We created the requirement category idea from the buckets on the paper degree audit model we remembered. We talked about how we wanted to make the category titles somehow fun or memorable, making it easy to understand and differentiate the categories.

We also wanted to make the categories action-oriented. We decided to use words that ended in "-ive," and after a short brain-storming session, we had the names of our categories: Informative, Elective, Interactive, Executive, Innovative, Initiative, Immersive, and Reflective. The next task was to decide the meaning and frequency requirements for each category and to organize IPE offerings that fit into each of these "buckets" (see Figure 8). For instance, we had to decide how many informative sessions were enough. Informative sessions historically have been a 1-2 hour session where professionals talk to a group of students about what they do and how they work with all the other professions. So, for example, a patient advocate could explain how they work with nurses and doctors to help family members understand treatments or a medical prognosis. These sessions primarily address roles and responsibilities.

We did this for all the categories, looking at the competencies that they usually worked with and fitting events into categories. This took us a couple of weeks to get through all eight categories, and then we took a little time to reflect on and review our initial organization. We met again and talked through what each category meant and what activities would qualify to meet those requirements. Immersive and Reflective both seemed to have the same type of experiences that would fulfill them—namely, longer four to eight-week clinical rotations both were immersive in nature and gave enough of an experience for students to reflect productively about their experiences. We thus decided to merge immersive and reflective into a single category.

Seeking Initial Approvals

We brought our draft of the IPE Honors program to the Vice President for Academic Affairs at the Health Sciences Center. They supervise the IPE office and all academic programs, as well as the student services programs. We asked for their thoughts and feedback, and we integrated their recommendations. They had previously been the Director of the IPE program and were very familiar with the barriers that our program faced. They appreciated the innovation that would allow students to "opt-in" to IPE Honors themselves.

Although the Vice President gave approval, before moving forward they required us to meet with HSC college deans, associate deans, and educational program leadership to integrate their thoughts and feedback. We did this in one-on-one sessions with the appropriate senior leadership in each program, and we received and integrated their feedback. In general, we received a great deal of support for the program. We believe an important element of receiving that support was in our ability to communicate the goals and outcomes of the program contrasted with the past IPE strategies, and to recognize the barriers that our program would face in being adopted. What seemed to resonate the most with people was that we recognized that there are many barriers and a record of unsustainable IPE programming attempts. We emphasized the positive aspects that all those past attempts had in common: Both students and faculty alike report loving IPE. It seemed to be a common understanding that IPE is good and gives energy to those that participate. Our goal was to create a program that could be sustained both administratively and embedded in the curriculum.

Over time, and with a few extra meetings to clarify how IPE Honors would not interfere with any of the existing Academic Honors available in some programs, the senior leadership from all the health professions programs

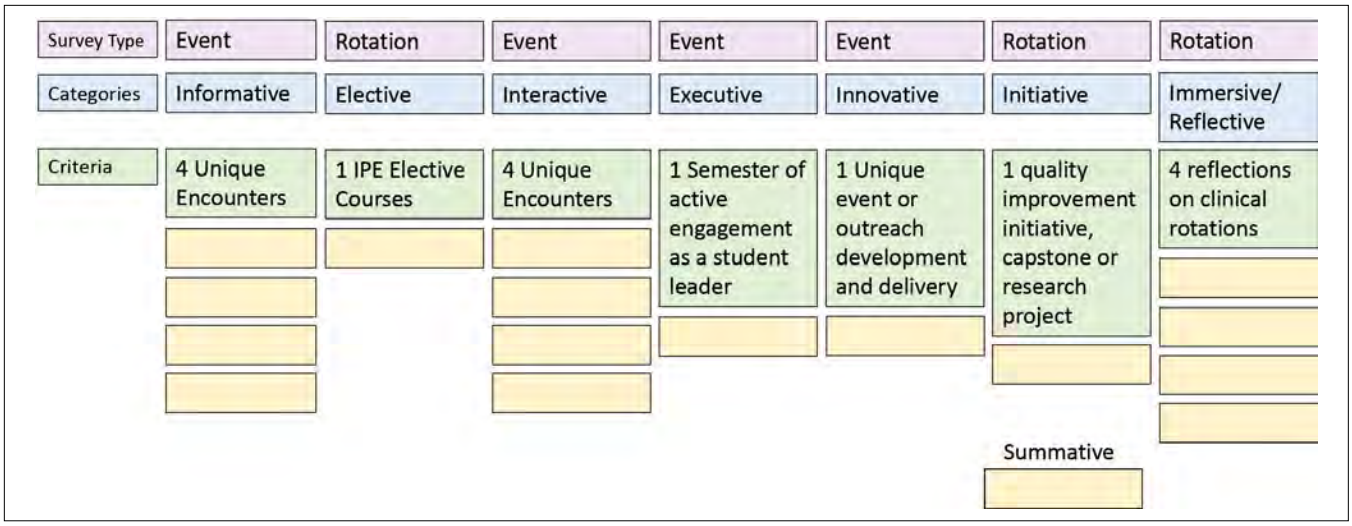

FIGURE 8. Honors Audit, from a slide used to orient students to the program, illustrates student progress.

endorsed our plan. A few leaders commented during our meetings that graduate health professions students do not have as many opportunities for honors or other types of recognition as undergraduate students do. The graduate faculty and leadership were particularly drawn to IPE Honors for this reason.

We then took the draft IPE Honors program back to the students and the faculty champions for review. The faculty appreciated the program as it gave structure to their efforts and gave them a program for which they could be affiliated faculty. The students appreciated it because it allowed them to earn credit for their extracurricular IPE engagement. They were very excited and commented that wearing cords at graduation seemed appropriate for the extra work they do with IPE.

Planning Data Management

One of the major advancements in the program was the creation of a database. The database stores all the survey data and is searchable by student and by event. When we first considered how we would curate the survey data, we considered what our uses of the data will and might be. We then consulted with our IT department and asked them what products we could use. There is an institutional policy that departments should use software packages we already own. This decision was not taken lightly.

Some of the considerations we had to make regarding technology selection were cost, ease of use, start-up effort, and IT support, all of which were important. The cost was important to us because we had a very limited budget. Ease of use was important because we cannot hire an IT or software person to run the backend and, we want our students to have easy access. The start-up effort was important to us because we have limited staff. Maybe the most important factor was IT support, as we barely had enough staff and time to get the program going. We certainly did not have time to address software issues.

For the database, we decided to use a Microsoft Access database. Access is included in our Microsoft Office package and there is a large IT resource for us to use if we need help. The data are saved and managed on a local SQL Server.

For surveys, we had limited choices. Our institution uses Esurvey/Opinio almost exclusively, though our IRB uses REDCap, research software that has a robust survey tool built in. It is also supported by our IT department and has several other tools we might be able to use in the future. So, because it has low cost, accessible training, and onsite technical support, we decided to use REDCap as our survey software. We input our surveys into the REDCap system. The data are then extracted and put into the database. This currently is manual, but we are preparing to automate this in the future. Students can log into the dashboard and see their progress (see Figure 9).

Piloting and Embedding into Programs

As we began communicating the program requirements to faculty, educational leadership, and the student services teams, one of the more unexpected outcomes was that several programs asked if we would help them embed the program requirements for IPE Honors, so that all the students in their program would all meet the criteria, without having to do extracurricular work. For instance, we worked with the director of a rural health-focused scholars' program and reviewed their curriculum, which has several components that meet the Interactive, Executive, and Immersive/Reflective Categories (see Figure 3). We evaluated and decided that the quality and quantity of work the students do was consistent with the IPE Honors requirements. We made an audit for them to help them communicate how their students meet IPE Honors criteria. This was unexpected, but really inspired

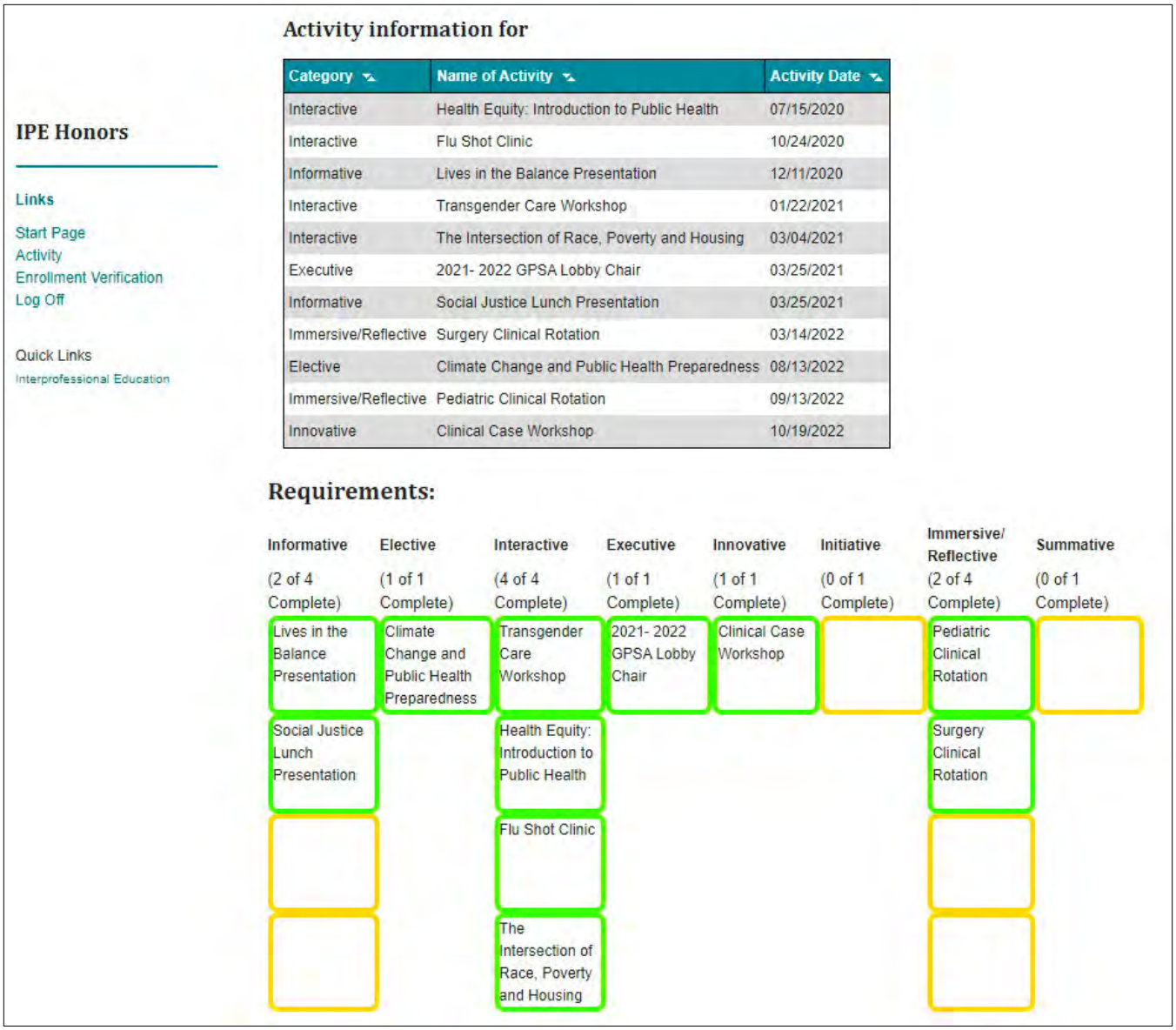

FIGURE 9. Student Progress View. Students can log-in to see their progress.

us to search for other interdisciplinary programs that students can opt into and that help them earn IPE Honors. We identified a leadership training program that also fit IPE. We also worked with specific programs to track and account for the IPE in their whole program, allowing their students to earn IPE Honors through embedded IPE content. In the Spring of 2021, our university added a new health professions discipline, and its faculty built the program around IPE Honors. Also, as the College of Nursing APRN programs are being re-designed, they too are tracking their program so all their students meet the IPE Honors criteria. Program by program, the curriculum is evaluated and constructed to recognize the specific intercurricular IPE work. Those students follow their specific program and earn honors by completing the prescribed activities for their program of study.

We launched the program in the Fall of 2019. We called this first year a pilot and ran it as such, with the active participation of students from medicine, physical therapy, occupational therapy, nursing, and pharmacy. These students went back through their programs retrospectively and tracked the IPE activities they had done and filled out the assessment forms on those. This allowed us to find and track the IPE activities that occur in those programs on a regular basis and to start collecting data on the content and quality of those events. Most of these students were also engaged in interprofessional leadership groups and were actively involved with the student-run outreach clinics to the community. They represented the students who were leading IPE from multiple fronts.

Early in 2020, as the COVID-19 pandemic became a reality, HSC leadership projected decreased academic program funding for the coming year, which resulted in a significant loss of funding for the IPE program. As a result, we were not able to renew the annual two contracts. We moved the program into the Student Services department to share administration costs and space. Unfortunately, this change meant there was a delay in the effort to build and track the IPE Honors program, and we needed to find and cross-train student services staff who could provide administrative and student support services to our program. This resulted in us prolonging the time of our pilot approach for the IPE Honors.

IPE Elective Course Creation

Through speaking with students and faculty, we discovered that one of the ways students can get meaningful interprofessional experiences is through elective courses. Courses that present interdisciplinary collaboration through problem-based learning often meet the IPEC competencies would be great IPE electives. We decided that the easiest way to offer IPE elective courses would be to offer them through the IPE program itself.

We recognized that offering courses through our office provided opportunities for faculty from multiple programs to share in the teaching. Our thought was to use faculty with IPE workload to teach or co-teach these courses. However, once these courses were established, we believed we could hire faculty to teach as part of their teaching load or as temporary part-time faculty.

Based on the expertise of the second author, we also wanted to offer content that IPE does not typically cover, but that health professionals increasingly contend with, such as climate change and health, addressing systemic racism in healthcare, environmental justice and planetary health, social and ecological determinants of health, and delivering healthcare for people experiencing homelessness. By offering elective courses in the IPE program, we realized we might be able to sustainably fund the IPE program, while also leveraging our expertise in cutting-edge topics relevant to IPE. As we rolled out this idea, faculty from other programs asked if their electives could also be cross-listed as IPE electives. We worked with faculty to embed IPEC competencies and work with interprofessional behaviors into their courses and then "approved" them as IPE electives. We now have nine courses that are cross-listed as IPE electives. In the Spring of 2022, we created a cross-walk document for IPE electives to guide faculty. We plan to monitor how many students enroll in our elective courses and to seek their suggestions for future IPE topics.

CURRENT DESIGN: CERTIFICATE OF HONORS

The University HSC Interprofessional Education Honors program is an initiative designed for students enrolled at our university in health and social health programs (e.g., law, community health work, nutrition, health education, athletic training, physician assistant, dental hygiene, speech and language pathology, psychology, medicine, radiology sciences, physical therapy, nursing, pharmacy, occupational therapy, emergency medical services, population, and public health). This program is designed for students who want to pursue education and experiences in interprofessional practice, health policy, and healthcare program design. IPE Honors is flexible, individualized, and offers IPE experiences in a variety of settings, including outreach and community-based service learning and engagement events. The program is designed to encourage students to engage in existing elective and extracurricular activities across our campus that meet the criteria for interprofessional education and to also encourage new IPE offerings. To qualify for IPE Honors, students must meet the requirements for at least five of the seven categories by the end of their academic program:

1. Informative is defined as having experiences with professionals from different fields in a teaching setting. Students must complete eight unique encounters, which include the "IPE info series" lectures and talks by someone outside of their health professions in lectures, courses, and conferences. Students can also shadow a professional in another health field (e.g., participating in a community health worker or medical-legal alliance shadowing program).
2. Elective is defined as taking one of the IPE elective courses. There are many opportunities for students to take courses in other departments that qualify as interprofessional. Students who successfully complete any 3-credit IPE-certified course in an area outside their own, meet the criteria for this category. Students can also propose courses for this category.
3. Interactive is defined as participating in at least 16 hours of interactive IPE student activities, extracurricular IPE-sponsored programs, or community engagement opportunities. For an activity to qualify, it should include activities that bring students from two or more professions together to engage in a common activity. Recent examples include attending an IP conference, participating in an IP component of a course they are taking, or actively participating in an interactive workshop.
4. Executive is defined as student leadership in IP education, practice, or community collaboration. Students can meet this via two semesters of active engagement as an interprofessional student leader, including as a member of a community board (e.g., a clinic for persons experiencing homelessness, an Indigenous health initiative, etc.) or a leadership position in a health professions community or IPE work group, including student groups. Students must submit a faculty-signed letter of participation and a short reflective essay on interdisciplinary leadership upon completion of the second semester.

5. Innovative is defined as a project where participants work across disciplines to build and deliver an interprofessional education, activity, or community engagement offering. With the approval of an IPE faculty champion, students are invited to work Interprofessionally to build and deliver an IPE offering, such as an educational event for students and/or the community, or a project to improve the health and well-being of university students.
6. Initiative is defined as a research or quality improvement initiative on the topic of interprofessional practice or a collaboration across disciplines on a research project. Health Professional students, residents and fellows can work on a quality improvement project or research on interprofessional practice, roles, and responsibilities. This initiative should highlight the Interprofessional Education Consortium (IPEC) competencies (roles and responsibilities, communication, teamwork, and/or values, ethics, and shared decision-making in a clinical setting or healthcare system). In addition, participants can work together across disciplines to build a presentation for a conference or deliver an educational offering that addresses one or more of the IPE competencies that will also qualify for this category.
7. Immersive/Reflective is defined as an active experience of reflecting on the interprofessional professionalism in clinical, clerkship, or rotational experiences. As students engage in IP clinical, internship, clerkships, or fieldwork rotations, they can reflect on their experiences practicing Interprofessionally and gain credit for these experiences. At least four clinical rotation evaluations are required for this category.

Each IPE activity is accounted for in RedCap. For each IPE event or activity, students complete a reflective survey. They apply to graduate with IPE Honors in their last semester, submitting a self-assessment of IP practices and an evaluation of the overall program. The requirements are designed to be met easily over the duration of students' programs of study. Students who qualify get a certificate of IP Honors from the University HSC, a letter of recommendation, and an honors cord to wear at graduation. They also have the benefit of being welcomed into an interprofessional community of students and faculty doing meaningful and interesting work across the university.

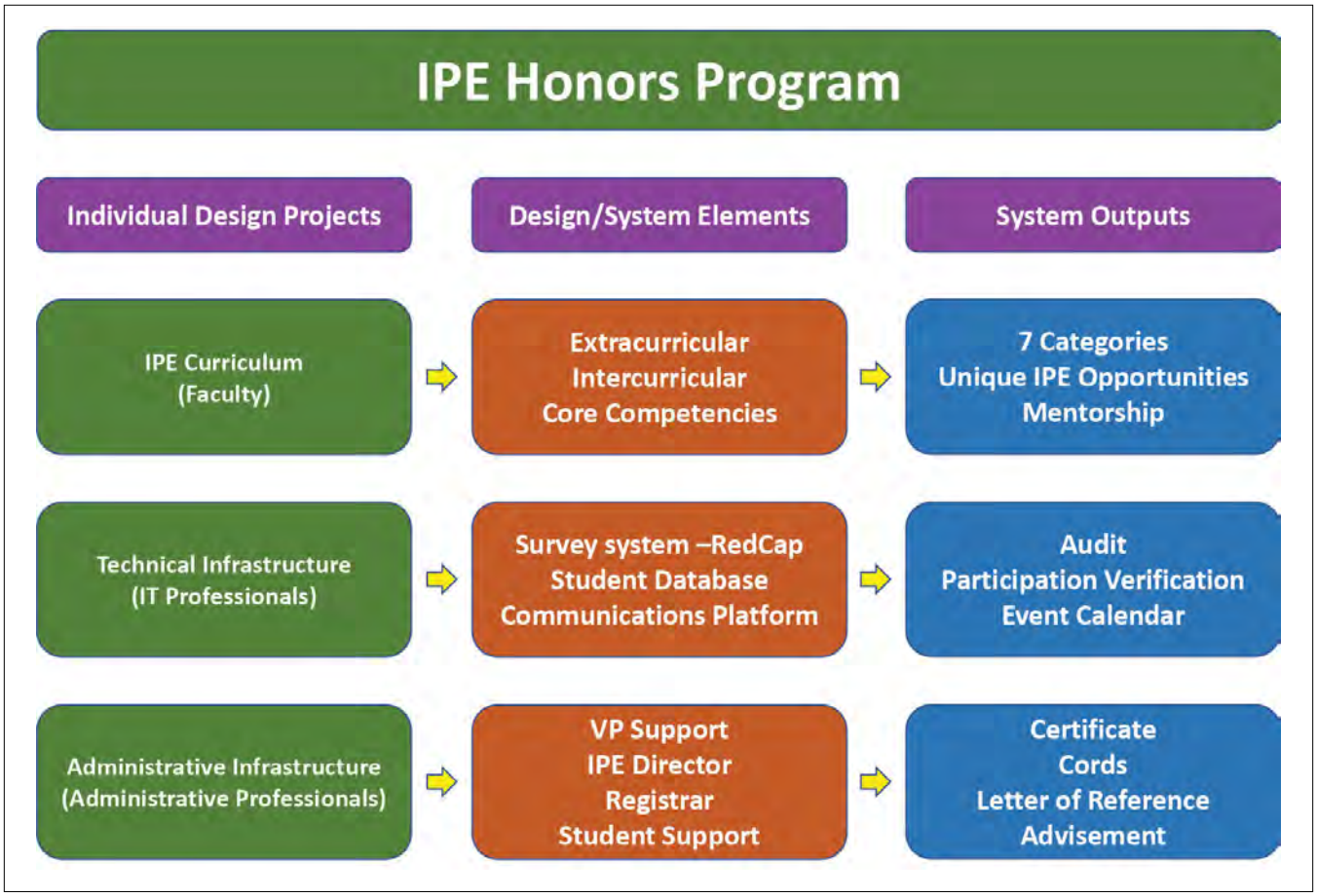

FIGURE 10. Design Elements. Captures the three design projects with elements and outputs.

CONCLUDING THOUGHTS

The reality of coordinating several design challenges almost simultaneously in one project made building this program a daunting task. There were three distinct design aspects to the project: the IPE curriculum, the technical infrastructure to support the program, and the administrative infrastructure to maintain the program. We did not define these three challenges in the beginning. Initially, we focused on the curriculum, intuitively understanding that the curriculum was most important. Figure 10 shows these three design projects. It also shows elements of each design project and outputs. All of these support the IPE Honors program.

Although there were several constraints, the budget was—and continues to be—the biggest constraint. For instance, not having a budget to buy and customize a student-facing software system to store the honors program and track student progress made this process slower. We have used institutional resources such as shared drives, Microsoft 365, and RedCap. Although having a small budget is restrictive, it also has benefits. We were forced to remain in a state of continual review of the program components. This continual review informs important decisions about why, how, and how much we need of every resource as we move forward.

We have moved forward with embedding the criteria for IPE honors in the various health professions programs. Our university has a new master's degree in athletic training, and they embedded our IPE Honors criteria in their curriculum. All their students will graduate with IPE Honors. Additionally, an external government organization is considering partnering with us to have their several hundred health professionals and trainees complete the IPE Honors program.

In our first academic year (2019/2020) we awarded 20 students the IPE Certificate of Honors. In 2020/2021 we lost funding, and staff paused to focus on supporting our educational programs during the first year of pandemic teaching. However, we still managed to graduate 12 students with IPE honors. For the 2021/2022 academic year, we graduated 27 students from our program. For 2022/2023 we graduated 74 students. The term IPE honors is becoming a household word at our institution and the number of current participants is over 800.

Our institution has had a history of starting strong with innovative IPE initiatives and depending on faculty and leadership champions. When the enthusiasm waned so did the initiative. Our institution had never been able to carve out dedicated space and time for all students to engage in IPE together, which is the model of most IPE programs. We needed to work with this history and these barriers in mind to develop an IPE program that is flexible, innovative, well-loved, and that meets the IPEC competencies and the outcomes we wanted to see for all our health professions students. To build this, we co-created a program with students and made it easy for faculty and programs to adapt and track for their own accreditation requirements. We also created a place where faculty who loved IPE could come together to innovate and improve the educational offerings on our campus.

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