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Using Competency-Based Curriculum Design to Create a Health Professions Education Certificate Program the Meets the Needs of Students, Administrators, Faculty, and Patients

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Abstract

Introduction: Health Professions Education (HPE) programs emerged to train faculty in teaching and learning within the higher education context. HPE programs are motivated by the belief that faculty trained in teaching and learning will ultimately improve patient care through improved preparation of future practitioners and improved test scores that impact the careers of health professionals and the prestige of the institutions.
Methods: We followed a modified Delphi method for data collection and analyzed data from two in-person focus groups with faculty who work within the health professions at SRU, a collaborative document where health professions faculty filled out information about class types within HPE, an intensive literature review of over 100 policy and research on health professions education needs and best practices, a review of existing health professions education certificate and graduate degree program curriculum, and a review of promotion and tenure handbooks for Dental, Medical, and Nursing faculty at SRU.
Results: Analysis of course evaluations and stakeholder feedback suggested that the redesigned HPE curriculum meets the needs of HPE faculty, aligned with literature, and was competitive with similar program across the United States.
Conclusions: A curriculum that meets the needs of practitioners, administrators, and industry should prepare faculty to gain competency in each of the core domains of health professions education: Professional Foundations (specific to Health Professions Education), Working with Students, Planning and Preparation, Instructional Methods and Strategies (Clinical and Classroom), Assessment and Evaluation, and Evidence-based Practice/Research.

Keywords: Health professions education; Curriculum design; Program evaluation; Health professions education competencies; Competency-based design

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1. Introduction

Historically, faculty in the health professions have been specialists with little to no background in teaching, learning, instruction, or curriculum development. Health professions faculty were often not trained in education and primarily delivered content via lecture, a method that research suggests is not the best way to engage students and promote knowledge retention.[1,2] In response, Health Professions Education (HPE) programs emerged to train faculty in teaching and learning within the higher education context. HPE programs are motivated by the belief that faculty trained in teaching and learning will ultimately improve patient care through improved preparation of future practitioners and improved test scores that impact the careers of health professionals and the prestige of the institutions.[3] The primary purpose of HPE programs is an improvement in instruction and professionalization of the educational activities of health professionals for faculty in colleges of medicine, dentistry, pharmacy, nursing, physical therapy, and other health professions schools.[4]

Created in this vein, the HPE certificate program at Southern Research University (SRU; pseudonym) specifically focuses on improving strategies in teaching, learning, and instruction for educators in the schools of medicine, nursing, dentistry, public health, and allied health professions. Although primarily designed for health professions faculty, the program is for anyone involved in education in a healthcare setting. The program consists of four graduate level courses that culminate in the credential of a certificate offered through the School of Interdisciplinary and Graduate Studies. Created as a partnership between SRU's College of Education and Human Development and their School of Medicine, recent trends in enrollment and feedback from the School of Medicine indicated that the core audience of the graduate certificate was not satisfied with the current offerings. In response, we conducted a program evaluation to establish if the current HPE curriculum was meetings the needs of Health Professions Education student, administrators, and faculty.

Through a data collection process that included a review of the literature on Health Professions Education, existing HPE program across the United States, policy documents on health professions education, promotion and tenure documents for health professions faculty at a southeastern research university, and focus group interviews with faculty from medical and nursing education, we redesigned a curriculum to meet the needs of HPE stakeholders (students, faculty, and administrators), aligned with literature, and was competitive with similar programs across the United States. Through a description of our methods, we describe competency-based curriculum review and design in the development of HPE programming. In doing so, we identify HPE competencies, provide a step-by-step guide to using a competency-based curriculum design process, and craft a HPE certificate curriculum outline.

1.1. Health professions education

HPE programs can take the forms of seminars, fellowships, short courses, workshops, and longitudinal programs.[5] Generally, content is guided by the goal of improving teacher effectiveness. A majority of HPE program curriculums focus on instructional strategies to help faculty move from a teacher-centered model to learner-centered techniques.[1,2] Additional topics covered in HPE programs include motivation and engagement,[6] helping skills,[7] classroom management,[8] and curriculum design.[8] Notably, content in many HPE programs has recently expanded to include faculty development in research and administration.[9]

Although HPE programs come in many forms, the general consensus is that more robust programs over a longer period of time lead to better results for faculty.[1,10] For this reason, as well as an increasing pressure for the professionalization of education within the health professions, many schools prefer certificate and master's degree programs.[10,11] Programs often reflect the needs and the culture of the host institution. Most programs focus on individual faculty, but team-based and institution-focused approaches are growing in popularity.[3]

Research suggests that degree and certificate programs focus on the diverse array of teaching modalities that exist in health professions training as possible.[9] HPE program graduates should be able to move seamlessly from large-group teaching and productive lectures to teaching clinicians-in-training by the bedside.[9] Second, HPE programs should include health care delivery, quality improvement, patient safety, and understanding patient populations.[12] Third, some suggest that participation frameworks should move from voluntary participation to required.[1] Fourth, HPE programs should connect the resources of the health professions to the communities in which they reside through service in order to help people who would not otherwise be able to afford service and to increase learning.[13] Through these methods, HPE programs have the opportunity to lead to better teaching, increased collegiality, and creativity in achieving

organizational goals should be standard for HPE programs.[14]

1.2. Competency-based curriculum design

Originating in the acceleration movement of the nineteenth century, competency-based Education (CBE) reemerged in the 1970s as an "attempt to make higher education more efficient, economical, and relevant to students' lives".[15] Within education, specifically in the health professions, competency-based curriculum design has grown in relevance as a method that explicitly connects professional skills and behaviors to the curriculum. In competency-based curriculum design, decisions are based on the knowledge, skills, and attitudes (KSAs) needed to be competent in the profession upon graduation.

> CBE focuses on outcomes of learning rather than the process of teaching; emphasizes demonstration of abilities in addition to knowledge; de-emphasizes time-based training and seeks to promote greater learner-centeredness. At its core is the definition of "competence" in the target discipline or profession. Professional competence is typically structured in terms of multiple component dimensions or "competencies". Defining these competencies for a given discipline is a complex process that requires the judgments of practitioners of the discipline.[16]

The goal of competency-based curriculum design is ensuring that the curriculum is preparing students to be practitioners.[17,18] In CBE, student readiness is assessed by clear performance outcomes that directly relate to and measure student competence.[18] These performance outcomes are often referred to as Entrustables (EPAs).[19]

Competency-based design is learner-centered and used to prepare students for near and far future work by creating curriculum designed to help students develop those skills and assessing their success in the program by how well they perform on assessments designed to assess their competence on each competency.[17] While the body of literature is still growing, research suggests that CBE leads to improvement in patient care, assists in the development of procedural skills, and is viewed as a valid way to assess students.[20] Criticisms of CBE include a lack of individualization in standardized CBE curriculums, increased burden on administrators and faculty, inconsistent assessment, and what is viewed as a reductionistic approach to evaluating people.[20]

1.3. Competency-based curriculum design

Competency-based design in medical education has been the focus of much of the literature on curriculum design in medical and health professions education. The process of competency-based curriculum design typically follows a similar process:

1. Development or identification of competencies
2. Organizing competencies into themes
3. Organizing themes into courses
4. Organizing courses into a curriculum
5. Curriculum review/evaluation
6. Ongoing program evaluation

Variation occurs within this process, especially within the competency identification process. Some institutions, such as the one described by Zink and Solberg,[21] used ACGME competencies to develop competency-based global family medicine curriculum. More common, institutions or programs identify competencies based on existing professional competencies supplemented by additional competencies identified as a part of curriculum design process. For example, the University of Michigan Medical school developed competencies from existing literature and faculty group discussions.[16] Third, some programs create competencies through a rigorous data gathering and analysis process. For example, Midlov et al.[22] described the process of creating basic and clinical competencies using the Delphi method. In three rounds that followed the Delphi technique, faculty listed competencies, organized competencies by importance, and identified the most important competencies in order to identify competencies that informed curriculum development.[22] Similarly, Brown's medical school created a competency-based curriculum that followed several iterative steps in the competency-creation process.[23] Beginning with the description of a successful doctor by student and professors, the Delphi method was used to refine ability statements through interdisciplinary collaboration with practitioners, higher education professionals, faculty and students to arrive at a consensus about competencies.[23]

These competencies then guide the development of a curriculum and often involve stakeholders, practitioners, and administrators in the process.[24] For example, the medical school at Augsburg University competency-based curriculum design began with committees formed with individuals with medical and higher education expertise at different levels of the hierarchy.[25] After defining competencies, these com-

mittees developed a spiral curriculum where content areas incorporated into the entire course of the curriculum with increasing complexity. Similarly, Cleveland Clinic Lerner College of Medicine used competency-based design as they designed their medical curriculum.[26]

> The basic science curriculum was developed by integrating learning objectives from curricular threads representing basic science disciplines (e.g. anatomy, physiology, etc.) with applications of these learning objectives to core clinical disciplines (e.g. cardiology, pulmonary, renal, etc.) … Interwoven with these activities are longitudinal clinical experiences and clinical skill development sessions. (p. e172).

Student achievement of competencies at Cleveland Clinic Lerner College of Medicine was supported and assessed through the use of ePortfolios and formative assessments. While there are concerns about competency-based design in medical education, such as assessment and implementation concerns, much of the medical education community supports the development of CBE.[27]

The strength of competency-based design in identifying core competencies and professional readiness as well as familiarity with competency-based design in medical education led us to choose CBE as we evaluated and redesigned the SRU HPE curriculum. Much has been written about competency-based curriculum design, especially in medical education, and much has been written about what is needed in health professions education. However, application of competency-based curriculum design to health professions education program has thus far been limited (University of Michigan's HPE programs seems to be one of the first). Additionally, we did not identify any HPE programs where competency-based design was used in the development of a curriculum for a certificate program that fit within the current, structured higher education course schedule system. In this manuscript we describe the competency-based curriculum program evaluation and curriculum design process that used current literature, practitioners, and higher education professionals to create a Health Professions Education certificate program that was responsive to HPE program stakeholders. In doing so, we identify HPE competencies and describe an application of competency-based curriculum design that can be a model for curriculum and program designers.

2. Methods

Our methodology was informed by the IBSTPI competency development[28] process where performance statements are analyzed within four broad categories (Existing Practice, Standards of Performance, Ethics and Values, and Vision of the Future) to develop a comprehensive list of health professions instructor competencies. We analyzed data from two in-person focus groups with faculty who work within the health professions,[22] a collaborative document where health professions faculty filled out information about class types within HPE, an intensive literature review of policy and research on health professions education needs and best practices, a review of existing health professions education certificate and graduate degree program curriculum, and a review of promotion and tenure handbooks for Dental, Medical, and Nursing faculty.

2.1. Participants

Focus group and collaborative document participants were four nursing and medical faculty members identified by key stakeholders from the Health Professions Campus on Southern Research University (SRU: Pseudonym) as being able to speak to the teaching and learning needs of faculty. Additional program reviewers were administrative leaders in the Schools of Nursing, Medicine, and Dentistry at SRU (job titles hidden to protect participant anonymity).

2.2. Data collection

First, focus groups consisted of two in-person meetings where we (Authors 1, 2, and 3) discussed class type, instructor type, ideal class, ideal faculty member characteristics, and gaps/challenges in existing practice with all faculty participants present. The questions that guided focus group one:

1) The health professions offer multiple types of classes such as basic science courses, labs, clinicals, and other formats. Briefly describe some of those various formats that you see in your school or other health professions.
2) When you think of a great class, tell me what happened in that class. What made it a great class? Now, let's see how the type of class makes a difference with your thoughts about a great class. How are your descriptions different, if at all, based on the class type (e.g., clinical, basic science, labs)?

Besides what you've seen, what do you think is missing that would make a great class an outstanding class?

Second, in between the first and second focus group, using a modified Delphi technique,[22,29] Author 1 sent a document to the research team to provide specific classroom details for the specific course types and how instruction and class types differed between medicine and nursing. In this collaborative document, each faculty participant was able to see all of the responses from the group, to build on, modify, and respond to different descriptions of course types. The second focus group, guided by Author 1 and attended by Authors 2 and 3 and all faculty participants, was informed by data collected in the first focus group and the collaborative document. The guiding questions for the second focus group:

1) When you think of a great class, tell me what happened in that class. What made it a great class? Now, let's see how the type of class makes a difference with your thoughts about a great class. How are your descriptions different, if at all, based on the class type (e.g., clinical, basic science, labs)? Besides what you've seen, what do you think is missing that would make a great class an outstanding class?
2) What are the key areas for improvement for faculty? What do faculty struggle with? What presents challenges for faculty? What are instructional opportunities for improvement for faculty? Assessment? Leadership? Administrative?

Authors 1, 2, and 3 independently recorded observation notes, and gathered to validate and triangulate observations into a single observation field notes. Third, Authors 2 and 3 conducted an in-depth literature review of 95 articles and 15 policy reviews of the best practices in health professions education that sought to identify what HPE should consist of, gaps in practice, and guidelines for curriculum. The literature review was guided by questions about what should be included in a health professions education program, challenges for health professions education, and gaps between practice and ideal for health professions education. All articles published between 2006 and 2016 that addressed health professions education were included in our review. Finally, Author 1 reviewed promotion and tenure handbooks for dental, medical, and nursing schools to understand what expectations for performance were being set for faculty. Promotion and tenure handbooks were identified through a simple search at the college or department website. At each stage, we validated our conclusions through peer review in our weekly research team meetings.

2.3. Data analysis

Data analysis followed a multi-stage process that was guided by the International Board of Standards for Training, Performance, and Instruction (IBSPTI) process of identifying and developing competencies for instructors. We began with structural coding of the literature, observation field notes from the two in-person meetings with health education faculty, promotion and tenure documents for the Schools of Nursing, Medicine, and Dentistry, and class types from the collaborative google document. Second, we identified performance or significant statements, and then categorized those statements as existing practice, standard of performance, ethics and values, and vision of the future on an excel spreadsheet with a tab for each category (from the IBSPTI process for identifying competencies). Author 1 coded the data, and validated the codes selected with Authors 2 and 3. Third, Author 1 classified statements from each document into each category: existing practice (e.g., focus on lecture as the primary teaching method, reluctance to try new technology), standard of performance (such as those found in tenure and promotion documents such as student evaluation of teaching rankings), ethics and values (e.g., adaptability, dedication to professional development, respect for students), and vision of the future (e.g., incorporate active learning methods into the classroom, comfort with technology. After statements were categorized, Author 1 assigned a competency to each statement that was guided by existing professional competencies for teaching in higher education and teaching in the health professions (e.g., IBSTPI, ACGME). Competencies have been developed for specific medical education fields, such as medical education[30] and nurse education[31] and both documents informed our creation of competencies for all Health Professions Educators. For statements that did not align with competencies identified a priori, we created new competencies validated by the literature. Competencies were validated by Authors 2 and 3, participants, and external stakeholders. Once we had a list of health professions competencies, we began the program evaluation and curriculum redesign process reported on in subsequent sections.

Table 1
Health Professions Education Competencies.

Professional foundations
Interdisciplinary/Interprofessional Collaboration
Collaborate with peers to achieve academic goals
Adaptability
Establish and maintain professional credibility
Demonstrate clinical competence
Share a passion for teaching
Communicate effectively
Keep up-to-date on educational practices and resources within their field of expertise
Remain accountable for actions
Seek faculty development opportunities to improve educational practice
Working with Students
Aware of competing demands on learners that might affect their growth
Recognize learners in distress and provide appropriate resources to assist
Demonstrate respect for each learner
Invest in each learner's growth and skill development
Demonstrate sensitivity and responsiveness to learner diversity
Manage an environment that fosters learning and performance
Planning and Preparation
Plan instructional methods and materials
Utilize medical education resources to plan student-centered courses and spaces
Utilize planning and orienting strategies
Prepare for instruction
Provide learners with graduated responsibility based on their abilities
Draw upon multiple levels of knowledge
Provide resources for additional skills development for learners
Using appropriate teaching strategies for different levels of learners
Design and implement sound, sustainable educational programs
Instructional Methods and Strategies
Use media and technology to enhance learning and performance
Demonstrate effective facilitation skills
Provide clarification and feedback
Demonstrate effective presentation skills
Possess a broad repertoire of teaching methods and scripts
Stimulate and sustain learner motivation and engagement
Promote retention of knowledge and skills
Inspire learners to excellence in their field of expertise through modelling
Demonstrate teaching competence
Promote transfer of knowledge and skills
Demonstrate teaching at the bedside competence
Facilitate learners in practicing high-quality, compassionate patient care
Demonstrate effective questioning skills
Modeling good, professional behavior including evidence-based patient care
Assessment and Evaluation
Assess learning and performance
Evaluate instructional effectiveness
Actively seek feedback about the quality and effectiveness of their own teaching
Evidence-based Practice
Teach learners to apply the knowledge needed for effective patient care
Utilize scholarly and practical approaches in program evaluation

2.4. Program analysis

To support our findings from the literature review and data analysis, we conducted analysis of the curricula of HPE programs within the United States. Author 2 gathered an initial list of Health Professions Education programs from an article by Tekian & Harris[4] and compared the list to other schools that were mentioned in the literature with health professions education graduate programs or certificates. Upon

attaining a composite list of programs, Author 2 used a web search to review the program websites and investigate their respective curricula.

3. Results

Our first step in the program evaluation was to explore data from the literature review, focus groups, institutional documents, and program review to determine the competencies research identified as necessary for health professions educators and to compare that with the existing HPE certificate curriculum to see if those competencies were being taught. The competencies we identified were refined into categories outlined by the IBSTPI process: Existing Practice, Standards of Performance, Ethics and Values, and Vision of the Future.

3.1. Existing practice

Analysis of existing practice data was primarily found in the literature review and faculty focus groups. Data from the literature review and focus groups were coded as performance descriptions that described faculty behaviors or lack of knowledge and skills in their current practice. For example, the first focus groups identified core gaps in practice including faculty skill sets in instructional technologies such as SimLab and Softchalks, discomfort using instructional methods other than lecture, and struggles with effective teaching at the bedside. Focus group data was supplemented by the literature review. For example, the literature review of additionally identified a performance gap in existing HPE practitioners for interprofessional education and evidence-based practice, which we incorporated into the curriculum because it was cited as a key area in the literature review.

Data analysis identified 50 separate gaps in practice. The key gaps in the current practice of the certificate program were identified in the faculty focus groups and reinforced in the literature regarding current and standard practices in HPE programming. Those key areas were proficiency in online and new teaching technology, communication skills (with students), unwillingness to adapt, giving ineffective feedback, uncertainty with the academic research and publication process, engaging students, and teaching for critical thinking and competence. Each of those gaps were categorized into the competencies needed to address them. The key competencies most highly reported were "plan instructional methods and materials" (9), "promote retention and knowledge and skills" (4), and "using appropriate teaching strategies for different levels of learners" (5).

3.2. Standards of performance

Standards of performance were identified through the review of promotion and tenure documents for the Schools of Medicine, Dentistry, and Nursing at SRU. The literature was used to both reinforce the findings from promotion and tenure documents and identify key standards of performance missing in the other sources. Our review of faculty focus group data and promotion and tenure documents led to 37 unique standards for faculty performance which largely centered on faculty scholarship, evaluations of teaching performance, grant performance, faculty collegiality and curriculum/program development. For example, the School of Nursing identified the following standards for nurse educators:

1. Participate in team teaching
2. Participate in the conduct of at least one study
3. Submit/publish manuscripts for publication
4. Demonstrate success in obtaining extramural funding
5. Teaching awards
6. Student Evaluations

Those categories were similar to those identified in promotion and tenure documents for the Schools of Medicine and Dentistry. Similar to the process of gaps in existing practice, these standards were categorized according to the competency needed to meet them. The most frequent competencies identified were "establish and maintain professional credibility" (7), "utilize scholarly and practical approaches in program evaluation" (14), "demonstrate teaching competence" (7).

3.3. Ethics and values

The process for identifying key Ethics and Values was also largely informed by promotion and tenure documents for the schools of Medicine, Nursing, and Dentistry, supported by the literature and data collected in the faculty focus groups. Those findings largely identified values related to faculty professionalism and ethics, which included adaptability, interprofessional and interdisciplinary practice, a commitment to faculty development, maintaining up-to-date field knowledge, and collegiality. Those were also categorized into the respective competencies, which all fell under the domain of professional foundations, including "establish and maintain professional credibility" and "design and implement sound, sustainable educational programs."

Table 2
Steps for Program Evaluation and Curriculum Design.

Step	Process details
Data gathering	Gather the data necessary to identify the key competencies for professionals in the field (e.g., literature review of existing research and policy, interviews or focus groups conducted with key stakeholders, a review of institutional documents that outline employment standards for practitioners, course details of competitive programs)
Define competencies and domains	Code data into the categories of existing practice, current challenges, ethics and values, and areas for improvement. Organize competencies into domains of practice. If you are conducting program evaluation, compare the domains and competencies to the existing curriculum to identify if and where each domain is addressed in the curriculum. If those domains and competencies are not represented in the existing program curriculum, proceed to the next step.
Define curriculum	The domains serve as core content areas for your redesigned curriculum. Categorize the domains into courses according to the logic of instructional design, thinking about what content areas are similar and ideal course order, guided by questions about the content and process knowledge that is needed to begin study of the domains. Compare to similar programs, if available, to validate curriculum.
Peer review	Initiate a review of the curriculum key stakeholders to identify any gaps in the curriculum and verify the courses and sequence of the curriculum.

3.4. Vision of the future

This final category was the largest of the four and was informed by faculty focus groups, faculty development documentation and plans from the school of medicine, and the literature. 167 unique characteristics of an effective health professions educators were identified, which ranged from teaching skills to professional foundations to academic and program assessment. For example, from the second faculty focus group, the following characteristics were discussed:

1. Faculty provide opportunities for interaction between the students and not be limited to the textbook.
2. Faculty teach content creatively so students will understand instead of memorize.
3. Faculty use technology in a learner-centered way.
4. Faculty are adaptable to change
5. Faculty need to be reflective on teaching to evaluate what is and what is not working.
6. Faculty is comfortable with a wide range of teaching methods
7. Faculty can think about student level and relate/teach content to students at that level.

The key addition from the focus groups that were not previously identified as competencies in the literature (either ACGME or IBSTPI) was faculty adaptability and collaboration with peers to achieve program or department goals.

In addition to the data gathered from the focus groups, the literature reinforced the characteristics discussed in the focus groups, and added the additional characteristics:

1. Need to understand differences between different generations of learners and faculty.[32]
2. Interdisciplinary teams.[33]
3. Teach interprofessional education through roles and role modelling, valuing diversity, reflection, group processes, and IPE knowledge, skills, and attitude.[34]
4. Adaptive leadership (to facilitate curriculum and teaching change and improvements).[35]
5. Create a space for sense of community (e.g., ice breakers).[36]
6. Good student retention.[37]

All 167 characteristics were categorized into competencies defined either by IBSTPI, ACGME, or assigned new categories because the characteristics that were revealed were not already represented as a competency in the literature, such as adaptability. Adaptability was discussed at length in the focus groups as a characteristic that was needed for faculty to be responsive when new policy was implemented regarding teaching methods or strategies, when accreditation changed requirements for teaching, when the content changed, and to be responsive to individual student needs. The highest frequency competencies were “demonstrate effective facilitation skills” (17) and “plan instructional methods and materials” (15).

3.5. Health professions education competencies

After the competencies were identified for each of the four categories, the competencies were compiled into one document to create a comprehensive picture of the health professions education competencies. The compiled data led to a list of 44 competencies that were further refined into 6 domains defined a priori by

IBSTPI and thematic analysis. Those domains were Professional Foundations, Working with Students, Planning and Preparation, Instructional Methods and Strategies (Clinical and Classroom), Assessment and Evaluation, and Evidence-based Practice/Research (See Table 1).

3.6. Program review

After defining the competencies of the successful HPE faculty member, those competencies were compared to the existing curriculum to establish if those competencies were being included in the existing curriculum. The HPE certificate consisted of the following courses:

1. Evidence-based Research
2. Program and Organizational Evaluation
3. Teaching & Learning in Health Professions Education
4. Adult and Organizational Learning

Only one course was specifically designed for Health Professions Educators, Teaching & Learning in Health Professions Education. The other three courses were more broadly focused to achieve the goals of the larger organizational learning and leadership program. Completely absent from the certificate curriculum was a focus on clinical instructional methods and planning, health profession educator professional foundations (such as field-specific ethics, clinical competencies, and adaptability), evidence-based practice, and student development. The other domains were addressed, but not in a way specific to the health professions. From the review, we concluded that the certificate program curriculum needed to be redesigned.

3.7. Curriculum redesign

Once it was established that the competencies were not being taught in the existing curriculum, the domains were grouped into four courses according to similar content areas and the skills and proficiencies needed to develop courses. Domains for "planning and preparation," "assessment and evaluation," and "instructional methods and strategies" were organized into two courses, Teaching & Learning in Health Professions Education and Instructional Strategies in Health Professions Education. The original Teaching & Learning in Health Professions Education was reorganized to focus exclusively on planning and preparation and "assessment and evaluation." "Instructional methods and strategies" became one course with the addition of formative assessment techniques. Third, Foundations of Health Professions Education was the title of the course that would include the competencies "professional foundations" and "working with students." Designed to introduce health professionals to educating adults and the specific professional expectations of health professions, the course was also viewed as a "triage" course that would, through content and teaching activities, provide an overarching foundation to the Health Professions Education curriculum.

Finally, returning to the literature and our data, there was an overarching emphasis on the importance of evidence-based practice and interprofessional collaboration. Data also suggested that the definition of evidence-based practice varied greatly for different professions and faculty roles. For example, tenure-track faculty were expected to conduct research and publish, those further along in their careers were expected to contribute to program design and evaluation, and new faculty and clinical faculty needed to use evidence-based practice to inform their teaching and improvement. To meet the needs of every health professions educator who would take the course and also to follow the clinical model that is used in the health professions, the culminating course, called Evidence-based practice in Health Professions Education, would follow a clinical model and allow health professions educators to apply the core content areas in the course (Evidence-based Decision-making, Assessment of Teaching/Instructional Effectiveness, Scholarly Writing, Action Research, Evidence-based Research, Program Evaluation), according to their own interests, professional level, and professional needs. This innovative course would culminate in a final project, similar to a capstone, that would help them achieve their professional goals. The final four courses were, in order of how students will ideally take them, Foundations of Health Professions Education, Teaching & Learning in Health Professions Education, Instructional Strategies in Health Professions Education, and Evidence-based Practice in Health Professions Education.

4. Discussion

In this program evaluation, we explored existing research, institutional documents, and the perceptions of faculty in order to evaluate an existing HPE certificate curriculum at a southeastern research university (referred to as SRU), and develop a curriculum that reflects research, best practices, faculty needs, and institutional policy to help faculty develop as educators

in theory, teaching methods, content, and assessment. Findings indicated that the HPE certificate curriculum did not include the core competencies of a health professions educator, so we redesigned the curriculum to meet the needs of health professions educators. Key to the process was identifying the competencies needed to be an effective and successful health professions educator. We worked from those competencies to identify knowledge domains that informed curriculum development, and will be used to create course learning objectives, outcomes, assessments and then learning activities.

4.1. Implications

By introducing rigor to the curriculum design process in Health Professions Education (HPE), informed by data about past, current, and ideal HPE competencies, these findings suggest that a curriculum that meets the needs of practitioners, administrators, and industry should prepare faculty to gain competency in each of the core domains of health professions education: Professional Foundations (specific to Health Professions Education), Working with Students, Planning and Preparation, Instructional Methods and Strategies (Clinical and Classroom), Assessment and Evaluation, and Evidence-based Practice/Research. A health professions education program should include each of the core domains to prepare HPE faculty for practice, most notably Planning & Preparation, Instructional Methods specific to Health Professions Education, Professional Foundations in HPE, Helping Skills, Student Development, and Assessment and Evaluation. Second, this description of our program analysis and curriculum design process provides an illustration of the steps needed to evaluate an existing curriculum and redesign/design a teaching and learning curriculum that responds to the needs of faculty, students, and administrators in Health Professions and professional education (See Table 2).

While competency-based design is not new, nor is this the first time that competency-based curriculum design has been used to develop a health professions education program (although it is one of the first), we discuss this process as one of the first to design a HPE certificate curriculum. Additionally, we extended the most common competency design process by supplemented practitioner knowledge with an extensive literature review and content analysis. These competencies provided the foundation for our competency-based design framework and a framework for an HPE certificate curriculum.

4.2. Conclusion

In this description of our program analysis and curriculum design process, we provide an illustration of the steps needed to evaluate an existing curriculum and redesign/design a teaching and learning curriculum that responds to the needs of faculty, students, and administrators in Health Professions and professional education. The next steps in the process, ones that we will undertake as the new curriculum is implemented, is individual course design, lesson planning, and program assessment. Program evaluation and curriculum redesign is not a single, static event, but a process that is ongoing, iterative, and progressive. Program assessment includes the design and implementation of an assessment plan that uses qualitative and quantitative means to evaluate the revised curriculum to assess if it is meeting the needs of key stakeholders. As the new curriculum is implemented, we will constantly review and revise the curriculum to respond to new teaching and learning research, best practices, and the evolving needs of key stakeholders.

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