

14 Years Later

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14 Years Later: A Follow-Up Case-Study Analysis of 8 Health Professions Education Scholarship Units

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Abstract

Purpose

Internationally, health professions education scholarship units (HPESUs) are often developed to promote engagement in educational scholarship, yet little is known about how HPESUs change over time or what factors support their longevity. In hopes of helping HPESUs thrive, this study explored factors that shaped the evolution of 8 HPESUs over the past 14 years.

Method

This study involved retrospective case-study analysis of the 8 American, Canadian, and Dutch HPESUs profiled in a 2004 publication. First, the research team summarized key elements of HPESUs from the 2004 articles, then conducted semistructured interviews with

the current unit directors. In the first set of questions, directors were asked to reflect on how the unit had changed over time, what successes the unit enjoyed, what enabled these successes, what challenges the unit encountered, and how these challenges were managed. In the second set of questions, questions were tailored to each unit, following up on unique elements from the original article. The team used Braun and Clarke's 6-phase approach to thematic analysis to identify, analyze, and report themes.

Results

The histories of the units varied widely—some had grown by following their original mandates, some had significant mission shifts, and others had nearly disappeared. Current HPESU directors

identified 3 key factors that shaped their HPESU's longitudinal development: the people working within and overseeing the HPESU (the need for a critical mass of scholars, a pipeline for developing scholars, and effective leadership), institutional structures (issues of centralization, unit priorities, and clear messaging), and funding (the need for multiple funding sources).

Conclusions

Study findings offer insights that may help current HPESU directors to strategically plan for their unit's continued development. Tactically harnessing the factors identified could help directors ensure their HPESU's growth and contend with the challenges that threaten the unit's success.

Hhealth professions education scholarship units (HPESUs) are increasingly common at medical schools and academic teaching hospitals around the world.¹ In 2017, an HPESU was defined as an organizational structure that has a functional role at a university, college, or hospital that delivers health professions education (HPE), within which a group of people is substantively

engaged in HPE scholarship (see Box 1 for full definition).¹ As the presence of HPESUs grows, unit leaders and other stakeholders strive to identify factors that affect the evolution and longevity of these units. Research to date reveals wide variation among HPESUs—each involving multifaceted social structures, unique organizational features, and distinct contexts.²⁻⁴ But without longitudinal analyses, we remain unaware of the maturation processes HPESUs experience and of the strategies that have helped units maintain their relevance and success. Indeed, if HPESUs are to be assets to their local institutions and advance the field of HPE globally, we need to explore the factors that enable units to thrive over time.

Longitudinal study of HPESUs is fraught with challenges. Historical information about individual HPESUs varies widely, making it difficult to compare units. There are no standardized reports generated by each HPESU; instead, each unit can report on any number of outcomes (e.g., grant money secured, peer-reviewed publications disseminated,

number of faculty affiliated with the unit). Furthermore, not all units make their reports publicly available—a fact that further inhibits longitudinal cross-HPESU analysis. However, one set of historical records about a group of HPESUs that shares a comparable format is publicly available. In 2004, *Academic Medicine* published a series of case studies of “8 highly productive research in medical education groups” from Canada, the United States, and the Netherlands.⁵ The leader at each site (note: often the director of the local HPESU) authored a case study describing the unit's history, the practices that supported its success, and plans for nurturing the unit's continued development.⁶⁻¹³

While we have anecdotal evidence that HPESUs in several of these contexts remain successful, research has yet to investigate the historical development of these units and how they have weathered the tests of time. To advance our knowledge of HPESU development and maintenance, we set out to explore the evolution of the 8 HPESUs in these previous publications. Specifically, we

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Box 1

Definition of an HPESU¹

An HPESU is an organizational structure within which a group of people is substantively engaged in health professions education scholarship. An HPESU is often a focal point of health professions education scholarship within the university and/or health center context. An HPESU has a “functional role” at a university, college, or hospital that delivers health professions education. Such a unit may engage in the delivery and evaluation of health professions education; but to be considered an HPESU, it must include some focus on scholarship. The specific kind of organizational structure an HPESU may take varies (e.g., units, centers, departments, offices, etc.). To be recognized as an HPESU, it must meet the following criteria:

1. “The unit must stand as a recognizable, coherent, organizational entity in the institution”²³; and
2. The unit must be identified as engaging in health professions education-related scholarship. That educational scholarship may be conducted at the undergraduate and/or graduate and/or continuing education levels. The unit may also house programs that focus on teaching, service provision, professional development program delivery, etc., but these other activities alone are not sufficient for being identified as an HPESU without the scholarship contributions.

This definition excludes units that are strictly administrative in nature and/or that are aimed solely at meeting educational delivery, assessment, or other service needs (i.e., curriculum offices, program evaluation offices, etc.). An HPESU may be involved in support services, but, to be classified as an HPESU, there must also be production and dissemination of education-related scholarship.

Abbreviation: HPESU, health professions scholarship education unit.

asked: What factors shaped the evolution of these 8 HPESUs over the past 14 years?

Method

Our study was designed as a series of retrospective case studies. We integrated ideas and developed new insights by comparing the histories of the 8 HPESUs represented in the 2004 *Academic Medicine* publications.¹⁴ We constructed a case for each HPESU and explored differences within and between cases to develop deeper understandings of the evolution of HPESUs. Using Thomas and Myers’s terminology, the subject of our case-study research was the evolution of HPESUs in these 8 contexts.¹⁵ The objects of the case studies were to explore the historical developments of each unit and to describe key factors that shaped the units’ evolution via a multiple-case, parallel design.¹⁵

We conducted this study from a social constructionist orientation.¹⁶ We contend that the individual HPESUs evolve via the decisions made by individuals and groups working within specific contexts; as a result, each HPESU’s history and current structure are constructions (i.e., decisions made at various points in the HPESU’s history have generated a different unit structure). We did not endeavor to evaluate the relative successes of these HPESUs from an external perspective, nor to develop theory about

longitudinal HPESU success. Instead, we sought to describe key factors that influenced the development of these units from the perspective of their leaders and to assemble understandings that could benefit the HPE community.

Case selection

HPESUs were selected for inclusion in our study if they were 1 of the 8 units previously reported on.^{6–13} Staff at the journal selected these units by first compiling a list of HPESUs and informally noting the highly productive units.⁵ The staff then compared each unit’s publication rates of the previous 5 years (1999–2004) and finally adjusted for geographical diversity.⁵ Based on this analysis, units at 8 schools were invited to write case studies: University of California, San Francisco, School of Medicine; Geisel School of Medicine at Dartmouth; Johns Hopkins University School of Medicine; University of Kentucky College of Medicine; University of Maastricht Faculty of Medicine; University of Michigan Medical School; University of Toronto Faculty of Medicine; and University of Washington School of Medicine.

Data collection and analysis

We collected and analyzed data in 2 parts. In part 1, our goal was to understand the status of each unit in 2004. In part 2, we explore how and why each unit had developed to its present state (as of 2018).

The Ottawa Health Science Network Research Ethics Board approved the study, and all participants provided informed consent.

Part 1. The principal and senior investigators (S.H.-M., L.V.) reviewed all 8 previously published articles and identified demographic data and key points conveyed in each manuscript.^{6–13} Based on these descriptions, the investigators developed 2 sets of interview questions. The first asked all unit directors to reflect on how the unit changed over time, what successes the unit enjoyed, what enabled these successes, what challenges the unit encountered, and how these challenges were managed. The second question set consisted of questions tailored to each unit, following up on unique elements from the original article. Supplemental Digital Appendix 1, available at <http://links.lww.com/ACADMED/A778>, has interview question sets used for 1 unit. Demographic questions were also developed regarding each unit’s status.

Part 2. We set out to interview the current directors of all 8 HPESUs. Since 6 of the HPESUs were active, we sought participation from the current leader of the HPESU. For the 2 units that were no longer active, we contacted individuals at the institution looking to identify a faculty member who was knowledgeable about how the unit dissolved at each institution. When a person was recommended by more than 2 individuals, that consensus decided our interviewee.

Using the question sets developed in part 1, a qualitatively trained research assistant conducted semistructured telephone interviews with 7 unit leaders. To accommodate a participant’s availability, S.H.-M. conducted one interview. The interviews lasted between 39 and 110 minutes. A third-party agency transcribed the digital recordings of the interviews.

We engaged in inductive analysis of the interview transcripts. We identified themes within the statements made by the participants, without endeavoring to interpret the data beyond those statements. We adopted Braun and Clarke’s 6-phase approach to thematic analysis to identify, analyze, and report themes.¹⁷ Specifically, S.H.-M. and L.V. read the interview transcripts to become

familiar with the data (phase 1) and to generate initial codes (phase 2). These initial codes were compared and contrasted across the entire dataset—that is, across cases—searching for new codes and potential themes that would link codes in meaningful ways. As analysis progressed, S.H.-M. and L.V. met regularly to share evolving understandings, new codes, and themes (including relationships within and across cases) (phase 3). The themes were reviewed to generate a thematic map of the analysis (phase 4). With ongoing analysis, the description of each theme was refined (phase 5) and this manuscript was drafted (phase 6). S.H.-M. and L.V. shared the manuscript with all study collaborators, who then critiqued the analysis and suggested alternative interpretations. The manuscript was revised iteratively until all authors approved the final version.

Trustworthiness was upheld by considering and integrating reciprocity, reflexivity, and resonance throughout the analysis and by creating a detailed audit trail.¹⁸

Protecting participant anonymity

Given the small number of units in this study ($n = 8$) and that all the HPESUs participating in this study are identified, participants were concerned about how we could protect their anonymity. The 2004 data can be presented with identifiers since these data are all publicly available via the 2004 publications.

For the 2018 data, we sought to protect participant anonymity in a variety of ways. First, we protected participant anonymity during data analysis by having all identifiers removed from the transcripts during transcription. Next, during data analysis, only S.H.-M. and L.V. reviewed the anonymized transcripts. This ensured that other collaborating authors, 5 of whom currently work in—but are not leaders of—the HPESUs studied, were at arms length from the original data. Third, in this article, we present identified demographic data for each unit only when this information is in the public domain (e.g., disseminated via institutional websites). In contrast, quotes are identified with anonymous designations (e.g., D1 for Director 1) to protect participant anonymity. Finally, before publication, the manuscript was shared with all research participants,

asking that they confirm that their anonymity was sufficiently protected and that the data regarding their context were accurately presented. Any concerns the participants expressed or changes they requested with regard to securing participant anonymity were addressed in the manuscript until all the participants were satisfied.

Reflexivity

The research team's background informed the study. S.H.-M. is a practicing MD- and MEd-trained medical education researcher and has previously directed an HPESU. L.V. is a PhD-trained qualitative researcher who has been leading a program of research into HPESUs since 2014. L.G., D.M.I., and C.v.d.V. have all directed HPESUs and authored publications in the 2004 *Academic Medicine* collection. All other members of the research team have worked in an HPESU as a scholar and/or as a unit director in diverse settings, including contexts far removed from the study sites. The experiences of the authors were part of the data analysis processes and the revisions of the manuscripts. In keeping with the social constructionist orientation, we recognize that the knowledge developed from our research is not void of our subjective experiences but is instead deeply shaped and informed by them.

Results

Part 1

Table 1 provides demographic information from the 2004 publications. There was significant diversity across these HPESUs: unit size ranged from 2 to 23 people; units had histories ranging from launches in 1967 to 2000; units existed in a wide array of organizational structures including departments, offices, and centers.

Despite this variability, there were similarities across the units as they were described in 2004. Reflecting the rationale for their inclusion in the original collection, educational research and/or scholarship was a primary goal for all 8 HPESUs—a goal that was closely aligned with their local institution's mission. Many of the units tracked research productivity (e.g., number of grants won and peer-reviewed publications). Many of the groups strategically aligned

their research with curriculum reform efforts and/or other planned educational changes to harness naturally occurring research opportunities. Additionally, as the preface to collection noted, a dynamic leader who was an accomplished educational researcher with strong interpersonal skills headed each unit.⁵

Part 2

We interviewed the current directors of the 8 HPESUs between January 2017 and September 2018. Of all 8 units, only 1 director remained the same as in 2004.

Table 1 also provides current demographic characteristics of all 8 HPESUs. We collected demographic information from interviews and supplemented that information with data from Internet searches. These data were vetted and approved by all research participants (December 2018). We identified 3 factors that affected the evolution of the HPESUs: people, structures, and funding.

Factor 1: People

The people working within and overseeing the HPESU was a key factor of the unit's historical development. Specifically, this factor dealt with issues of leadership, critical mass, and strategies for growth.

Leadership. Strong leadership of the unit was highlighted as important to the HPESU's development and longevity. When reflecting on the units' histories, many directors acknowledged that HPESU leaders played a pivotal role in managing unit growth. Directors emphasized the key role of previous unit directors in launching and nurturing the growth of the unit:

[The founding director] had a passion about education and a forcible personality. [S/he] was able to bring together the conditions of possibility that allowed the unit to get started.... [His/her] vision and leadership really helped propel the [HPESU] forward over many years. (D4)

Directors acknowledged that—if strong leaders left the HPESU and if a robust succession plan was not in place—the loss of the unit's director could have a devastating impact on the unit:

The main person who was leading the unit left, and when [name] left, really the expertise was gone, and when

Table 1

Demographic Information About the 8 Medical Education Research Groups, Previously Described in 2004 and 2018,^a From a Follow-Up Case-Study Analysis of HPESU Development Over Time

Institution	Year	Name of HPESU (year established)	Organizational structure	Number of scientists	Master's/PhD or faculty development in health professions education
University of California, San Francisco	2004	Office of Educational Research and Development (2000)	Unit within Office of Medical Education	<ul style="list-style-type: none"> • 3 PhDs in education • 1 evaluation specialist 	<ul style="list-style-type: none"> • Teaching Scholars Program • Fellowship
	2018	Center for Faculty Educators (2014)	Unit within Office of Medical Education	<ul style="list-style-type: none"> • 5 PhD-trained scholars (each .2–.6 FTE) 	<ul style="list-style-type: none"> • Teaching Scholars Program • Fellowship • Masters offered with University of California, Berkeley • PhD with Utrecht University
Geisel School of Medicine at Dartmouth	2004	Office for Community-Based Education and Research (2000)	Office within the Faculty of Medicine	2 assistant deans: <ul style="list-style-type: none"> • 1 clinician–educator • 1 PhD-trained scholar 	None
	2018	No formal unit	N/A	N/A	None
Johns Hopkins University School of Medicine	2004	None; Divisions of General Internal Medicine	Clinician–educators in the Divisions of General Internal Medicine	<ul style="list-style-type: none"> • 21 clinician–educators 	<ul style="list-style-type: none"> • Faculty development • Education fellowship
	2018	JHUSOM Institute for Excellence in Education (2009)	Unit within JHUSOM	<ul style="list-style-type: none"> • No membership • 1 clinician–educator (director) 	<ul style="list-style-type: none"> • Master of Education for Health Professions offered at Johns Hopkins as collaborative effort with Schools of Medicine, Nursing, Education, Business, and Public Health
University of Kentucky College of Medicine	2004	None; Office of Education	Horizontal integration across departments	<ul style="list-style-type: none"> • Assistant dean for admissions and medical education research in Office of Education 	<ul style="list-style-type: none"> • Center on Excellence in Medical Education
	2018	No formal unit	N/A	N/A	None
University of Maastricht Faculty of Medicine	2004	Department of Educational Development and Research (1977)	Fully independent department	<ul style="list-style-type: none"> • 3 full-time scientific staff equivalents (across 19 researchers) 	<ul style="list-style-type: none"> • Master's and PhD programs
	2018	Same plus Department and Graduate School of Health Professions Education (2005)	Fully independent department	<ul style="list-style-type: none"> • 11 full-time PhD scientific staff equivalents (across 47 researchers) 	<ul style="list-style-type: none"> • Master's and PhD programs
University of Michigan Medical School	2004	Department of Medical Education (2003)	Department	<ul style="list-style-type: none"> • 6 core faculty • 8 cross-appointed faculty 	<ul style="list-style-type: none"> • Medical Education Scholars Program
	2018	Division of Professional Education, within the Department of Learning Health Sciences (2014)	Division within a department	21 department faculty: <ul style="list-style-type: none"> • 16 PhD-trained scholars • 3 MDs • 1 DHA • 1 MSW 25 joint and adjunct faculty	<ul style="list-style-type: none"> • Medical Education Scholars Program • Masters of Health Professions Education • Health Infrastructures and Learning Systems MS/PhD
University of Toronto Faculty of Medicine	2004	Donald R. Wilson Center for Research in Education (1997)	Extra-departmental unit located in largest teaching hospital	<ul style="list-style-type: none"> • 8 PhDs • 12 clinician–researchers • 100 affiliate members 	<ul style="list-style-type: none"> • Fellowship • Master's (University of Toronto, Ontario Institute for Studies in Education)
	2018	Same	Same	<ul style="list-style-type: none"> • 19 PhD-trained scientists • 11 center researchers • 24 cross-appointed researchers • 28 invited members 	<ul style="list-style-type: none"> • PhD program in collaboration with the Institute of Health Policy, Management and Evaluation, Dalla Lana School of Public Health, University of Toronto

(Table continues)

Table 1

(Continued)

Institution	Year	Name of HPESU (year established)	Organizational structure	Number of scientists	Master's/PhD or faculty development in health professions education
University of Washington School of Medicine	2004	Office of Research in Medical Education (1967) Department of Medical Education and Biomedical Informatics (2002)	Department	<ul style="list-style-type: none"> • 9 core faculty • 12 adjunct/affiliate faculty 	<ul style="list-style-type: none"> • Teaching Scholars Program
	2018	Center for Leadership and Innovation in Medical Education (2012) Department of Medical Education and Informatics became the Department of Bioinformatics and Medical Education	Extra-departmental center, within the Dean's Office of Academic Affairs	<ul style="list-style-type: none"> • Director (.3 FTE) in Department of Bioinformatics and Medical Education • 3 associate directors (2 MDs and 1 Juris Doctor) 	<ul style="list-style-type: none"> • Medical Education Research Certificate (in partnership with the Association of American Medical Colleges)

Abbreviations: HPESU, health professions education scholarship unit; FTE, full-time equivalent; N/A, not applicable; JHUSOM, Johns Hopkins University School of Medicine; DHA, Doctor of Health Administration; MSW, Master Social Worker.

*All 2004 information is based on prior publications.⁶⁻¹³ All 2018 data were confirmed in December 2018 by directors and websites accessed in 2018.

the expertise was gone, the unit itself continued ... it was less effective doing the research part of it.... The focus of the unit changed to more of support for the teachers and community preceptors. (D6)

Participants also commonly highlighted the powerful influence of the leaders at the helm of the larger institution in which the HPESU was situated, particularly of the dean. New leadership could unravel a unit's foundation:

We were having a change of [university] leadership, and it was really unclear as to whether I really still had this money [to run the HPESU].

To maintain the HPESU's stability and relevance as a valued contributor to the institution, a strong working relationship with the institution's leadership was essential, as was the dean's support of HPE scholarship.

Critical mass. HPESU directors noted that a unit's longevity was buoyed by a critical mass of HPE research scientists. The precise number of HPE research scientists required was not offered; instead, the directors articulated that a "critical mass" was needed for the unit to be sustainable:

I have some people who originally didn't come from medical education but from general education or psychology. They are more experienced in getting funding, in getting grants. So, they help to advance the group with finding extra funding. And because we are bigger, we now have several of those people and they form

groups and they support the others when they apply for a grant.... If I have a question, I can ask. I can walk through the corridor and ask a specialist in grounded theory or in statistics.... When you are a certain size, you can organize things and it makes you sustainable. (D1)

In contrast, not having a critical mass of HPE research scientists impeded the HPESU's research output and if a particularly productive HPESU member left the unit (e.g., to take on higher-level administrative positions), it left a void:

When the core of us got promoted, and a lot of it was based on our research accomplishments, ironically it was hard to continue doing the research. (D2)

The HPESU directors observed that their individual unit's evolution was shaped by the ability to develop and maintain both a critical mass of HPE researchers and a succession plan for the inevitable time when key researchers leave the unit. Directors remarked that developing and maintaining a critical mass was challenging because of the limited number of highly skilled research scientists working in HPE. One unit director commented: "Trying to recruit for big time education researcher type folks [is challenging]. There's only so many of them in the world though" (D2).

Strategies for growth. There were several strategies to increase growth of the unit. When HPESUs were originally developed, HPE researchers were recruited into the unit, often coming from outside of the

HPE field. But as noted earlier, recruiting PhD-trained HPE research scientists was challenging. Therefore, unit leaders needed to devise means for developing and maintaining the HPESU's scholarly capacity.

To secure this critical mass, directors described constructing formal longitudinal development programs, or pipelines, to train new research scientists and future leaders in HPE from within their local institutional context. Pipelines were implemented in a variety of ways including fellowships, scholar development certificates, and graduate programs granting master's or PhD degrees. Directors noted that successful pipelines often involved longitudinal educational programs, not short training sessions:

[Faculty members] have to realize that this is a long-term kind of commitment, that a short course will not help somebody to be able to produce educational research. So, it does take an investment. So, the investment probably is in a financial investment for release time, but also maybe an investment in some advanced curriculum in areas, particularly around theory. (D3)

Fellowship programs were acknowledged for enabling growth from within the local context, with fellows contributing to the institution's medical education community:

Many of our scientists are former fellows, so we have also grown significantly through the training and then recruitment of scientists. (D4)

For several participants, degree-granting graduate programs were extremely important—even critical—for research productivity, for increasing the profile of the HPESU, for creating an identity for the unit, and for increasing awareness across the local faculty that decisions surrounding education should be informed by research.

Several benefits were associated with increasing the population of trained medical educators in the community. New scholars not only engaged in research but also took on administrative roles and so became local leaders who understood and appreciated education scholarship. When trained education scholars were promoted to leadership positions, applying evidence-based education practices was accepted as an important part of the institution's mandate. This kind of advancement “raises not only our scholarliness as a small group of people, but the scholarliness of the faculty at the health sciences center” (D3).

This allowed HPESU scholars to spend less time consulting on basic matters and spend more time on research and scholarship:

We're not as focused on the day-to-day activities of the medical school in terms of directly supporting curriculum.... I would say that our support of the medical school curriculum and engagement is pretty stable, although maybe even has decreased some. Again, mainly because the [name of institutional office for curriculum support] has expanded, and we've been successful at growing a lot of educators, physician-educators or clinician-educators, internally so that more people are sharing in the efforts around curriculum design and evaluation and assessment. (D5)

Factor 2: Structures

Institutional structures also shaped the development of the HPESUs, specifically issues of centralization, priorities, and messaging.

Centralization. Several directors noted that not having a centralized physical location for the HPESU made the unit vulnerable to dissolution. When there was a single, centralized physical location where individuals could seek research and/or educational support, the HPESU had a strong foothold in the community:

So people are sent across the campus, whether you're in one division or department or another, you can feel like there's an educational home. (D7)

In contrast, the unit was vulnerable when it was dispersed or only existed virtually: “It's a more haphazard form of fostering medical education research than one big centralized organization” (D2).

Centralization could be realized in a variety of ways, but several directors identified amalgamating resources into a department (i.e., a formally recognized academic division within the organization devoted to the HPE) as the ideal. Becoming a department was identified as providing increased financial support and more scientists. These additional resources can enable a sizable increase in research productivity. It also makes the HPESU a stable entity in the institution, insulating it from leadership changes:

If you are just a group, it's easy for a dean to decide: “We'll dissolve [HPESU name].” For a dean, it's not that simple to dissolve a department. (D1)

However, becoming a department was not a guarantee of success. As witnessed in one location, a dramatic change in the unit's focus can happen when it acquires department status if the HPESU is merged with another group. If the other group involved in the merger comes from a domain that has better funding opportunities, the less well funded medical education focus can be dwarfed.

Balancing research and service priorities

The HPESU directors clearly articulated a need to balance the unit's focus between research and service provision. Service work could take many forms, including offering faculty development support (e.g., teaching improvement, education scholarship), helping community preceptors, acting as educational consultants (e.g., assisting with curriculum development), and engaging in learner assessment and program evaluation.

One strategy to manage these competing demands was to combine service and research by studying problems encountered in local educational practices. For many HPESUs, this approach helped the unit align its efforts with the institution's values:

Make sure that [HPESU] scientists can engage with the relevant players, apply the knowledge from their research, translation into education practices. (D4)

Directors realized that researching the challenges that educators faced in their local context, such as curriculum change or implementation of new teaching strategies, was ideal: “It [the institution's curriculum change] becomes very rich fodder for educational research” (D3). This approach ensured that the HPESU was relevant to local stakeholders:

The unit should have a clear focus for research that builds on the expertise of those who are available at the institution and is meaningful for the institution. (D6)

Messaging what the unit does. Ensuring that the local community recognized the purpose of the HPESU was a conscious effort of the messaging constructed by directors: “If you want your focus to be research, that has to be clear in the [HPESU's] mandate and understood by everyone around” (D4). Despite commonly supporting research and service activities, the communications each director offered in their local communities were highly variable. Some articulated a research focus (i.e., “We do research” [D1]), while others emphasized a blend of mandates (i.e., “We're still a blend of service and support” [D5]). Regardless of the unit focus and mandates, directors described their messaging as an important consideration that needed their attention.

Factor 3: Funding

Every director pointed to how the HPESU's funding structures shaped the development of the unit and its longevity. Funding structures were unique to each center; potential benefits and risks were inherent in both single-source and multisource funding. Directors noted that having the unit primarily funded by a single source made the HPESU vulnerable to being disbanded. If there was a funding cut that affected that single funder, the unit was easily eliminated from the budget. Financial austerity led to some of the units being reorganized, especially if educational scholarship was not a focus for the medical school: “When you rely on one source of revenue from an internal source, and that revenue changes, it puts the unit at risk” (D6). Multiple sources of funding offered

HPESU units options for adaptation when institutional finances were constrained.

However, having multiple funding sources could also have negative consequences. For instance, each funder often asks for specific returns on investment from the HPESU. Such returns might include, for example, conducting program evaluations and supporting student assessment. These expectations were often identified as service burdens that consumed the time of the HPESU's researchers and/or staff. In other instances, funding constraints led units to partner with other groups. If the partner group enjoyed greater funding acquisition or dissemination success, the HPE mandate could be dwarfed. This could result in a fundamental change to the unit's prominence in the local context.

HPESUs that could align their work with the priorities of the institution in which they were housed without significant compromises to their mandate were, to an extent, safeguarded in times of financial cutbacks. When the HPESU was seen as enabling the institution to achieve successes, the unit's expenses could be pardoned: "Debts were forgiven" (D5).

Discussion

By studying the 8 HPESUs from *Academic Medicine's* 2004 collection as a series of retrospective case studies, we identified 3 key factors that contributed to the growth, or in some cases the decay, of the unit: people, structures, and funding. The directors articulated how each factor can be harnessed to support the development and effectiveness of the HPESU. However, optimizing each factor was contingent on the constraints and opportunities within each HPESU's local context. For instance, the ways in which pipelines and critical mass were achieved were not the same across HPESUs. Leveraging opportunities within local contexts enabled some HPESUs to achieve critical mass, and the unit thrived. Those that did not attend to local considerations were often less effective at constructing pipelines that fed into a critical mass. That said, it was widely acknowledged across the units that having a long, staggered development program was essential. If individuals in the pipeline were all at the same stage of development, when those

individuals were promoted to leadership positions, a void of qualified researchers was left behind. Maintaining a staggered supply of skilled individuals, including institutional leaders, who held a long-term commitment to the HPESU and to educational scholarship was difficult.

One factor shaping the history of the units involved in this study has also been central to much of the research on HPESUs: the need to strike a balance between service work and research/scholarship.^{4,19,20} Recent research in this area offers a 3-part framework characterizing HPESU scholarly activities: supporting a scholarly approach to HP education, supporting educational scholarship within the institution, and supporting HPESU members engaged in scholarship, thus contributing to the general education literature.²⁰ Several of the units we studied engaged in all 3 of these foci at different times across the HPESU's history. Our data do not enable us to determine if one characterization of unit activities was more beneficial to success than others at definable moments in each unit's developmental trajectory. This is a limitation of the current study and would require intentional, longitudinal data collection from each unit to be addressed.

The term "HPESU" was developed in 2017,¹ and so we imposed this label onto the units we previously studied in 2004.¹ The definition of HPESU was not developed with the units presented in the 2004 manuscripts in mind; however, the descriptions provided in each article suggest that the units fit this classification. Furthermore, we do not contend that these 8 HPESUs represent the global population of units. The central criterion for their selection in 2004 was the research productivity, quantified by publication rates. These HPESUs represent, therefore, units that excelled at research activities and not necessarily service activities. Our findings are thus skewed toward HPESUs that promoted research (e.g., directors were lauded for research productivity but not for teaching or service provision).⁵

Many of the factors we identified are not unique to HPESUs. Other new organizational structures struggle for legitimacy.²¹ What appears to be unique is that HPESUs develop in universities and hospitals, organizations that are steeped in tradition and with strong service

expectations—be that service via teaching learners or patient care. Another unique challenge facing HPESUs is the relative infancy of the HPE field. It has only been 50 years since clinicians and PhD-trained scholars started considering education as a valuable scholarly pursuit.²² HPESUs arguably symbolize the transformation of HPE into this legitimate area of scholarly inquiry. In such an environment, the importance of training scholars and establishing a critical mass is particularly important. HPESUs are one way to do this, so understanding their trajectory and the influential factors in that trajectory can help advance the mission to support scholarship in HPE.

While we sought out as much information about each HPESU's current status as possible (via both Internet searches and reaching out to individuals at each location), we recognize that our information may be incomplete. The absence of an HPESU does not mean there is no HPE scholarship being conducted at that institution. Therefore, our findings should not be interpreted as suggesting that schools without HPESUs are not active in HPE. Another limitation of our research is that the units selected in 2004 were American (n = 6), Canadian (n = 1), and Dutch (n = 1). Our analyses are therefore limited in their transferability. We suggest that the 3 factors we identified are likely relevant in other geographical regions; however, additional research is needed to confirm transferability and to articulate how they should be adjusted for local contexts. Finally, as individuals working in and/or leading HPESUs, we acknowledge having vested interests in the success of these units. These interests surely shaped data collection and analysis. Given that we engaged in this inquiry from a social constructionist orientation, this influence is not considered a fatal flaw of the research; we do acknowledge, however, that these interests need to inform the reader's interpretation of this article.

In sum, our findings offer insights that may benefit current or prospective HPESU directors as they navigate toward ensuring a flourishing and resilient unit within their university.

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References

- 1 Varpio L, Gruppen L, Hu W, et al. Working definitions of the roles and an organizational structure in health professions education scholarship: Initiating an international conversation. *Acad Med.* 2017;92:205–208.
- 2 van der Vleuten CP. Medical education research: A vibrant community of research and education practice. *Med Educ.* 2014;48:761–767.
- 3 Norman G. Fifty years of medical education research: Waves of migration. *Med Educ.* 2011;45:785–791.
- 4 Varpio L, Bidlake E, Humphrey-Murto S, Sutherland S, Hamstra S. Key considerations for the continuing development and success of medical education research and innovation units in Canada. *Adv Health Sci Educ Theory Pract.* 2014;19:361–377.
- 5 Arnold L. Preface: Case studies of medical education research groups. *Acad Med.* 2004;79:966–968.
- 6 Nierenberg DW, Carney PA. Nurturing educational research at Dartmouth Medical School: The synergy among innovative ideas, support faculty, and administrative structures. *Acad Med.* 2004;79:969–974.
- 7 Thomas PA, Wright SM, Kern DE. Educational research at Johns Hopkins University School of Medicine: A grassroots development. *Acad Med.* 2004;79:975–980.
- 8 Irby DM, Hodgson CS, Muller JH. Promoting research in medical education at the University of California, San Francisco, School of Medicine. *Acad Med.* 2004;79:981–984.
- 9 Elam CL. Medical education research at the University of Kentucky College of Medicine. *Acad Med.* 2004;79:985–989.
- 10 van der Vleuten CP, Dolmans DH, de Grave WS, et al. Education research at the Faculty of Medicine, University of Maastricht: Fostering the interrelationship between professional and education practice. *Acad Med.* 2004;79:990–996.
- 11 Gruppen LD. The Department of Medical Education at the University of Michigan Medical School: A case study in medical education research productivity. *Acad Med.* 2004;79:997–1002.
- 12 Hodges B. Advancing health care education and practice through research: The University of Toronto, Donald R. Wilson Centre for Research in Education. *Acad Med.* 2004;79:1003–1006.
- 13 Wolf FM, Schaad DC, Carline JD, Dohner CW. Medical education research at the University of Washington School of Medicine: Lessons from the past and potential for the future. *Acad Med.* 2004;79:1007–1011.
- 14 Tight M. The curious case of case study: A viewpoint. *Int J Soc Sci Methodol.* 2010;13:329–239.
- 15 Thomas G, Myers K. *The Anatomy of the Case Study.* Thousand Oaks, CA: Sage Publications; 2015.
- 16 Hacking I. *The Social Construction of What?* Cambridge, MA: Harvard University Press; 1999.
- 17 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3:77–101.
- 18 Harrison J, MacGibbon L, Moron M. Regimes of trustworthiness in qualitative research: The rigors of reciprocity. *Qual Inq.* 2001;7:323–345.
- 19 Varpio L, O'Brien B, Hu W, et al. Exploring the institutional logics of health professions education scholarship units. *Med Educ.* 2017;51:755–767.
- 20 O'Brien BC, Irby DM, Durning SJ, et al. Boyer and beyond: An interview study of health professions education scholarship units in the United States and a synthetic framework for scholarship at the unit level. *Acad Med.* 2019;94:893–901.
- 21 Delmar F, Shane S. Legitimizing first: Organizing activities and the survival of new ventures. *J Bus Vent.* 2004;19:385–410.
- 22 Kuper A, Albert M, Hodges BD. The origins of the field of medical education research. *Acad Med.* 2010;85:1347–1353.

Reference cited only in Box 1

- 23 Society of Directors of Research in Medical Education. <http://www.sdrme.org/about.asp>. Accessed November 17, 2019.