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An international study of the logic underlying education scholarship units

ABSTRACT

INTRODUCTION

While health professions education scholarship units (HPESUs) share a commitment to the production and dissemination of rigorous educational practices and research, they are situated in many different contexts, and have a wide range of structures and functions. In this study, the authors explore the institutional logics common across HPESUs, and how these logics influence the organization and activities ofHPESUs.

METHODS

The authors analyzed interviews from HPESU leaders in Canada (n=12), Australia (n=21) & New Zealand (n=3), and the United States (n=11). Using an iterative process, they engaged in inductive and deductive analyses to identify the institutional logics across all

participating HPESUs. They explored the contextual factors impacting these institutional logics on each HPESU's structure and function.

RESULTS

Participants identified three institutional logics influencing the HPESU's organizational structure and functions: (1) the logic of financial accountability, (2) the logic of a cohesive educational continuum, and (3) the logic of academic research, service, and teaching. While most HPESUs embodied all three logics, the power of each logic varied among units. The relative power of each logic influenced leaders' decisions about how members of the unit allocate their time, and what kinds of scholarly contributions and products are valued by the HPESU.

DISCUSSION

Identifying the configuration of these three logics within and across HPESUs provides insights into the reasons individual units are structured and function in particular ways. Having a common language to discuss these logics can enhance transparency, facilitate evaluation, and help leaders select appropriate indicators of HPESU success.

INTRODUCTION

As participation in health professions education scholarship grows,[1-4] individual institutions often support local engagement in this scholarship by developing health professions education scholarship units (HPESUs).[5] An HPESU is an organizational structure within which a group of people is substantively engaged in health professions education scholarship (see Figure 1 for the full definition of an HPESU).[6] Researchers have begun to investigate HPESUs, describing the development of HPESUs (e.g., departments of medical education[7]), and activities that facilitate the success of HPESUs.[8,9] Despite such interest, broad-scoped international research into the organizational configurations, functions, and roles of HPESUs is lacking.

Figure 1: Full definition of HPESU from Varpio et al[6]

A Health Professions Education Scholarship Unit (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 HPES within the university and/or health center context. An HPESU has a "functional role"[5] at a university, college, or hospital that delivers health professions education. These units 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"[5]; 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.

We label these units as *health professions* (not *medical*) education scholarship units to include the breadth of disciplines and health professions represented in the unit's membership, and its scope of research, teaching and service work. This more inclusive scope is being embraced internationally, so our labelling reflects perspectives across different geographical contexts.

During our investigations of HPESUs in Canada, Australia, and New Zealand,[9-11] we realized that both within and across national boundaries, individual HPESUs have very different organizational configurations, fulfill a diverse array of functions, and have widely varying roles embedded within them. However, we also noted significant commonalities across the core values and practices of the HPESUs we studied. We were struck by this incongruity. How can HPESUs that are organized, function, and staffed in such different

ways still share values and practices? To investigate this incongruity, we set out to explore the underlying principles of HPESUs. We wanted to better understand the foundational values shared across HPESUs, and how they were operationalized uniquely each in local context. Turning to theories from organizational science to inform our research, we ask: Are there institutional logics that are common across HPESUs? How are these logics instantiated in each HPESU? Are there national trends for each logic?

CONCEPTUAL FRAMEWORK: INSTITUTIONAL LOGICS

Scholars in organizational science developed, investigated and refined the concept of institutional logic.[12] An institutional logic is the socially constructed, historically developed pattern of beliefs and rules that shape the organizing principles for an institution.[13] It provides a set of norms[14] for an organization and for the individuals who work therein. Institutional logics are "socially shared, deeply held assumptions and values that form a framework for reasoning, provide a criteria for legitimacy, and help organize time and space."[15(p114)]

Fields characterized by institutional complexity (e.g., health professions education) are often comprised of institutions holding many different institutional logics.[15-17] Multiple institutional logics, sometimes labeled as competing institutional logics,[18] can interact in a range of ways including logic coexistence,[19] the replacement of one logic by another,[20] and logic blending.[21] The structure and practices of an organization reflects how different institutional logics are realized in the local context. Institutional logics, the relationships between logics, and the ways they are instantiated in an organization constantly evolve.

To illustrate, Dunn and Jones examined the institutional logics of medical education in the United States and identified two persistent logics: the logic of care and the logic of science.[15] The logic of care "highlights physicians' clinical skills used to treat patients and improve the health of the community," whereas the logic of science "focuses on knowledge of disease built through research and innovative treatments."[15(p116)] These competing logics have influenced medical education for decades. For instance, the authors note that, between 1947 and 1966, the budget for the National Institutes of Health (NIH)

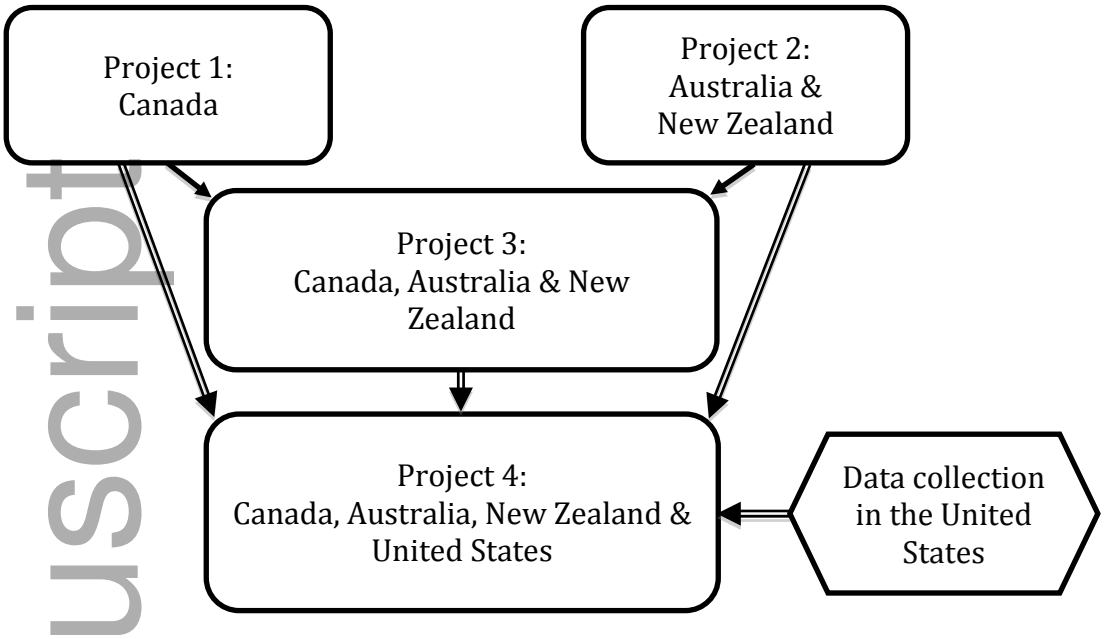
was increased from $8 million to $1 billion.[15] This included the advent of the 1964 NIH Medical Science Training Program that sought to develop a cadre of physician-scientists.[15] Such programs supported the logic of science, making scientific training a critical aspect of medical student education.[15] However, at the same time, the Willard, Millis, and Folsom reports, described the severe shortage of primary care physicians in the United States and recommended a series of changes to healthcare (e.g., calling for an individual patient's right to have access to qualified physicians who treated him/her as an individual and not as an isolated disease or organ system dysfunction).[15] These calls challenged the dominant logic of science and "advocated for a new approach and a new breed of physician, namely, family physicians, who would practice comprehensive medicine."[15(p121)] These reports put pressure on medical schools to value the logic of care. Accordingly, medical education-focused organizations have to strike a balance between the logics of science and care.[15] These logics are supported by distinct groups, fluctuate in dominance over time, and shape the education of medical professionals.[15]

In our study, we explore the institutional logics shared by HPESUs across four different countries: Canada, Australia, New Zealand, and the United States. We also describe some implications of the decisions and actions HPESU leaders make when contending with multiple institutional logics.

METHODS

This study is the fourth in an international program of research investigating HPESUs (depicted in Figure 2). Each study was approved by the research ethics boards at the relevant institutions (i.e.,the Western Sydney University, the Ottawa Hospital, and the Uniformed Services University of the Health Sciences). All participants provided informed consent. Table 1 describes the participants and recruitment, for each project.

Figure 2: HPESU Program of Research Four Project Structure.



Each box represents a project in the program of research, labeled with the project number (i.e., the order in which the projects were completed), and the country (or countries) involved in the project. Single line arrows indicate how data from Projects 1[9] and 2[10] were analyzed together for project 3[11]. Double line arrows indicate how data from the United States and the data and analyses from projects 1,[9] 2,[10] and 3[11] were combined into Project 4, reported in this study.

Table 1: Participants in each project in the program of research

Canada[9]	Australia and New Zealand[10]	United States
The directors of all 16 HPESUs in Canada were approached for participation. Three directors declined. Two sites asked for 2 individuals to participate since leadership of the HPESU was shared. The unit where the PI and	Medical education leaders from Australia's 19 and New Zealand's 2 medical schools were invited to participate. In total, 24 leaders were interviewed for this study (21 from Australia and 3 from New Zealand). Fourteen participants were	Aiming for maximum variation, we recruited HPESU leaders from across the Group on Educational Affairs (GEA) regions of the Association of American Medical Colleges. We recruited HPESU leaders from newly developed

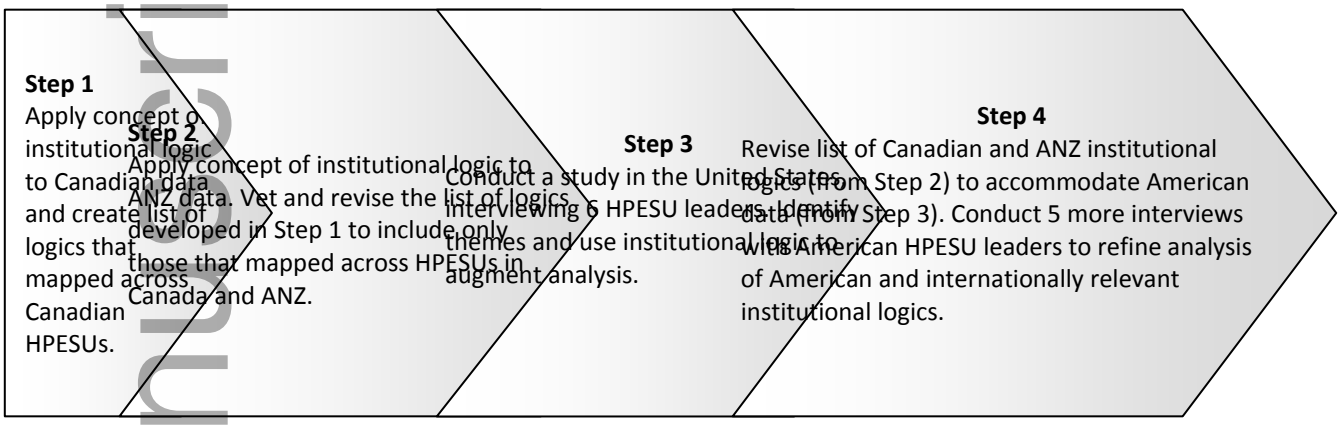
collaborating investigators worked did not participate. In total, 13 interviews were conducted with 14 participants from 12 Canadian HPESUs.	HPESU directors, and 10 additional participants were leaders from across ANZ. Data from both countries were analyzed together due to the small number of New Zealand HPESUs, the common accreditation and joint professional organization for deans and medical schools in these countries.	through to long established HPESUs, and from units with wide ranging research outputs (i.e., HPESUs with a high to low number of peer-reviewed publications per year). Twelve leaders were approached, and 11 consented to participate in the study.

The current study builds on data and analyses from Projects 1,[9] 2,[10] and 3[11] in the program of research. We briefly describe them here to give an overview of the progression of the research program. Project 1, conducted from 2011-2012, was a qualitative study using semi-structured interviews documenting 12 Canadian HPESU leaders' perceptions of the dimensions of unit success and of the actions commonly undertaken to achieve that success.[9] Project 2, conducted from 2013-2014, was a qualitative study using semi-structured interviews with 14 HPESU directors and 10 additional leaders from Australia and New Zealand (ANZ) regarding the structures and functions of HPESUs in ANZ and the factors that lead to unit sustainability.[10] In Project 3, we re-analyzed the data from Projects 1 and 2 together through recontextualization[22] to investigate how HPESU administrative leaders work as institutional entrepreneurs.[11]

Project 4's research design followed a multi-step process (see Figure 3). First, while analyzing the Canadian and ANZ data in Project 3, we observed the incongruity between the variety of organizational configurations, functions, and roles of individual HPESUs, but also noted the values and practices common across the units. In reading theories from organizational science to inform Project 3 we came across the concept of institutional logic and felt that this concept could help us investigate that incongruity. The

lead investigator (LV) began Project 4 by conducting a secondary analysis of the Canadian data, analyzing the interviews through the concept of institutional logic to the data. By repeatedly reading and comparing ideas expressed across the data set, LV identified institutional logics that mapped across Canadian HPESUs.

Figure 3: Visualization of Study 4's multi-step research process



Next, two investigators (LV & BO'B) engaged in a secondary analysis of the anonymized ANZ transcripts using the concept of institutional logics to inform analysis. By reading and making comparisons across the ANZ and Canadian data sets, these investigators vetted and revised the list of institutional logics developed in Step 1. Given our interest on the institutional logics that were common across HPESUs, the list was revised to include only those that applied to both the Canadian and ANZ contexts.

Meanwhile, the research team launched a study exploring American HPESU leaders' perceptions of the dimensions of success for HPESUs and the factors that enable or impede the attainment of that success. Using maximum variation sampling,[23] we recruited 6 American HPESU leaders (see Table 2 for description of participants) to be interviewed for this study. From April 2015 to September 2015, the study's research assistant conducted telephone interviews, lasting 41 minutes to 55 minutes, using a semi-structured interview protocol derived from the protocol used in the Canadian data collection and revised with items from the ANZ interview protocol (see Appendix S1 online for an abbreviated version of that protocol). This protocol was reviewed, revised,

and then approved by the entire research team. Two researchers (LV and BO'B) inductively analyzed the anonymized transcripts to construct understandings of the data and develop themes for coding the data. These two researchers also deductively applied the concept of institutional logics to these developing understandings and themes to explore if the concept augmented their interpretations. Analysis continued via increasing levels of abstraction to identify the practices, assumptions, values, beliefs, and rules that we interpreted as constituting the institutional logics of American HPESUs.

These researchers then refined the application of institutional logic to the totality of our international data sets. The same two researchers (LV and BO'B) revised the developing understanding of the institutional logics shared across HPESUs to accommodate the American data while still remaining true to the Canadian and ANZ findings. The researchers engaged in reflexive dialogue about the qualities of HPESUs that were unique to the United States, and those that were common with those of the Canadian and ANZ contexts. From December 2015 to February 2016, LV and BO'B revised the interview protocol used with American HPESU leaders to reflect the growing insights into the contexts and practices of American HPESUs as well as the developing understanding of the institutional logics that mapped internationally across HPESUs. The full research team reviewed, revised, and approved this interview protocol in early March 2016. Telephone interviews with an additional 5 American HPESU leaders were conducted using the new interview protocol from late March 2016 to May 2016. LV and BO'B analyzed these interviews, which ranged from 49 minutes to 92 minutes in length. The full research team reviewed and revised the developing understanding of institutional logics common to HPESUs in Canada, ANZ and the United States. From April 2016 to August 2016, the entire research team debated, amended, and finally confirmed the analyses of all the international data.

This approach to data collection and analysis enabled our research team to engage in an interpretive process of constructing insights by actively and purposefully interacting with the study participants, and by working as a research team to discern patterns across the data sets. We acknowledge that background information about the members of our

research team is as important as background information about the participants we interviewed. Our team consists of 3 individuals who are trained and practice as physicians (WH, SJD, SHM). Nine of our team members hold a PhD (in Education: BOB, WH, OtC, SJD, CvdV, DI; in English and Rhetoric: LV; in Psychology: SJH, LG; and in Medicine: WH). Several of our team members are currently or have served as HPESU leaders (WH, OtC, SJD, SJH, CvdV, LG, DI, SHM). All team members have worked or are currently working in an HPESU. Our team members also come from several different national backgrounds: Canada (SHM, LV, SJH – note that in the past 5 years, two of these team members moved to work in America [LV, SJH]); America (BOB, DI, LG, SJD); Australia (WH); and the Netherlands (OtC, CvdV). In analysis discussions, team members often drew upon their national-level knowledge, and on their experience leading and/or working in different HPESUs. The broad range of experiences in our team supported us in identifying institutional logics that were present across all the nations represented in this study and, when possible, if there were national-level commonalities to how those logics were manifested in HPESUs.

RESULTS

Across the Canadian, ANZ and American data, individual leaders described how their local HPESU was shaped by fundamental principles that imposed practices, assumptions, values, beliefs, and rules onto the HPESU. In other words, the HPESU leaders articulated three institutional logics that influenced the HPESU's organizational structure, functions, and measures of success. These were: (1) the logic of financial accountability, (2) the logic of a cohesive educational continuum, and (3) the logic of academic research, service, and teaching. We explain each of these logics below and describe any identifiable national-level trends. In Table 2 we illustrate these logics with data excerpts.

** Insert Table 2 approximately here. Given the length of Table 2, it is included at end of the article (before References) to make the manuscript easier to read.**

THE LOGIC OF FINANCIAL ACCOUNTABILITY

The logic of financial accountability was a driving force behind many organizational decisions taken and practices adopted by HPESU leaders. The logic of financial accountability drove HPESU leaders to focus resources in specific ways. Despite its palpable influence in each context, we did not discern consistent national-level trends for this logic; instead, local contextual factors (e.g., the history of educational research, the current Dean's perspective on the value and role of educational scholarship, individual scholars's ability to secure external grant funding, etc.) exerted significant influence on how this logic was manifested in each HPESU (see Table 2 for data excerpts).

For example, in some contexts, leaders described focusing their unit's efforts narrowly on medical education (i.e., delivering the educational programs for medical learners). While these HPESU leaders often expressed a desire to engage with all of the health professions, their scope was limited by the responsibility to offer a return on the financial investment of its main financial supporter – usually the local medical school and/or the local hospital's clinical departments. In other contexts, where the logic of financial accountability was less pervasive and/or where financial support was shared across many health professions (e.g., where medicine, dentistry and nursing all contributed funded the HPESU), leaders could focus more broadly on health professions education. The scope of the HPESU's work depended largely on the conditions of the unit's financial support.

The power of the logic of financial accountability to shape the scope and direction of HPESU work is formidable, pervading many aspects of each HPESU. Some HPESUs relied significantly or completely on "soft" funds. These funds could be allocated on a non-repeating, or annual basis by the medical school and/or the hospital's clinical departments, or be funds generated by winning external grants. In these situations, the HPESUs often had to demonstrate to their financial supporters that the HPESU's activities directly benefited those supporters' interests. In contrast, other HPESUs relied on "hard" funds (e.g., were designated as Departments in the university or hospital, and so enjoyed the financial security of being funded by a recurring institutional budget line). These HPESUs

might enjoy relative financial independence and so had different development opportunities.

It is important to note that the logic of financial accountability manifested itself differently in individual contexts. For instance, in some contexts financial independence (e.g., having hard funding) enabled HPESUs to work across the health professions and/or the educational continuum. However, in other contexts, hard funding was granted to the HPESU in return for specific kinds of work (e.g, servicing the undergraduate medical curriculum). Indeed, the impact of the logic of financial responsibility was exhibited uniquely in each context. However, the influence of the logic of financial accountability was always present, prompting HPESU leaders to repeatedly describe being either free from or constrained by this logic.

The Logic of a Cohesive Educational Continuum

Another logic that HPESU leaders contended with was the logic of medical education as a continuum. Leaders described how, in some contexts, the HPESU's work with undergraduate (UME), graduate (GME), and/or continuing medical education (CME), was seen as part of a coherent continuum, while in others they were conceived of as three separate elements (see Table 2 for data excerpts). This logic deeply influenced the priorities of the HPESU's activities. We noted that this logic was realized differently in different countries.

In Canada, the HPESU leaders almost universally described being able to attend to any and/or all aspects of the medical education continuum. The Canadian HPESU leaders didn't highlight the distinctions dividing UME, GME, and CME; instead, they emphasized how these elements were connected across a learning continuum. This logic is embodied in the structures of Canadian medical education programs. For instance, in Canada, each medical school exists as part of a university. Each Canadian GME program is part of the same university that houses the medical school. Thus UME and GME have strong organizational links connecting them. Further, the Royal College of Physicians and Surgeons of Canada, which accredits the residency programs at the 17 universities across

Canada, also accredits the learning activities of physicians in practice for continuing professional development and runs the Maintenance of Certification program to meet lifelong learning needs of Canadian physicians. This supports strong organizational connections between UME, GME, and CME in Canada, and this inter-connection is often reflected in how HPESUs direct their efforts across the medical education continuum.

In the United States, HPESU leaders regularly expressed interest in working across the continuum. However, many leaders focused their efforts on UME. In the American context, structural divisions between UME, GME, and CME could significantly impact on the work of the HPESUs. Since American GME programs are often housed within hospitals that are not organizationally connected to medical schools, there is often an organization-level separation between GME and UME. Given that American HPESUs are often housed in the medical school, this organizational separation can impede HPESU members from working on GME projects. While that barrier was never described as insurmountable, it was frequently acknowledged as obstructing GME engagement.

In ANZ, the system-level differences mirror those of the United States. Moreover, the way that UME and GME are funded and delivered, with multiple educational and training providers competing for educational and training places in the same locations, has fostered HPESUs that are largely housed in university medical schools and focused on UME. GME activities, largely delivered and embedded in health services, are separate and distinct from the HPESU's UME focus. Given these organizational divides, educational research and GME teaching activities are often seen as secondary considerations for ANZ's HPESU leaders.

The Logic of Academic Service, Research, and Teaching

Another important logic identified by the HPESU leaders was the logic of academic service, research, and teaching (see Table 2 for data excerpts). In analyzing our data for this logic, we did not discern clear national-level trends. Instead, this logic manifested itself uniquely in each HPESU.

HPESU leaders described needing unit members to attend to a wide range of service needs. These included, but were not limited to: sitting on various institutional committees; engaging in program evaluation / accreditation support work; working with educators so that they could be more effective in the classroom; analyzing curriculum outcomes and learner experiences; and taking on administrative responsibilities for different aspects of the institution's work (e.g., leading the promotion and tenure committee). The marker of success chiefly associated with this service work was client satisfaction (e.g., leadership being satisfied with the work of the HPESU, stakeholders perceiving that the HPESU is offering a valuable return on their investment, continued funding from stakeholders, faculty feeling that they are getting the help they need to be effective educators, maintaining accreditation, creating reports of student assessment and/or program evaluation data that university leadership and department leaders deem to be informative and actionable, etc.).

HPESU leaders also clearly identified needing to engage in educational research. Most HPESU leaders described this research in very broad terms, inclusive of the scholarships of discovery, integration, application, and teaching (as defined by Boyer[24]). Most HPESU leaders used the term "research" to encompass all these forms of scholarship. To reflect the terms used by our participants, we refer to work in all these areas as "research". Associated markers of research success included: peer-reviewed research publications, grant capture, dissemination of findings at national and/or international academic conferences, uptake of locally-developed educational innovations in other contexts, etc.

The teaching work that HPESU leaders described included, for example, teaching in faculty development activities and teaching courses (e.g., as part of the medical school / UME curriculum, or graduate courses for HPE degree programs, etc.), with markers of success being associated with positive teaching evaluations. HPESU leaders also noted that teaching could take the shape of mentoring individual clinician educators to engage in educational scholarship. This often involved one-on-one collaborations between HPESU members and clinician educators, and could also involve mentoring clinician educators

through graduate programs in health professions education or medical education, with HPESU members as faculty instructors. This mentoring was described as particularly important to the success of the HPESU as it created a future community of HPES scholars who recognized the value of the HPES and could take leadership roles in the local medical school and/or teaching hospital. Markers of success for this kind of teaching included capacity building (e.g., increased numbers of clinician educators becoming active educational scholars and leaders in the local UME, GME, and/or CME activities) and, when relevant, having clinician educators complete their graduate degrees.

While all participants acknowledged the local institution's need for work in these three areas, each HPESU had a unique configuration of service, research, and teaching engagement. Some leaders quite clearly labeled their HPESU as a service unit, while others emphatically described the HPESU as a research unit. Primarily in the ANZ context, some HPESU leaders defined their unit as having a teaching focus.

Leaders described service, research, and teaching elements as interrelated, regardless of how the leader labeled the HPESU's focus. What varied was the relative strength of those interrelations. Some directors described the connections between service, research, and teaching work as being loosely held. For instance, service-oriented HPESU leaders described avoiding focusing on research-related markers of success so that the unit could stay directed towards their service mission. But even in these service units, research and/or teaching expectations are seen as related to service efforts. Other leaders explicitly stated that service, research, and teaching elements were so intimately connected that they actively tried not to distinguish between them at all.

To summarize, the logic of academic service, research, and teaching was a dominant logic that grounded the work of the HPESUs. In each HPESU, the three elements exist to various degrees, they coexist interdependently, with interrelationships of varying strength.

How Competition Between these Three Logics is Enacted in Individual HPESUs

In different contexts, each logic may hold a different level of influence and power over the HPESU. For instance, when the logic of financial accountability holds sway, the HPESU will tend to invest its efforts towards supporting the needs, expectations, and desires of funders. Thus, if the funding of an HPESU comes primarily from an undergraduate-focused medical school, the HPESU's activities would be largely oriented towards UME. The logic of the medical education continuum would be eclipsed, and interprofessional engagement would be limited. The HPESU's service, research and teaching activities would be oriented towards the needs of the UME funder.

In contexts where financial accountability is not the dominant logic, the HPESU's activities can be oriented across the health professions, across the medical education continuum, and across research, teaching and service activities. In this situation, other factors (such as the interests and skills of HPES research scientists and clinician educators, the availability of additional grant funding, the opportunity to study educational innovations, etc.) direct the HPESU's activities.

DISCUSSION

This study explores how HPESUs can share similar institutional logics that take on very different forms when instantiated in different organizations and in different countries. We identified three institutional logics that HPESU leaders engaged with and interpreted to run their HPESU: (1) the logic of the financial accountability; (2) the logic of a cohesive educational continuum; and (3) the logic of academic service, research and teaching.

The fact that these logics are pervasive across our interviews with HPESU leaders from around the world may be unsurprising because these logics are deeply embedded social constructs, with deep historical roots. They are patterns of beliefs and rules that are foundational to the health professions. Individuals are exposed and learn institutional logics through their education and work experiences.[25] For many HPE community members, training to be a physician was an introduction to these institutional logics. Working with, within, or leading HPESUs further exposed individuals to these logics, shaping their practices, interests and identities.[26]

While these logics have considerable influence on individuals, it is important to note that individuals can exercise agency in determining how institutional logics will guide the activities of an HPESU. Institutional logics influence the cognition and actions of the individuals who work within them, but in turn those individuals "can influence how logics are instantiated in organizations." [14(p366)] Institutional logics can be conceived of as offering broad sets of cultural justifications,[14] or tools that can be "continuously combined, configured, and manipulated to serve the purposes of actors." [19 (p168)] Thus, there is a mutually constituting relationship between institutional logics and an individual's actions: "institutional logics shape rational, mindful behavior, and individual and organizational actors have some hand in shaping and changing institutional logics." [18 (p100)] By understanding HPESUs as manifestations of institutional logics, individuals can develop strategies for creating, maintaining, or reconfiguring an HPESU to be both locally and externally successful. This dual focus also also helps to explain why HPESUs can commonly embody these three logics, but manifest each logic in different ways.

The pervasive and often implicitly felt power of these institutional logics should not be underestimated. Our research team has had to contend with them during the course of this program of research. For instance, in developing the definition of HPESUs, our team regularly debated whether the units we were studying should be labeled as *health professions* education scholarship units or *medical* education scholarship units.[6] By framing these discussions in terms of competing institutional logics, we can better understand why our debate was not completely resolved. In contexts where the logic of financial accountability is powerful and where funding comes exclusively from medicine, the idea of labeling these units as health professions-oriented is counter intuitive. We imagine that many readers would conceive of their local unit as a medical education scholarship unit and not an HPESU since the logic of financial accountability is a dominant force.

Examining the institutional logics embodied in HPESUs can help us consider possible problems that an individual unit might face. For instance, consider an American

HPESU that (1) is dominated by the logic of financial accountability (with financial support coming from the medical school), (2) is housed in the medical school, and has very weak connections to UME and GME; and (3) heavily prioritizes academic service over teaching and research activities. This HPESU will often have one or several PhD-trained HPES research scientists on staff. The work of the scientists in this HPESU will be significantly directed towards successfully engaging in UME-oriented service work. However, for many of these HPES research scientists, promotion in the university is based on research productivity. This situation places the research scientist between conflicting logics. To be successful in the HPESU, the scientist should engage in service activities. But to progress through the university's academic ranks, that same scientist should focus on research productivity. This tension can make hiring and guiding highly skilled individuals into HPESU research scientist roles a challenge.

As this example suggests, understanding the institutional logics embodied in an HPESU should inform the measures of success that the unit is expected to meet. Our research participants commonly identified academic research as the criterion of achievement that they are measured by, and by which they measure other HPESUs. However, many of these same participants led service-oriented HPESUs, or at least HPESUs where research was not the dominant element in the logic of academic service, research and teaching. An HPESU that is driven by logics of financial accountability and academic service should not be primarily evaluated by the number of research papers published by its members since those markers of success are not aligned with their institutional logics. Instead, markers of success for such a unit might include the successful delivery of service activities to the funders, and satisfaction of the clients and stakeholders affiliated those HPESU funders. Unfortunately, HPESU leaders do not always realize this incongruity. Furthermore, the leadership of the medical school and/or hospital may hold differing views on the appropriate weighting of each institutional logic, meaning that HPESU leaders may have to respond to different expectations depending on which member of the leadership they are addressing.

Working to change the institutional logics underpinning an HPESU is often an arduous and highly political task. The dean, HPESU leaders, clinician educators, research scientists, and other community members all embody and interpreting the institutional logics that surround them. Changing those logics involves negotiating across the rules, beliefs and customs that each person has internalized and has accepted as their working culture. Since the meanings and values of current practices are supported by the existing configuration of logics, they are not likely to be easily modified.[27] Our previous research on HPESU administrative leaders as institutional entrepreneurs offers some practical advice on how leaders can shift the institutional logics in their local context.[11] Successfully engaging as an institutional entrepreneur to change the configurations of these logics in a specific context requires "the mobilization and recombination of materials, symbols and people in novel and even artful ways."[27(p.206)] Re-conceptualising established logics and/or mobilizing new logics is possible, but the work entailed to achieve these goals should not be underestimated.

We acknowledge that our research is limited by the fact that our data were generated through interviews with HPESU leaders. Other institutional leaders (e.g., medical school deans or hospital leaders) may have different perspectives on the weighting of the institutional logics we identify and may describe other logics as necessary considerations. We plan to extend our investigations to explore how such leaders (e.g, Deans, hospital leaders, and Department Chairs) can act as institutional entrepreneurs who negotiate the institutional logics that are instantiated in individual HPESUs. We also intend to explore the perspectives of other agents, such as clinician educators, as they too may have different understandings of the institutional logics that underpin the HPESU. Furthermore, as each HPESU is contextually framed by a unique combination of institutional logics, our analysis does not comprehensively nor conclusively identify all the institutional logics of each HPESU. It also does not investigate how other logics, such as the logic of care,[15] are often notably absent. Instead, this study explores HPESUs in four different countries to identify common institutional logics and how they are locally and, when relevant, nationally embodied. Finally, we also do not have data from European, Asian, African or Latin American HPESUs informing this analysis. This is a significant

omission, one that we are currently addressing by extending our program of research to the Netherlands, the United Kingdom, Sri Lanka, Vietnam and Taiwan.

Institutional logics evolve over time as new logics emerge in a field and as agents engage in individual and collective actions. In any given context, these logics may coexist in relative equality or they may exist in conflict and tension. Over time logics may blend together to construct a brand new institutional logic. We suggest that leaders in health professions education (e.g., deans, department chairs, HPESU leaders, etc.) should strive to recognize the logics that are at play in their context at any given time, and to harness the power of these logics to meet their goals. Perhaps the most challenging demand is the need to stay nimble across institutional logics as logics wax and wane, and to decide which logics need to be championed above others.

Table 2: Illustrative data excerpts for each institutional logic

Institutional Logic	Illustrative data excerpt
Logic of Financial Accountability	*With respect to the HPESU's focus on medicine or on health professions:* "When I was hired nearly eight years ago, I was hired to work at the medical center level and the intent was for me to support scholarship or evaluation or design in each of the four schools we have in our medical center. So that's medicine, dentistry, public health, and nursing. But a couple of years into my tenure, they said that other schools weren't providing funding and so I was told that my scope was narrowed to just the medical school." (US.Part.2) "On paper, officially, we [the HPESU's members] are supposed to involve all health professions… but, in fact, for [name of HPESU] we are mainly involved with medical programs. It's not because we don't want to be involved with other health science programs, but it's a question of who provides our resources." (Can.Part.14)

	"I suppose the only thing we haven't really discussed is the notion of generic health professional education… I think this is an interesting area where I think many of the successful medical education units are fitting within medical schools. And I think a lot of that is around the fact that there is funding -- sustained funding." (ANZ.Part.107)
Logic of a cohesive educational continuum	*Canada* "We [members of the HPESU] work with everyone and for everyone in the Faculty of Medicine which includes UGME, PGME, and CME." (Can.Part.9) "We build capacity for innovation in research, and we do it across the continuum of undergrad, post-grads, and CPD [CME]." (Can.Part.1) *The United States* "We engage daily with, pre-admissions, admissions, students programs, undergraduate medical education, and assessment. We do not engage on a routine basis with graduate medical education. They're organized in a different space and so we will occasionally consult with them but that is very infrequent. CME we will consult on a specific programmatic evaluation or if we're sponsoring a faculty development course and we need CME credits but again that's fairly infrequent. So 98% of our interaction will be in undergraduate medical education." (US.Part.9) "The GME is functioning on its own, and they're getting their own educational researcher and so I've disassociated [name of the HPESU] from that for the most part." (US.Part.5) *Australia and New Zealand* "The health services here do not have a history, a cultural history, of supporting learning and teaching or indeed [educational] research….

	You do still hear, in this part of the world, people say: "I'm a clinician. I don't teach." For me, that's just illogical nonsense in the 21st century. It doesn't make sense. But people view of them [healthcare delivery and physician training] as separate enterprises." (ANZ.Part.137)
Logic of Academic Service, Research, and Teaching	*Labeling of HPESU as a service unit* "Our unit is primarily a service unit" (Can.Part.13) "We are a quality improvement shop" (US.Part.9) "The [HPESU] is largely responsible for the operational delivery of the program." (ANZ.Part.123) *Labeling of HPESU as a research unit* "The majority of our work is applied research done in the context of the educational mission here at the medical school" (US.Part1) "Our mandate is to promote and foster educational scholarship, also research development in medical education" (Can.Part.12) "In the last two to three years, we have shifted the focus of those academics in the unit to now start to broaden their academic activities and get more involved in research." (ANZ.Part.109) *Service units avoided focusing on research …* "[I am] advocating that we stay aligned with the core mission and not get sucked into grants that then fragment us and distract us from what we're supposed to be doing." (USPart2) "I have often said we don't need any more PhD tenure track faculty positions in our unit. We need more Masters and PhD trained people who are not faculty and are not tenure track, and who can dedicate themselves almost entirely to our services instead of pushing out papers." (CanD13) "It was thought from the outset, when the medical school was established, that you wouldn't be a credible medical school without

	a stand-alone medical education unit that could contribute the educational expertise into the development and maintenance and innovation of the curriculum, and the assessment program, and the evaluation of continuous quality improvement of that program. That was the rationale of having an [HPESU] at the outset and fundamentally that rationale continues unchanged until this day." (ANZ.Part.105) *…but even service units recognize research and teaching as part of the HPESU's required work activities.* "We also then want to build on that service activity so I guess another marker [of success] would be how many dissemination products have we produced?...and that then blurs the distinction between what you may have been referring to as research and what we see as the service or the actual teaching function." (USPart 2) "Our unit is a service unit and we're dedicated to supporting the educational mission of [the University].…And then we also provide support for students, faculty, residents who are interested in research or evaluation or a scholarly project in education… Because our unit is a service unit, it [education-related research] is not for the benefit of the members that are in our unit [the PhD-trained scientists]. Our unit exists to help other people be more successful in that [research]."(CanD13) "The third area [of HPESU focus, after curriculum delivery and assessment / evaluation work] is what I would call the scholarship of teaching and learning, and this is where those in the medical education unit, not exclusively, often in conjunction with people who are working in clinical roles or other roles in the medical school, actually engage with a research agenda around the scholarship of teaching and learning and that we make contributions nationally and internationally to that literature." (ANZ.Part.105)

Some HPESUs focused on interrelationships between service, teaching and research work

"we try very, very hard not to foster a split between those [research, teaching, and service work]" (Can Part 3).

"I work very hard to not distinguish between them [research, teaching, and service work]" (US Part 7)

"It's [medical education is] not a purely theoretical discipline. It has to have a connection with clinical work and clinicians in order to keep its relevance and its meaningfulness…. If you're doing only research and not the translation, and if you're doing only the chores, you're doing things that everybody could do." (ANZ.Part.116)

Directors who highlighted the interrelations between service, teaching and research work used specific strategies to build those connections

One director explained how service work ("The Dean called me into his office and said, 'Well, it's time we changed the medical curriculum. We've been resting on our laurels…Design me the ideal medical school.'" [CanD2]) was harnessed as a research opportunity ("it also exemplified the way I like to do business which is you mount an innovation but you mount it in parallel with a research program, and then you don't proceed along the innovation unless you have good research evidence that it's doing what you expect it to do" (CanD2)), and as an opportunity to mentor a clinician (be it a medical student, resident, or staff physician) to be an education researcher ("we mentor individuals [individual clinicians]…everything from the formulating of the research question to doing the [data] analysis to writing the papers." (CanD2))

	Leaders also described how fulfilling service commitments could easily eclipse research expectations "Right now everyone on the team does both [service and research work]. What I call the feeding monster [service work]: we need to make sure that things continue to run. If we could carve out time, and say X percent of your time is going to be spent on advancing the scholarship mission, I think that would be helpful. Helpful for me personally, in my own work, and I think it would be helpful for everybody on the [HPESU] team. But that's just not the reality of where we live. I think that the downside to that is the real synergy that we experience between doing the actual authentic work and then studying that in a rigorous way. That has proven to be the case over multiple projects and allowed us to actively engage people that we probably wouldn't get to--clinical educators that we probably wouldn't get to. So, I want to watch that balance pretty carefully. I don't think I would want a scholarship team and a say, you know, a feed-the-monster team. I think there has got to be some integration there. But we continue to be challenged with what needs to be done every day getting in the way of as much scholarship as we'd like to do." (USPart9)

DISCLAIMER

The views expressed herein are those of the authors and do not necessarily reflect those of the United States Department of Defence or other federal agencies.

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