Sustaining Quality Improvement and Patient Safety Training in Graduate Medical Education: Lessons from Social Theory

Brian M. Wong, MD*, Ayelet Kuper, MD, D.Phil*, Elisa Hollenberg, MSW, Edward E. Etchells, MD, MSc, Wendy Levinson, MD, Kaveh G. Shojania, MD

*Dr. Wong and Dr. Kuper contributed equally to the preparation of this manuscript and are co-principal authors.

Dr. Wong is Assistant Professor and Director, Continuing Education and Faculty Development in Quality and Safety, Department of Medicine, University of Toronto, and Staff Physician, Division of General Internal Medicine, Sunnybrook Health Sciences Centre (Toronto, Canada)

Dr. Kuper is Assistant Professor, Department of Medicine and Scientist, Wilson Centre for Research in Education, University Health Network, University of Toronto, and Staff Physician, Division of General Internal Medicine, Sunnybrook Health Sciences Centre (Toronto, Canada)

Ms. Hollenberg is the Educational Research Associate, Department of Medicine, Sunnybrook Health Sciences Centre, University of Toronto

Dr. Etchells is Associate Professor, Department of Medicine and Associate Director, Centre for Patient Safety, Faculty of Medicine, University of Toronto and Staff Physician, Division of General Internal Medicine, Sunnybrook Health Sciences Centre (Toronto, Canada)

Dr. Levinson is Professor and Sir John and Lady Eaton Chair of Medicine, Department of Medicine, University of Toronto

Dr. Shojania is Associate Professor, Department of Medicine and Director, Centre for Patient Safety, Faculty of Medicine, University of Toronto and Staff Physician, Division of General Internal Medicine, Sunnybrook Health Sciences Centre (Toronto, Canada)

Corresponding Author:

Dr. Brian M. Wong, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Room H466, Toronto, Ontario, M4N 3M5; Phone: (416) 480-4290; Fax: (416) 480-6777; E-mail: BrianM.Wong@sunnybrook.ca

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Abstract

Purpose: Despite an official mandate to incorporate formal quality improvement and patient safety (QI/PS) training into graduate medical education, many QI/PS curricular efforts face implementation challenges and are not sustained. Educators are increasingly turning to sociocultural theories to address issues such as curricular uptake in medical education. The authors conducted a case study using Bourdieu's concepts of "field" and "habitus" to identify theoretically derived strategies that can promote sustained implementation of QI/PS curricula.

Method: The authors conducted semi-structured interviews with principal authors of studies included in a systematic review of QI/PS curricula as well as key informants identified by study participants who did not publish unsuccessful curricular efforts (October 2010 - May 2011). The authors purposively sampled to theoretical saturation and analyzed data concurrently with iterative data gathering within a Bourdieusian theoretical framework.

Results: The study included 16 participants across 6 specialties in the United States and Canada. Data analysis revealed that academic physicians belong to, and compete for the legitimate forms of capital within, two separate but interrelated fields associated with QI/PS curricular implementation: the "academic field" and the "health care delivery field". Respondents used specific strategies to exploit and/or redefine the prevailing forms of legitimate capital in each field to encourage a change in the academic physician habitus and legitimize QI/PS.

Conclusions: Situating study findings in a sociocultural theory enables articulation of concrete strategies that can legitimate QI/PS in the academic and health care delivery fields. These strategies can promote sustainable implementation of QI/PS curricula in graduate medical education programs.

Despite a strong educational mandate to teach quality improvement (QI) and patient safety (PS) concepts to trainees endorsed by the American Association of Medical Colleges (AAMC)[1] and the Accreditation Council of Graduate Medical Education (ACGME)[2] and a burgeoning literature base that supports efforts to design and deliver formal training in this area[3-7], the majority of medical schools and residency programs continue to have difficulty implementing and sustaining QI/PS curricula. Recent estimates suggest that less than one-quarter of medical schools in the United States and Canada formally teach QI/PS in their medical curricula.[8,9]

The reasons for this gap are unclear and have yet to be fully explored. We previously tried to formally address this issue by supplementing a traditional systematic review of QI/PS curricula with a thematic analysis of the articles to identify factors that authors regarded as promoting or limiting curricular implementation.[4] This review helped generate a set of hypothetical learner (e.g., competing educational demands), teacher (e.g., faculty expertise to teach QI), curricular (e.g., combining didactic and experiential teaching), and learning environment factors (e.g., strength of institutional QI culture) that may influence successful implementation of a QI/PS curriculum. These factors align closely with the traditional considerations that medical educators use to guide the design of their educational programs to create robust teaching and learning experiences for their trainees.[10]

However, a critical question remains: Beyond following these design recommendations, how can educators ensure that QI/PS are among the core topics taught to future physicians, both at their particular institutions and more broadly? Our systematic review could not adequately address this concern because most of the relevant articles did not explicitly discuss it. Yet failing to consider this larger question leads educators to develop and implement well-designed,

educationally sound programs that may effectively achieve their desired learning outcomes but that lack sustainability.

The use of social theories may help to address this larger implementation question. Social theories have the advantage of providing unique lenses through which researchers expose and examine different aspects of medical education. This approach is consistent with the increasing call for theory-driven research in medical education[11-13] and can inform issues relating to the larger structural and policy questions that affect medical education.[14,15]

Medical educators increasingly use the theoretical framework of French Sociologist Pierre Bourdieu[11,16] to illuminates the forces that influence and change what individuals consider to be legitimate to teach and learn.[17-19] Recent studies apply his concepts of field, habitus and capital to examine various different aspects of medical education, ranging from understanding the differences in the kinds of knowledge that different medical schools in the United Kingdom emphasize[16] to defining the forms of legitimate inquiry in the evolving field of medical education research.[11]

We therefore sought to use insights from Bourdieu's work to examine current efforts to teach QI/PS to residents and to better characterize the challenges that educators face when trying to introduce QI/PS into medical curricula. We intended to identify potential strategies to overcome these barriers and to provide empirically informed suggestions for future steps that may lead to a greater uptake of QI/PS training in graduate medical education.

Methods

Theoretical framework

Bourdieu's theoretical framework includes two key interrelated concepts: "field" and "habitus". The concept of "field" describes an arena in which players produce, circulate, and acquire resources that relate to a specific area (e.g. medicine, ballet). These resources, otherwise known as "capital", have different forms, including money ("economic capital"), culture ("cultural capital"), connections ("social capital") – or any combination of things that give a member of a field prestige or a good reputation ("symbolic capital").[20] A "game" characterizes each field, in which "the competition for predominance of one definition over competing definitions as the recognized model of excellence in the field results in a struggle between players as each tries to promote a definition that places value on their own products and their own ways of doing things."[11]

The organization of imbalanced structure of power relationships inevitably created by this struggle represents an additional defining feature of the field.[18] Capital is field specific: what is legitimate in one social space may not be in another, and since these definitions and structures are fundamentally arbitrary, they can change over time. Those players who have a lot of symbolic capital (i.e. prestige) have the ability to change their field's definition of legitimate forms of capital, which players often do to favor their own way of doing things and further strengthen their position within the field.

The concept of "habitus" describes why individuals from a specific group (e.g. a nationality, a socio-economic class, a profession) in a given field tend to have predictable patterns of behavior attributable neither to explicit rules nor to conscious choices.[19,21] Past experiences shape these patterns of behavior and tend to feed forward to influence an individual's notion of him or herself, such that the future often reproduces the past. The imbalanced structure of power relations that result from unequal distribution of legitimate capital

can strongly influence habitus. Individuals belonging to groups who possess comparatively less legitimate capital have more difficulty acquiring legitimate capital, thereby perpetuating the existing imbalances in power relations that dominate a given field.[19,21-23]

Therefore, both field and habitus are interconnected concepts, each with the ability to influence and modify the other. As described by Brosnan and colleagues: "it is the struggle within the field that determines which players' habitus can access the most capital, while the relations between players are what shape the field. Thus, in order to study a field, one must examine the relations between individual players and the elements that are valued within that field."[16]

Methodology

Within this constructivist theoretical framework[24] ("constructivism: a belief about knowledge […] that the reality we perceive is constructed by our social, historical, and individual contexts, and so there can be no absolute shared truth"[25]), we conducted an exploratory case study[26,27] of the incorporation of QI/PS into the medical curriculum. In the social sciences, case study methodology is a way of conducting an analysis of an interesting or informative phenomenon (e.g., process, event, social group or organization) in order to develop a greater understanding of that phenomenon by grounding empirical observations in social theory. This phenomenon constitutes an informative case because (1) different training programs are at different stages in their implementation of QI/PS curricula and have used different strategies to achieve this implementation[4], providing a varied study sample; (2) many educators and program directors view implementing QI/PS education as important, yet many lack QI/PS training themselves and have insufficient expertise to teach QI/PS to others; and (3) teaching QI/PS is

such a recent phenomenon within medical education that we can still interview its earliest innovators.

Study sample

As different issues influence curriculum implementation in undergraduate (medical school) and graduate (residency) medical education, including different drivers, accreditation standards, and learning contexts, we chose to limit our case to the residency clinical training environment. Our study therefore recruited participants who have actively implemented QI/PS curricula for residents. We identified our initial pool of participants from the list of principal authors of published curricula from our recent systematic review, published initially in 2010[4] and then updated in 2012.[28] We purposively sampled among them, balancing training program characteristics (e.g., country, discipline) and educational features (e.g., design, teaching methods) of their curricula. As this strategy would likely only identify participants who had been successful in their curricular implementation, we also conducted confirming/disconfirming snowball sampling ("sampling participants found by asking current participants in a study to recommend others whose experiences would be relevant to the study"[29]) by asking our study participants to identify individuals whom they knew had attempted to implement a QI/PS curriculum but had not published about it, particularly including those who had failed in their implementation. We continued to sample to theoretical saturation.

Data collection and analysis

We gathered data by conducting semi-structured one-on-one interviews between October 2010 and May 2011. The Sunnybrook Health Sciences Centre Research Ethics Board (Toronto,

Canada) approved this study. After receiving information about the nature and methods of our study, all participants provided informed consent. We did not offer incentives for participation. We anonymized all study data and stored it securely. Either the principal investigator or one of the co-investigators interviewed each study subject for 45 – 60 minutes, either by telephone or, whenever possible, in person. We audiotaped and transcribed interviews verbatim. We based the initial interview guides (Appendix Table) for these semi-structured interviews in our synthesis of the literature related to facilitators and barriers to teaching QI/PS to residents and to curricular implementation in faculties of medicine[4,6,30-33], in our own contextual knowledge of the academic and clinical practice of QI/PS in academic medical centers, and in our understanding of Bourdieu's theories.

We gathered data concurrently with its analysis within a Bourdieusian theoretical framework, informing iterative adjustments to the interview script as well as decisions with respect to saturation. Our analytic approach combined categorization ("the interview is coded into categories"[34]) and meaning condensation ("an abridgement of the meanings expressed by the interviewees into shorter formulations"[34]) to generate a theoretically-grounded interpretation of the data. This analysis was reflexively mindful ("reflexivity: a research technique to enhance researchers' recognition of their own influence on their research, such as how their gender, ethnic background, and social status influence the choices they make about methods, data collection, and analysis"[25]) of the researchers' own subject-positions in the research context. In particular, several of the authors actively engage in work to implement and legitimize QI/PS curricula at multiple educational levels from various local and national medical education leadership positions and two of the authors are also advocates for more theoretically-oriented research related to medical education. Three study investigators (*BW, EH, AK)* primarily carried

out the concurrent analysis, with further refinement by the other members of the research team (*KS, WL, EE*) who read transcripts, met to discuss coding schemes, and suggested ongoing changes to the interview guides.

Results

We interviewed 16 individuals, 8 of whom were female, who developed QI/PS curricula targeting residents in a variety of training programs, including Internal Medicine (n=9), Family Medicine (n=2), Pediatrics (n=2), General Surgery (n=1), Preventive Medicine (n=1) and Psychiatry (n=1) based in the United States (n=11) and Canada (n=5). We identified 12 participants by screening articles included in the original and updated systematic reviews. These 12 participants were either lead or co-authors on 13 (33%) of the 40 studies of QI/PS curricula that targeted residents. We identified 4 additional participants through snowball sampling. We specifically included 2 of the participants because they faced significant challenges when implementing their QI/PS curriculum.

The fields associated with QI/PS curricular implementation

Our data revealed that academic physicians are the players that belong to and compete for the legitimate forms of capital in two different but interrelated fields associated with QI/PS curricular implementation: the academic field and the health care delivery field. We organize our interpretation of the results by first characterizing each field separately and describing the different forms of legitimate capital that create the power structures within them, and the way that QI/PS are positioned within each of these fields. We then turn our attention to characterizing relevant aspects of the current academic physician habitus that is shaped by, and

continues to shape, these two fields. Finally, we illustrate how educators that we interviewed sought to exploit the prevailing forms of legitimate capital, and/or to redefine what each field considers to be legitimate capital, to encourage a change in the academic physician habitus and promote QI/PS as a discipline, and the resulting impact on the sustained delivery of QI/PS training in their residency programs.

The Academic Field

This field encompasses the "academy", which for programs affiliated with a university or medical school is the "university", whereas for programs primarily affiliated with a hospital, it is "wherever scholarly activities are carried out". Within this field, physicians compete for those elements that improve their academic reputation, which would advance their position within the field and also allow them to then redefine legitimate forms of capital.

Within the academic field, the existing power structures promote the pursuit of traditional forms of bioscientific research, rather than QI/PS, as the dominant form of legitimate capital. Individuals engaged in QI/PS tend not to seek grant support or publish their work, making their work less legitimate in the academic field. In contrast, individuals doing more traditional bioscientific academic work who have a large number of peer-reviewed publications and external grants tend to get more protected academic time and salary support, receive awards and accolades, are promoted on the basis of their research, and tend to be favored within the academic field.

> [Our University] is a very research-oriented institution so the hiring priorities often focus on people with large research agendas and QI has not yet amassed that kind of profile. (Respondent 15)

> Even though it says, for example, in many criteria…that publishing isn't necessary, if you ask the vast majority of Promotion and Tenure Committees, they're not going to promote somebody unless they have papers. (Respondent 14)

Within the academic field, individuals see QI/PS as a new subject area that has the potential of competing with traditional bioscientific research as the dominant form of symbolic capital. As a result, academic physicians that derive power within the academic field through their research productivity view the emergence of QI/PS within the academic field as a potential threat.

> There is a concern from the traditional researchers that we would teach and mandate our residents to learn QI and to practice QI -- say doing a QI project -- that this will steal time away from the research curriculum. (Respondent 3)

Academic leaders, such as department chairs and educational directors, strongly favor these current forms of legitimate capital because they serve to enhance their department's reputation. This therefore tends to further reinforce the existing forms of legitimate capital (e.g., research grants, publications) within the academic field. Academic departments tend not to support or sustain activities that do not align with the academic leadership's existing views of academic legitimacy; this has important implications for the legitimacy of QI/PS in the academic field:

> We got wonderfully passionate people interested in QI but their Deans don't buy in so they don't give them time or they give them one hour or two hours to teach QI and that's not going to be successful…so, it's important to engage the leadership from the very beginning. (Respondent 9)

At the same time, many academic departments have very few individuals that choose to pursue QI/PS academically.

> It's the same five people with the quality improvement thing over and over and over again. (Respondent 14)

> At the moment […] I'm a one-person show. (Respondent 4)

QI/PS therefore may have a lower profile than other academic pursuits. This lack of visibility further reinforces QI/PS's lack of legitimacy and permits the existing forms of good symbolic capital (e.g., bioscientific research) to maintain their position of power within the academic field.

The Health care Delivery Field

This field includes the "clinical practice environments", typically defined as an "academic health center" or "teaching clinic", where academic physicians deliver clinical care and train residents and medical students. Similar to the academic field, our respondents provided suggestions for the elements that conferred good symbolic capital in the health care delivery field. Physician practices aimed at improving the health status of the individual patient dominate as the legitimate form of symbolic capital for academic physicians in the health care delivery field. Individuals regard academic physicians as "good doctors" in the health care delivery field based primarily on their dedication to individual patient care rather than making improvements to the care delivery system at large:

> All you learn about is how to deal with the patient in front of you…nobody ever talks about or very rarely talks about [a physician's] obligation to the system…if you could just get it through people's heads that you don't just treat the patient in front of you, you also treat the system…it could be a valued aspect of what it is to be a physician and what it is to be an academic physician. (Respondent 14)

Academic physicians tend to emphasize individual patient care over quality improvement of the larger health care delivery system. The approach taken to teach QI/PS concepts to residents further reinforces this emphasis. Many training programs continue to favor the bioscientific model and clinical training, and emphasize this curricular content over teaching systems and improvement concepts. Further to this is the fact that training programs often teach

QI/PS as an add-on subject, which sends a clear message of QI/PS's lesser importance relative to other clinical topics and further de-legitimizes QI/PS in the health care delivery field.

> When you single it out as a project and get it over with or do it as a specific set of things that you're going to accomplish in a short period of time, you don't send the same message as if you embed it in the work as something you're doing all the time. (Respondent 13)

Economic capital is the other active form of capital in the health care delivery field, both at the level of the individual academic physician as well as the institution as a whole, and the perception that engaging in QI/PS might negatively affect the financial bottom line:

> The person who's interested in finance is not necessarily interested in giving up clinical practice time for [QI] because they're worried about the loss of revenue. (Respondent 13)

> I was taking time away from clinic visits to deal with it as quality, and because we're always in the red, administration didn't like giving up productivity. (Respondent 8)

Interestingly, academic health centers reward and recognize contributions made to advance the strategic institutional priorities from a care delivery perspective, which academic physicians might theoretically seek as another form of good symbolic capital within the health care delivery field. However, few respondents identified this as an active form of symbolic capital for academic physicians in the health care delivery field. As the next section describe, the nature of the academic physician habitus may explain this finding.

The academic physician habitus as it relates to QI/PS

Many of the respondents spoke candidly about the academic physician habitus, using phrases such as "professional identity" or "what it is to be a physician". While the scope of this study does not encompass an in-depth analysis of all aspects of the academic physician habitus, respondents clearly felt that it did not include an appreciation for QI/PS. Our respondents identified three different ways in which

academic physicians responded to QI/PS. Some were seen as being openly hostile and resistant to QI/PS. Other respondents saw many academic physicians as being neutral about QI/PS but as valuing other priorities more highly, while other academic physicians were seen as amenable to QI/PS but as yet untrained in its practice and teaching.

In Bourdieuvian terms, the specificity of the fields in which academic physicians work and the active forms of capital within these fields shape the academic physician habitus and its overall lack of appreciation for QI/PS. In addition, although academic physicians work in two inter-related fields (i.e., the academic and the health care delivery fields), these fields do not appear to influence their habitus as it relates to QI/PS to the same extent. It seemed to our respondents that the academic physician habitus tends to favor acquiring good symbolic capital in the academic field over good symbolic capital in the health care delivery field:

> I think by and large the academic establishment...see research funding, [and] as you well know, academic promotion... as their primary driver of what they do. (Respondent 12)

As such, even if there were potential opportunities for something in the health care delivery field to confer good symbolic capital (e.g., recognition for working on clinical institutional priorities), academic physicians are less likely to pursue these because they are too busy carrying out activities that allow them to advance themselves within the academic field.

Changing the Habitus by Changing Fields: Legitimating Strategies for Quality Improvement and Patient Safety

> What I learned…was just that there's two jobs that each of us have as physicians, the job to deliver good care, and to improve the care we deliver. (Respondent 11)

Our respondents talked a lot about the role of faculty development in changing physician knowledge of, and attitudes towards, QI/PS. However, none of them had yet found success with that as their sole approach. Education has long been identified as a way of modifying the habitus[21], and so educating faculty would reasonably function in this way for individual clinicians to some degree. However, in keeping with Bourdieu's theories, increasing the legitimacy of QI/PS in both of the fields in which they function would most effectively bring about changes to the academic physician habitus that would encourage the uptake of QI/PS. Such re-defining of the academic physician habitus relies heavily on the leaders of the academic and health care delivery fields, who possess the necessary prestige and power to motivate these changes:

> And one of the reasons [the QI curriculum] is not taken away from us or that the time isn't reduced is because it's clear to our leadership and to our program, this training in quality improvement is just as important as the training they're getting in seeing patients, hand in hand. (Respondent 6)

Our respondents provided a number of concrete suggestions, framed within Bourdieu's concept of symbolic capital, for how they legitimized QI/PS in their own contexts (Table 2). There are two potential sets of legitimating strategies. The first set focuses on strategies that demonstrate how QI/PS can increase what players consider to be good symbolic capital, thus improving an academic physician's position within the academic and health care delivery fields.

- Examples within the academic field include publishing QI/PS initiatives to highlight the fact that QI/PS can contribute to improved research productivity in the traditional sense. Other strategies, such as creating research awards for QI/PS, or providing funding to academic physicians to protect their time to spend pursuing scholarly QI/PS work, would improve an academic physician's reputation by allowing them to claim that they received an award or academic salary support for their QI/PS work.

Other respondents also recommended, whenever possible, to recognize and promote academic successes in QI/PS. These could include making others aware of the scholarly output resulting from QI/PS work, or public acknowledgment of important QI/PS accomplishments.

- Examples within the health care delivery field include making explicit the link between effective QI/PS initiatives and local improvements in patient outcomes to underscores the value of QI/PS. Other incentives to encourage participation in QI/PS include remunerating physicians for time spent leading QI/PS initiatives, and recognizing and rewarding physician participation in QI/PS initiatives. Strategies could also focus on the health care delivery field at large, and increasing the legitimacy of QI/PS within the clinical organization. One suggested approach from our respondents is to highlight the economic value of QI/PS to the clinical organization.

The second set of legitimating strategies center around changing the definition of good symbolic capital within the academic and health care delivery fields to include QI/PS.

- Within the academic field, our respondents felt it was critical to elevate QI/PS to make it equivalent to bioscientific research. In some departments, chairs promoted academic physicians on the basis of their work in QI/PS as a way to raise the profile of QI/PS.
- Within the health care delivery field, many of our respondents focused on encouraging academic physicians to value their responsibility to improving the system that cares for patients. Participants felt that creating awareness around successful examples of physician engagement in QI/PS helped in this regard. Others

recommended investing in a core of academic physicians that can lead QI/PS initiatives and promote QI/PS by encouraging others to participate in improvement activities. These individuals, along with senior clinicians, must role-model QI/PS in everyday conversation and work, so that others see it in the field as “business as usual".

Discussion

In order for residency programs to sustain their QI/PS curricular efforts, the academic physician habitus needs to change, such that academic physicians see QI/PS as core to their identity. This should extend to both in his or her scholarly work in the academic field, as well as his or her clinical work in the health care delivery field. This requires an antecedent shift in these fields, including necessarily in the legitimate forms of capital in these fields. This understanding, derived from Bourdieu’s theoretical framework, enables us to highlight particular issues and illuminate important challenges and opportunities to consider for the implementation and sustainability of QI/PS curricula in residency training. Although not versed in Bourdieu’s theories, our respondents nonetheless clearly articulated some strategies that have worked to legitimize QI/PS in their own educational contexts. Examining and expanding on these strategies using a sociological perspective like Bourdieu’s can uncover other potential approaches to accomplishing the goal of legitimizng QI/PS that might not be immediately evident to educators in their daily work.

Table 3 lists examples of strategies that our participants did not mention, but that derive both from our theoretical understanding and from what is known about how these fields function.

This is not intended to be an exhaustive list, but rather a demonstration of how one could apply Bourdieu's theories when strategizing to increase the legitimacy of QI/PS.

The use of this approach, in conjunction with the suggestions gleaned from our participants (as presented in Table 2), guides thinking regarding the range of possible strategies that training programs could attempt within the limits of their particular contexts and resources.

Recent examples in the literature highlight initiatives or efforts that, viewed through our theoretical lens, contribute to legitimizing QI/PS. Perhaps the most notable are the emergence of journals dedicated to publishing QI/PS research and the development of the SQUIRE guidelines for publishing a QI/PS manuscript[35], which promote QI/PS as a legitimate form of research. From an educational standpoint, some training programs now have QI leadership positions such as the resident quality and patient safety officer[36] or chief residents in quality and patient safety[37], and even offer financial incentives to residents to engage in QI initiatives.[38] These latter examples provide concrete examples of how programs promoted QI/PS through actions that, from our perspective, serve to legitimize it in the academic and/or health care delivery fields.

Although our findings derive from a case study of QI/PS and focus on the legitimation of this subject area in particular, members of other groups trying to legitimize other areas and their own work within the medical academic and/or health care delivery fields will likely find our results useful. While more empirical work is necessary to map out in detail the range of other fields in which members of other groups may function, medical education researchers and qualitative health researchers could benefit from consciously understanding the configurations of those fields in order to work to change the forms of capital valued therein to their advantage. This form of transferability, based in regularities of phenomena and processes, is a useful outcome of research using social theories like Bourdieu's.

Our study has several limitations. From a methodological perspective, we have only collected interview data, which we did not triangulate with observational data or policy documents. Consequently, our findings represent the perspectives of our participants on what their specific contexts hold to be legitimate. We only included educators from residency training programs; it is likely that the undergraduate and continuing medical education contexts are quite different, although we would expect our theoretical framework to still hold. Finally, sociological theories are intended for the study of social groups rather than of individuals. Therefore our findings, while transferrable through the use of *theoretical generalizability*, will not apply to every individual in all circumstances. The strategies we have outlined still require consideration within the individual contexts of specific programs; the degree to which they resonate with programs' particular circumstances will dictate their usefulness.

Conclusion

Our case study of QI/PS curriculum implementation suggests that incorporating and sustaining an educational QI/PS program in the medical curriculum of residency training programs requires a concerted effort aimed at increasing the legitimacy of QI/PS in both the academic and health care delivery fields. Situating our findings in Bourdieu's theoretical framework allows us to articulate an approach to developing concrete strategies that can legitimize QI/PS in these two fields. Such strategies can promote sustainable implementation of QI/PS content into the core curriculum of residency training programs in order to transform future generations of physicians.

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TABLE 1: Definitions of Key Interrelated Bourdieuvian Concepts

Field	The arena in which the capital that relates to a specific area (e.g. physics, medieval history, popular music, architecture) is produced, circulated, and acquired. Every field has its own legitimate forms of capital.
Capital	The resources that circulate within a field. These can take different forms (e.g. economic capital, social capital, cultural capital), also known as "species", and are field-specific. By definition, whatever form of capital gives a member of a field prestige within that particular field can be referred to as that field's form of "symbolic capital".
Habitus	An individual's predispositions that are shaped by the power relations in the field in which s/he functions (and the legitimate species of capital within that field) and which, in turn, shapes that field.

TABLE 2: Respondent Recommendations for Legitimation Strategies for Quality Improvement and Patient Safety in the Academic and Healthcare Delivery Fields

Legitimation Strategies that Demonstrate how QI/PS Increase Existing Forms of Good Symbolic Capital	
Academic Field	**Healthcare Delivery Field**
Encourage publication of QI/PS initiatives to improve research productivity And if we can somehow get people to report their quality projects and get credit for them. In the academic environment people do want to produce. (Respondent 1)	Make explicit the link between successful QI/PS initiatives and local improvements in patient outcomes So we had to make it clear that this was actually going to improve their care of patients and be part and parcel of their daily work. And one way to change your attitude is to do something and see a pretty quick effect. And say oh, that worked. […] They are within the system and helping to make the system work. (Respondent 12)
Fund academic physicians to protect their time to pursue scholarly QI/PS activities I got the department to fund one position that's been shared	Remunerate physicians for time spent leading QI/PS initiatives For many [hospitalists], their bonuses are…centered around quality improvement (Respondent 14)

<table>
<tr><td>by all of them. (Respondent 6)</td><td></td></tr>
<tr><td rowspan="2">Recognize and promote academic successes in QI/PS

There have been rewards from a faculty level, from a resident level, and again disseminating that from year to year has been very key. (Respondent 2)</td><td>Recognize and reward physician participation in QI/PS initiatives

You could also have a kind of a recognition award for faculty that participate in improving care. It doesn't have to be a lot, because people will do things for almost no financial, but for recognition. (Respondent 13)</td></tr>
<tr><td>Highlight the economic value of QI/PS to the clinical organization (i.e., the academic health center)

I think demonstrating that our [QI] program is making an impact on the cost of care…If we can justify that some of the efforts that have come through this quality program, for example, in reducing length of stay of patients and improving efficiency to attract more patients to our hospital program, will hopefully prove that we're worth the investment. (Respondent 10)</td></tr>
<tr><td colspan="2">Legitimation Strategies that Change the Definition of Good Symbolic Capital to Include QI/PS</td></tr>
</table>

Academic Field	**Healthcare Delivery Field**
Elevate QI/PS to make it equivalent to biomedical research and medical education So identifying those little things can make a big difference. Like a QI Award every year or a QI poster segment at the Research Conference so that QI is valuable just like clinical research or just like a randomized control trial. (Respondent 14)	Invest in developing a core of academic physicians who actively engage others in participating in QI/PS activities We need to have a core faculty. Because we felt like it shouldn't fall to like four people and they become kind of the talking head of quality. We really started to integrate and infiltrate, if you will, kind of the clinical services as well. (Respondent 6)
Allow for academic career advancement on the basis of QI/PS There were […] six or seven criteria on which [the faculty] were given a ranking. Part of it was their participation in QI. So, to promote them or to give them a ranking in their clinical [role] to give to my Chair, there was a component that reflected how much they participated in the quality improvement work. (Respondent 13)	Encourage senior clinicians to role-model QI/PS in everyday conversation and work But it's not like that the other faculty can just be patient bystanders [...] They have to have some understanding in these new delivery models and the application of quality improvement science and principles, otherwise they can actually derail all the efforts... You know if the other Faculty are not on board, they can undermine a lot of the explicit work through their implicit actions. (Respondent 8)

	Create awareness around successful physician engagement in QI/PS So part of what we want to do…is just invite in a couple "success stories". So we have a couple of groups who are academic family health teams that will just present how they went about it and, you know, share stories. I think the storytelling aspect of people who are ahead of the game will be important to get other people buying in. (Respondent 1)

TABLE 3: Possible Applications of Bourdieu's Theory to Legitimate Quality Improvement and Patient Safety

Theoretical Strategy	**A Practical Example**
Redefine legitimate forms of capital within the academic field	Create a common vision in academic departments for QI/PS, by articulating specific goals related to advancing QI/PS in the departmental strategic plan
Give new people power to define legitimate symbolic capital within the academic field	Establish academic leadership positions in QI/PS
Change forms of capital that are necessary within the healthcare delivery field	Align clinical job descriptions and physician maintenance of certification requirements to include active participation in QI/PS endeavours
Redistribute economic capital within the healthcare delivery field	Institute a payment mechanism funded by the hospital to rewards physicians for QI/PS deliverables

APPENDIX TABLE: Example questions and prompts taken from interview guides used for semi-structured interviews

What factors do you think helped your curriculum succeed? What factors do you think made it harder for your curriculum to succeed?
What helped to make your curriculum sustainable? Or, what prevented it from being sustainable? Or if it ended, why did it end?
If you were advising someone who is interested in implementing a quality improvement and/or patient safety curriculum, which factors do you think are the most critical to address during the planning and implementation stages?