



# **Canadian Health Services and Policy Research Alliance:**

**Report from the Working Group on Training**

**December 7, 2015**

***Final***



## Table of Contents

List of Tables .....	3
List of Figures .....	3
<b>1. Introduction and Background</b> .....	4
<b>2. Methodology</b> .....	5
<b>3. Key Challenges for HSPR PhD Graduates</b> .....	6
3.1 Traditional HSPR Training Programs Prepare Students Only for Academic Careers .....	6
3.2 Limited Awareness of Non-Academic Roles and Career Paths .....	7
3.3 Lack of Tracking Infrastructure .....	7
3.4 Limited Relationships with Employers and Networking Opportunities .....	8
3.5 Declining Traditional Academic Positions .....	8
<b>4. Sectors, Roles, Attributes and Competencies</b> .....	9
4.1 Roles for HSPR Graduates Within and Across Sectors .....	9
4.2 Additional Recommended Attributes and Competencies .....	13
<b>5. Future Directions and Recommendations</b> .....	14
5.1 Core Principles .....	14
5.2 Overview of Strategic Directions .....	14
5.3 Directions and Recommendations .....	15
<b>6. Conclusion</b> .....	18
<b>7. Appendix</b> .....	19
7.1 Appendix A: Working Group on Training Members .....	19
7.2 Appendix B: Bibliography .....	20
<b>8. Endnotes</b> .....	24



## List of Tables

Table 1: Sectors.....	9
Table 2: Primary Roles.....	9
Table 3: Recommended Attributes/ Competencies .....	13

## List of Figures

Figure 1: Methodology Workflow.....	5
Figure 2: Hypothetical Career Paths .....	10
Figure 3: Overview of Strategic Directions .....	15



## 1. Introduction and Background

In March 2015, the first-ever pan-Canadian report on vision and strategy for health services and policy research (HSPR) was released as a collaborative initiative among the Canadian Institute for Health Research Institute of Health Services and Policy Research (CIHR-IHSPR), provincial health research funding organizations, and many of Canada's health charities. This document sets the stage for a number of joint initiatives to position Canada as a global leader in HSPR that helps optimize health and health system outcomes. One of the key outcomes of the Vision and Strategy has been the establishment of an Alliance for HSPR in which funders, researchers, health system organizations and other stakeholders can collaborate on specific initiatives where shared goals exist. One of three goals for the Alliance is the development of a set of recommendations to modernize the training and education of health services and policy researchers, especially at the doctoral level.

Despite recent growth in the number of PhDs in Canada, Canada still lags the world in the proportion of the population with a PhD;<sup>1</sup> however, Canadian doctoral graduates in HSPR are currently facing a number of challenges. These include:

- Decline in the number of traditional academic positions
- Training programs that are not optimized for positions outside of academia or for hybrid career patterns
- Lack of networking, internship and mentoring opportunities;
- Widespread lack of awareness among students, teachers and program managers of the full range of employment possibilities, especially in the non-academic sector.

These issues need to be addressed in order to merge the unique skills of HSPR doctoral graduates with the evolving contours of the market and to ensure that HSPR graduates are able to contribute to their full potential to our health system.

To address these challenges, the Canadian Health Services and Policy Research Alliance (CHSPRA) Working Group on Training was established with representatives from universities, funding organisations, and health charities. Its mission is to enhance training and education of health services and policy researchers to ensure a broader vision of their career options and to increase their potential contribution to improving health system performance. A full list of the Working Group's members can be found in Appendix A. The group spent four months defining and describing the additional skills and competencies required to support the full range of possible roles and career paths. Moreover, the group developed a set of primary roles that could be used to describe these career paths and identified a set of future directions and next steps to advance a proposed modernization agenda.

This report summarizes the efforts undertaken by the Working Group to modernize the way HSPR doctoral students are currently trained and employed. It is worth noting that the recommendations contained in this report are also relevant to research-based master's degrees.

“Health policy and services research in Canada is leading internationally on so many fronts and needs to continue to demonstrate that leadership in the training and development domain by broadening our skills and approach”

~ Consultation Informant  
(University)



## 2. Methodology

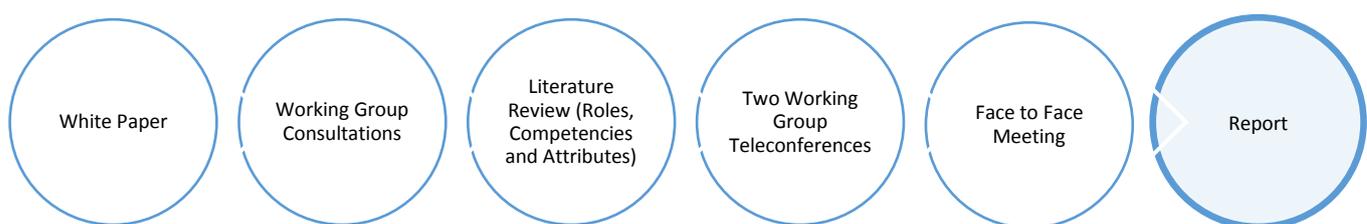
This paper represents the culmination of close to a year of work. Prior to the formation of the Working Group on Training, a White Paper<sup>2</sup> was produced describing the development of HSPR capacity in Canada over the recent period, the current state of affairs, and the key challenges that doctoral graduates currently face. It was based on a comprehensive review and synthesis of the literature related to the development of PhD training capacity in health services and policy research in Canada and internationally as well as literature on the development of doctoral-level training in general. In addition, a series of stakeholder consultations was undertaken with representatives of the training and student communities as well as with public and private employer groups. This White Paper was developed as the starting point for the Working Group on Training and was endorsed as such by the inaugural meeting of the Canadian Health Services and Policy Research Alliance in May 2015.

In further preparation for the Working Group's activities, each member was consulted, and a secondary literature review was carried out in order to develop recommendations for enhanced competencies for HSPR doctoral graduates and to describe the primary roles these graduates can occupy. Much of the data related to employment of HSPR PhDs came from Ontario as only Ontario-based organizations collect this information but the patterns seem, based on the information collected from the consultations, to be broadly representative of Canada.

Following this preparatory work, the full Working Group met twice via teleconference to develop a working set of competencies, roles and directions and once face-to-face to refine and finalize the direction.

This report reflects the final outputs of the Working Group and provides a set of recommendations for next steps.

Figure 1: Methodology Workflow





### 3. Key Challenges for HSPR PhD Graduates

Never before has the value proposition for doctoral-level health services and policy research been clearer. Governments and health system organizations need answers to complex questions related to the development of policy and the design and delivery of services. These answers need to be based on a comprehensive grasp and a sophisticated interpretation of the available evidence. Our understanding of the potential contribution of well-prepared PhDs to effectively inform health policy and health system change was a key driver for this work.

The following outlines what the Working Group found to be the key challenges confronting the training and education of health services and policy researchers at the doctoral level and the rationale for the requirement to modernize doctoral-level training.

#### 3.1 Traditional HSPR Training Programs Prepare Students Only for Academic Careers

Non-academic organisations may prefer individuals with a professional master’s degree over those with a doctorate for a variety of reasons including their age and a more appropriate skill set. An additional challenge for PhD graduates working in managerial positions is so-called “analysis paralysis”. Although thoroughness and careful analysis are regarded as key competencies within the academic community, they can be a hindrance in the non-academic workplace, where quick outputs and decisions are often required. At the same time, the utility of a PhD in HSPR does not seem overwhelming. In fact, 27% of the graduates from the class of 2005 in Ontario claimed that they would not need a doctoral degree for their current position<sup>3</sup>

“We need to target knowledge to what will be required from students.”

~ Working Group Member (Funder)

The changing expectations of the non-academic labour market and the way in which people increasingly tend, or would like, to combine academic and non-academic jobs suggest that there is an urgent need to rethink the way PhD graduates are being trained. Universities have the responsibility to equip future HSPR graduates with skills and knowledge that will allow them to have successful careers and to contribute to the goals of both the public and the private sectors.

Nonetheless, although Canadian doctoral programs differ, training in all of them is largely focused on the development of a series of core competencies, or attributes, that have been designed to benefit the doctoral student in an academic career. The educational curriculum for PhD graduates in HSPR concentrates on deepening knowledge of the Canadian health system, research methods, evaluative sciences, health policy, health economics and health services management. These competencies are appropriate for an academic career but may not be sufficient – on their own – to the needs of the jobs available in the non-academic market or to careers that span both the academic and the non-academic markets. To achieve success in a non-academic environment, students also need to develop skills and competencies in program and

“We need to carefully consider if we are building the supply and capacity that fits the market need or the labour market reality”

~ Consultation Informant (Employer)



project management, writing short policy briefs, making public presentations, communications activities, leadership, networking, and teamwork. Additionally, while there has been a large increase in the number of HSPR graduates, several informants point to a shortage of graduates with skills in health economics and policy evaluation.

The recently developed framework of key attributes of master's level graduates in HSPR by Morgan et al. (2010) identified attributes such as clear communication, critical thinking, problem solving and interdisciplinary work. Many of these are similar to the additional competencies required by doctoral students. By including the preferences of students, alumni and employers in the development of this framework, the authors were able to get a comprehensive picture of what is expected from these students by the non-academic marketplace<sup>4</sup>. The employers who were consulted placed special emphasis on responsiveness and clear communication. The desire for research that focuses on current issues in the non-academic market (e.g., the use of big data) was also mentioned. The feedback that our Working Group received from employers indicates that these competencies are also seen as lacking in doctoral students as are a number of other attributes and competencies. While such perceptions among employers could be the result of individual bad experiences or inappropriate expectations, it is likely that they point to a general problem. The Working Group believes that it is necessary to align HSPR research training with the needs of a range of non-academic employers while also working to help these employers gain a better understanding of the kinds of important contributions that HSPR master's and doctoral graduates can make to their organizations. In addition, there is a growing need for analytic and evaluative skills to help healthcare organizations become "learning systems" and as value-based funding models become more prominent. .

### 3.2 Limited Awareness of Non-Academic Roles and Career Paths

A wide variety of non-academic career paths exist for HSPR PhD graduates. However, they are not well known or well regarded by students or their professors and/or academic advisers. Neither the universities nor potential employers seem to promote these opportunities very effectively. Consultations with graduate students confirm that there is a lack of clarity as to how university programs will prepare students for all career possibilities. At present, students and academic advisers tend to treat non-academic career paths as second-best outcomes.

### 3.3 Lack of Trainee Tracking Infrastructure

Although we know that the output of HSPR graduates has increased, we know very little about the actual paths these individuals have taken after graduation.

Most Canadian HSPR training programs currently have no tracking system in place to follow the career paths of their graduates. According to a recent study, out of 15 Canadian university programs providing HSPR training, 13 did not track where students went after the completion of their degree.<sup>5</sup> These results are supported by a survey, undertaken as part of the development of the Alliance, which confirmed that most Canadian HSPR PhD training programs do not have a formal tracking mechanism in place. This is a global challenge as was illustrated by a recent survey by the Alliance for Health Policy and Systems Research involving 169 organizations worldwide illustrated. Only 40% of the respondents tracked their students after

"We need to know where students go and where they are contributing."

~ Working Group Member (Funder)



graduation and the quality of the systems in place varied widely<sup>6</sup>. It is imperative to track where graduates start their careers and how they proceed subsequently not only for program evaluation but also to help professors and program managers offer students insights into possible career paths.

### 3.4 Limited Relationships with Employers and Networking Opportunities

While it is of great importance to train HSPR students in applied research skills and to allow them to develop all the competencies they need to succeed in academic and non-academic positions, it is also essential to provide them opportunities to gain real world experience and interact with potential employers in both the public and the private sector.

Programs like the four regional training centres in applied health services and the one national training centre were set up to pursue a common mission of growing the HSPR community at the master's and doctoral levels and to increase access to and use of research evidence in the decision-making world<sup>7</sup>. Each training centre was created as to include at least two institutions. Trainees were required to fulfill some basic requirements that included knowledge transfer courses and structured engagement with decision makers<sup>7</sup>. This mandatory linkage between researchers and decision makers made the program valuable to both parties. It presented an opportunity for research trainees to explore the labour market and establish valuable connections and for decision makers to experience the value of research-trained employees first hand<sup>7</sup>.

Now that the majority of these training centres no longer exist, we need to develop other ways for continuing these efforts in facilitating improved understanding between universities and employers and to increase the ability of people to move between the academy and non-academic jobs.

### 3.5 Declining Traditional Academic Positions

The traditional academic employment situation for doctoral graduates in all disciplines has deteriorated over the last few decades. From 1981 to 2007, the proportion of full-time tenure and tenure-track positions in the faculty complements of Canadian universities declined by 10%. The prospects for young academics are even worse: in 2006/2007, only 12% of new full-time tenure-track positions were secured by individuals under the age of 35<sup>3</sup>. Despite this, the enrolment in Ontario in all doctoral programs nearly doubled between 1999 and 2009<sup>8</sup>. Additionally, the majority of doctoral students from the class of 2005 reported that they were planning to pursue an academic career<sup>3</sup>. A recent Conference Board of Canada report indicates that the main career trajectory of PhDs is no longer academia (though almost 80% of trainees state that a career in academia is their primary objective). Only 18.6% of graduate trainees end up in tenure-track positions.<sup>9</sup> This challenge is not unique to Canada. The US faces similar issues, with tenure-track positions for biomedical PhDs falling from 34% to 26% of faculty complements between 1993 and 2012, while training programs remained focused on traditional academic careers<sup>10</sup>.



## 4. Sectors, Roles, Attributes and Competencies

Increasingly, there is a need for HSPR graduates to play an intermediary role between academia and the broader health sector, regardless of whether he or she is placed in academia, the health sector or with a “foot in both camps”. The traditional doctoral training, combined with new additional competencies, funding and engagement supports has the potential to enable this new and emerging role. The types of roles, attributes and competencies are outlined in this section.

### 4.1 Roles for HSPR Graduates Within and Across Sectors

In order to lay out possible career paths for HSPR doctoral graduates more clearly, the Working Group on Training defined sectors and roles in which graduates can contribute to the improved performance of Canada’s health systems. A career path can involve remaining within one role and/or one sector, moving among roles and/or sectors over time, or even occupying different roles and sectors simultaneously. See tables 1 and 2 for more detailed descriptions of sectors and roles. Sample career paths that reflect the combination of sectors and roles can be seen in Figure 2.

Table 1: Sectors

Sectors	Description
Academic	Includes universities and hospital research institutes
Government	Includes ministries, agencies, boards, and commissions
Not for Profit	Includes NGOs, health charities and providers/hospitals
Independent Research Organizations	Includes organizations like the Conference Board of Canada and the Institute for Clinical Evaluative Sciences (ICES)
For Profit	Includes consulting, biotech, pharmaceuticals, and providers
International Agencies/Organizations	Includes international agencies and organisations based in and outside Canada

Table 2: Primary Roles

Primary Roles	Description
Type 1: Research	Conducting applied research in various environments.
Type 2: Teaching and Mentorship	Mentorship and teaching activities in a formal and informal way. These activities are focused on colleagues, patients, policy makers and others.
Type 3: Management of Research Activities	Planning, organizing or managing research activities.
Type 4: Management of Research Funding Programs	Management or leadership of research funding programs.
Type 5: Management of Health-Related Organization or Administration	Working as a manager or leader in an organization without a primary research role, including in the for-profit, not-for-profit, and government sectors.
Type 6: Development and Evaluation of Policies and Programs	Working inside an organization in a primary research role focused on policies and program development and evaluation.
Type 7: Management of Knowledge Translation and Brokering	Working in policy with a direct knowledge translation role translating research into policy. Includes capacity development around research and evidence use within organizations.
Type 8: Clinician Researcher	Practicing health care providers who are also conducting research.



Figure 2: Hypothetical Career Paths

The following matrices present a combination of roles and sectors illustrating possible career paths for HSPR doctoral graduates.

Hypothetical Career Path 1

SECTOR→	Academic		Government		Not For Profit			Independ. Research Organization	For Profit			International Agencies/Organizations	
	University	Hospital Research Institute	Department/ Ministry	Agency/ Board/ Commission/ Centre	Associon/ NGO	Health Charity	Provider/ Hospital	Res	Industry	Consulting	Provider	Based in Canada	Based outside Canada
TYPE 1: RESEARCH													
TYPE 2: TEACHING AND MENTORSHIP													
TYPE 3: MANAGEMENT OF RESEARCH ACTIVITIES													
TYPE 4: MANAGEMENT OF RESEARCH FUNDING PROGRAMS													
TYPE 5: MANAGEMENT OF HEALTH RELATED ORGANIZATION OR ADMINISTRATION													
TYPE 6: DEVELOPMENT AND EVALUATION OF POLICIES AND PROGRAMS													
TYPE 7: MANAGEMENT OF KT													
TYPE 8: CLINICIAN RESEARCHER													



## Hypothetical Career Path 2

SECTOR→	Academic		Government		Not For Profit			Independ. Research Organization	For Profit			International Agencies/Organizations	
	University	Hospital Research Institute	Department/ Ministry	Agency/ Board/ Commission/ Centre	Association/ NGO	Health Charity	Provider/ Hospital		Industry	Consulting	Provider	Based in Canada	Based outside Canada
TYPE 1: RESEARCH						1. Researcher in Health Charity							
TYPE 2: TEACHING AND MENTORSHIP													
TYPE 3: MANAGEMENT OF RESEARCH ACTIVITIES				2. Management of Research in a Provincial Agency									
TYPE 4: MANAGEMENT OF RESEARCH FUNDING PROGRAMS						3. Senior Position in a Health Charity					4. Director of Canadian Research Agency		
TYPE 5: MANAGEMENT OF HEALTH RELATED ORGANIZATION OR ADMINISTRATION													
TYPE 6: DEVELOPMENT AND EVALUATION OF POLICIES AND PROGRAMS													
TYPE 7: MANAGEMENT OF KT													
TYPE 8: CLINICIAN RESEARCHER													



### Hypothetical Career Path 3

SECTOR→	Academic		Government		Not For Profit			Independ. Research Organization	For Profit			International Agencies/Organizations		
ROLES↓	University	Hospital Research Institute	Department/ Ministry	Agency/ Board/ Commission/ Centre	Association/ NGO	Health Charity	Provider/ Hospital		Industry	Consulting	Provider	Based in Canada	Based outside Canada	
TYPE 1: RESEARCH	1. Researcher in University		→										2. Leader of Hospital Research unit	
TYPE 2: TEACHING AND MENTORSHIP														
TYPE 3: MANAGEMENT OF RESEARCH ACTIVITIES														
TYPE 4: MANAGEMENT OF RESEARCH FUNDING PROGRAMS			3. CEO Large Government Research Agency											
TYPE 5: MANAGEMENT OF HEALTH RELATED ORGANIZATION OR ADMINISTRATION			4a. Board Chair Large Health Agency											
TYPE 6: DEVELOPMENT AND EVALUATION OF POLICIES AND PROGRAMS														
TYPE 7: MANAGEMENT OF KT														
TYPE 8: CLINICIAN RESEARCHER	4b. Researcher in a Hospital Research Institute/ Active Practicing Physician													



These wider sets of roles – developed through consultation with researchers, employers, and health system leaders – also require additional attributes and competencies in graduates so that they can contribute to their fullest potential.

## 4.2 Additional Recommended Attributes and Competencies

During the course of its deliberations, the Working Group reached consensus on eight attributes and competencies that should be included or further emphasized in the training of HSPR doctoral graduates. These competencies are based on a comprehensive literature review and consultations with Working Group members as well as potential employers. These additional skills will allow graduates to work in academic settings but also to move into non-academic careers in the private or public sector. Table 3 provides a detailed description of these new competencies. It should be noted that a number of existing programs already include training for some of these attributes and competencies.

Table 3: Recommended Attributes/ Competencies

Attributes / Competencies	Description
1. Analysis and Evaluation of Health and Health-Related Policies and Programs	The ability to effectively carry out formative and summative evaluation with strong links to organizational improvement and planning. Includes technical skills, contextual awareness, communication skills, analysis skills and research skills.
2. Analysis of Data, Evidence and Critical Thinking	The ability to collect, analyze and use a wide range of data and to reflect critically on and incorporate theory and research evidence iteratively to clarify problems, frame options and identify implementation considerations in both academic and non-academic settings. Includes big data, administrative data and economic data.
3. Interdisciplinary Work	The ability to use effectively and to combine when appropriate methods and insights from multiple academic disciplines (e.g., humanities, social sciences, management, epidemiology, medicine, etc.)
4. Knowledge Translation, Communication and Brokerage	The ability to use multiple methods of communication and to communicate appropriately with different kinds of audiences.
5. Leadership, Mentorship and Collaboration	The ability to lead, organize and support teams from various backgrounds to work together to achieve a specific outcome.
6. Networking	The ability to develop and maintain productive relationships within and outside of academia across the health system.
7. Project Management	The ability to coordinate and organize all stages through to KTE of a project in an academic and non-academic environment.
8. Understanding Health Systems and the Policy Making Process	Excellent knowledge of the Canadian and international health policy system from both academic and real-world perspectives.

The development of these attributes and competencies provides the foundation for the following recommendations on modernizing HSPR training.



## 5. Future Directions and Recommendations

### 5.1 Core Principles

Underlying the future directions recommended by the Working Group are four principles that reflect the pan-Canadian nature of this effort and its connection to the core mandate of the Canadian Health Services and Policy Research Alliance. These should be reflected in any subsequent recommendations for modernizing research-oriented training in HSPR.

**1. Input From the Best Experts Across Sectors and Regions.**

All content and tools for this initiative should be developed by a team of the most highly skilled in the country regardless of location.

**2. Pan-Canadian Sharing**

All content and tools should be shared openly across the country through a variety of channels to maximize impact.

**3. Inclusive Branding**

The work products and the activity associated with this effort should be easily and uniquely identifiable through a common and inclusive brand that allows training programs across the country to participate.

**4. Benefits to All Students**

The process and the products of this initiative should be relevant to all research-based HSPR research graduate students regardless of their background or location.

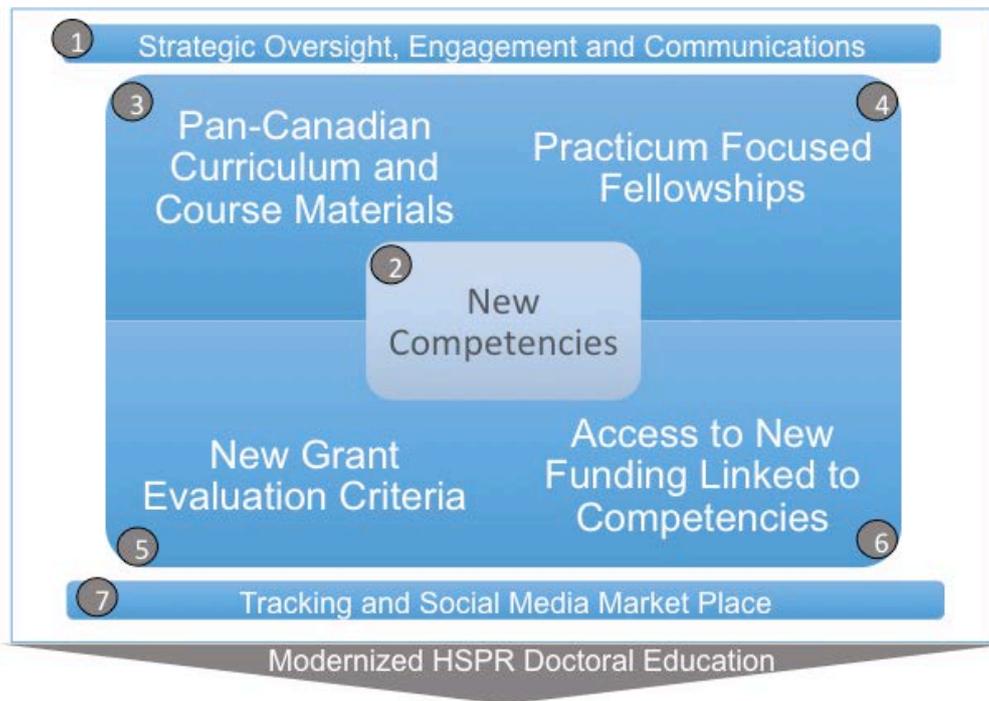
### 5.2 Overview of Strategic Directions

To move forward, the Working Group identified a number of strategic directions. These directions and supporting recommendations – summarized in figure 3 – reflect a comprehensive move to strengthen the culture within the academy that values applied and practical contributions to the health system in a wider variety of roles. However, none of these recommendations or any element of this report should be seen to detract from the importance of rigorous scholarly training for doctoral students nor should it be understood to interfere with the ability of training programs to design curricula that they feel best meet the needs of students.

The implementation of these recommendations should be led by a group that includes members of the Canadian Health Services and Policy Research Alliance, employers, students and recent graduates. These activities can have both a short and a longer-term impact on the modernization of doctoral programs in Canada and the advancement of our CHSPRA Vision to be a global leader in world-class health services and policy research and innovation.



Figure 3: Overview of Strategic Directions



### 5.3 Directions and Recommendations

#### 1. Strategic Oversight, Engagement and Communications

Implementation of the following recommendations requires a continuous oversight and coordinating function that the Alliance is well-positioned to continue to fill. The importance of this function should not be underestimated. As such, it is recommended that the Alliance develop a strategy to continue dialogue on the suggested competencies and the broader training agenda. As part of this activity, it is recommended that the Working Group's outputs be developed as a workshop to be held either before or during the upcoming Canadian Association for Health Services and Policy Research (CAHSPR) conference. A pan-Canadian conference on modernizing HSPR doctoral and research-based master's programs in Canada should also be planned with participants including senior university leaders, health charities, provincial agencies and employers. Lastly this strategy should include a plan to gain support and engagement from senior administrators of universities and health sciences faculties as well from private-sector and public-sector employers. The ongoing oversight for this effort should be performed by the Alliance<sup>1</sup> with support from IHSPR and any other CIHR Institutes that support the recommendations.

<sup>1</sup>The Working Group on Training may be able to provide the oversight role for implementation but it is recommended that the membership of the Working Group be refined to include expertise in curriculum development in the new competency areas as well as increased representation from employers



## **2. Development and Enhancement of New Attributes and Competencies**

The Working Group on Training believes that new competency-based training is necessary to modernize HSPR doctoral education and that training in an expanded set of attributes and competencies better positions students to embark on a wide range of career paths with greater impact. This training must also include a larger integrated practical (experiential) component. In order to profile the work of this group and the work developing the list of attributes and competencies, the Working Group will publish papers on these topics in relevant journals. In the short term, there is an excellent opportunity to develop a paper on this work as part of the upcoming Healthcare Papers special series.

Also as part of the training for new competencies, students should be made aware of the expanded roles and careers that are available to them through the pursuit of doctoral education. It is recommended that universities seek to develop better advice on career opportunities as part of pre-entry information for students and as part of orientation activities at the start of their programs. IHSPR should develop or share best practices for this sort of communication and orientation to support training programs in this activity.

## **3. Pan-Canadian Curriculum and Course Materials**

In order to ensure that HSPR students have a fundamental understanding of the new attributes/competencies, a pan-Canadian curriculum along with supporting lecture and course-related materials should be developed as an online repository with oversight of the development process from a sub-group of the Alliance. In keeping with the principles of this initiative, it is important that the content build on existing strengths across universities and programs. The curriculum should be designed to involve varying durations and teaching modalities (online or blended learning) to meet the requirements of each of attribute and competency. Although courses should be developed through a multi-organizational course development process, oversight from a sub-committee of the Alliance will be important to ensure best practices and innovations from across Canada are identified and integrated. From an implementation perspective this means that course development should not be organized by one training program or institution alone.

In addition to the emphasis on new attributes and competencies, universities should be encouraged to add opportunities for experiential learning or internships as core components of their programs, ideally funded through the fellowships described below. Course delivery in all cases should consider the needs of part-time or flex-time students and ensure that the addition of this training does not overwhelm students.

## **4. Practicum-Focused Fellowships and Employer Engagement**

A key recommendation of the Working Group is the development of new practicum-focused doctoral and post-doctoral fellowships. It is recommended that these fellowships be collaboratively funded by CIHR, employers and the students' host organizations. Multiple smaller (~\$12-15K) grants should be established for both doctoral and postdoctoral students to support practicums with employers focused on the development of the new attributes/competencies and to give students an opportunity to deploy their research learnings in an applied environment. It is essential that employers be directly and continuously engaged in the development of these fellowships and that a program be developed to enhance the ability of employers to work with student interns effectively. These new fellowships could be developed using a model similar to the Mitacs program, where the fellows spend half their time working on university-based research and half their time with employers applying and testing their research-based skills and insights. These fellowships would assume leverage from employers of approximately one third of the total grant amount.



Although the new fellowships represent an important vehicle for employer engagement, other direct engagement of employers should also be considered such as their involvement in career counselling activities both before and during doctoral education. It is important that the breadth of career options is clear to potential and existing students. This type of engagement is proving successful where it has been introduced in a university setting.<sup>11,12</sup>

## **5. New Fellowship Evaluation Criteria**

In order to demonstrate the value of these new competencies, the application process for all doctoral fellowships in HSPR should be modified to include these skills. It is recommended that these new competencies be incorporated into the evaluation of funding across all funding agencies (optional for those in progress; mandatory for some new programs). Such modifications should be considered as part of a collaborative and collective effort across funders for maximum impact. For CIHR and similar funders, it is suggested that the existing section on “skills” be augmented by listing new attributes/competencies and utilizing the existing “training environment” section for students to report on how the university supports development of these competencies. If, in fact, experience with these new competencies is to be evaluated, it will also be important that evaluators are properly equipped to assess these new areas.

## **6. Link Access to New Funding to Competency Training**

In order to help reinforce the new competencies and their importance to the training and education of doctoral level health service and policy researchers, the Working Group recommends that access for students to new funding programs that stress these competencies require their host institutions to be teaching these competencies - either through the pan-Canadian curriculum or through other mechanisms.

## **7. Trainee Tracking**

Our collective inability to know where our students come from and move on to hampers our ability to evaluate and refine new approaches to training HSPR students. It is recommended that the CAHSPR Student Working Group develop an approach to tracking students and graduates in a standardized way (e.g., using software such as LinkedIn) and make the resulting data, pending student consent, available for national evaluation and to training programs participating in the new learning for their own quality assurance, program evaluation and alumni network development uses. Students should be asked to subscribe to the network during the first week of school and participate in a short orientation activity. Another use of such networks is their ability to create a virtual market place for jobs and practicum opportunities that can be used by employers, universities, students and graduates. These networks are essential shared resources and are key to developing communities of practice. A number of efforts are currently underway to develop such networks and these could be leveraged. The potential of social media to close the current measurement and evaluation gap is promising and should be considered as a multi-institutional collaboration. CIHR should also fund a small amount of focused research on how these networks can be better leveraged.



## 6. Conclusion

Doctoral programs in health services and policy research require modernization to meet the needs of the health system. The decline of traditional academic positions and the changing health system have combined to produce a shift in the demand for our HSPR graduates. The opportunity for these trainees to have an impact on the health system has never been greater and it is, therefore, vital to provide our students with at least a foundational understanding of the necessary skills and competencies that will allow them to keep flourishing in academic positions as well as to succeed in a variety of non-academic markets.

To address these challenges, the Working Group on Training of the Canadian Health Services and Policy Research Alliance collaborated to develop a core set of recommended additional competencies and to outline the available roles for HSPR doctoral graduates as well as a set of recommendations crucial to modernize training in HSPR. Swift action on these recommendations will increase the opportunities and impact of our graduates.

Next steps include distribution of this report across the Alliance, reconvening and refining the membership of the Working Group to direct development of a pan-Canadian curriculum and preparation of a strategic communications plan through the Alliance. In parallel, the Working Group can take the lead on developing publications to profile its work and recommendations.

HSPR training is at a crossroads. Modernization of our training programs can help ensure that our graduates start out on a path filled with opportunities for advancement and impact.



## 7. Appendix

### 7.1 Appendix A: Working Group on Training Members

<b>Co-Chairs</b>	<b>Organization</b>
Dr. Stephen Bornstein	Memorial University of Newfoundland – Director for the Centre of Applied Health Research
Dr. Adalsteinn Brown	University of Toronto – Director of the Institute of Health Policy, Management and Evaluation and Dalla Lana Chair in Public Health Policy
<b>Members</b>	<b>Organization</b>
Mr. Rick Blickstead	Canadian Diabetes Association – CEO and President
Ms. Krista Connell	Nova Scotia Health Research Foundation – CEO
Dr. Alysha Croker	Canadian Institutes of Health Research – Sr. Advisor, Science Policy
Dr. Erica di Ruggiero	Institute of Population and Public Health – Deputy Scientific Director
Dr. Agnes Grudniewicz	Bridgepoint Collaboratory for Research and Innovation, Lunenfeld-Tanenbaum Research Institute – Post-Doctoral Fellow, and Health System Performance Research Network, University of Toronto – Trainee
Dr. Jeremiah Hurley	McMaster University – Professor and Chair, Department of Economics
Dr. Lise Lamothe	Université de Montréal – Vice doyenne aux études École de santé publique
Dr. John Lavis	McMaster University – Associate Director, Centre for Health Economics and Policy Analysis (CHEPA)
Dr. Jessica Nadigel	Canadian Institutes of Health Research – IHSPR Assistant Director
Dr. Rick Riopelle	Ontario Neurotrauma Foundation – Immediate Past Chair, Neurology and Neurosurgery, McGill University
Dr. Saskia Sivananthan	Alberta Health Services, Senior Policy Planner Global Consultant, World Health Organization
Dr. Sabrina Wong	University of British Columbia – Director, Centre for Health Services and Policy Research
Dr. Kue Young	University of Alberta – Dean, School of Public Health
Dr. Merrick Zwarenstein	Western University – Director, Centre for Studies in Family Medicine & Director of Research, Department of Family Medicine



## 7.2 Appendix B: Bibliography

- AcademyHealth [Internet]. Washington D.C.: AcademyHealth; c2008-2012. Career center: employment opportunities; [date unknown] [cited 2015 Jul]; [about 11 screens]. Available from:  
<http://www.academyhealth.org/Training/content.cfm?ItemNumber=960&navItemNumber=2021>
- Bilodeau P. Tri-agency statement of principles on key professional skills for researchers [Internet]. [place unknown]: Tri-Council; 2007 Nov [cited 2015 Jul]. Available from:  
<http://www.uoquelfh.ca/tss/id/currdev/Tri-university%20graduate%20attributes.pdf>
- Canadian Foundation for Healthcare Improvement [Internet]. Ottawa (ON): CFHI; c2015. EXTRA; [date unknown] [cited 2015 Jul]; [about 3 screens]. Available from:  
<http://www.cfhi-fcass.ca/WhatWeDo/EducationandTraining/EXTRA.aspx>
- Canadian Institutes of Health Research [Internet]. Ottawa (ON): CIHR; [date unknown]. STIHR funded programs; [date unknown] [modified 2014 Oct; cited 2015 Jul]; [about 8 screens]. Available from: <http://www.cihr-irsc.gc.ca/e/25171.html>
- Canadian Institutes of Health Research [Internet]. Ottawa (ON): CIHR; [date unknown]. About PHSI; [date unknown] [modified 2014 Apr; cited 2015 Jul]; [about 3 screens]. Available from: <http://www.cihr-irsc.gc.ca/e/34348.html>
- Canadian Institutes of Health Research [Internet]. Ottawa (ON): CIHR; [date unknown]. PHIRIC working group activities: population health intervention research competencies; [date unknown] [modified 2013 Aug; cited 2015 Jul]; [about 4 screens]. Available from: <http://www.cihr-irsc.gc.ca/e/47223.html>
- Canadian Institutes of Health Research. Internal assessment for 2011 international review - CIHR Institute of Health Services and Policy Research [Internet]. Ottawa (ON): CIHR; [date unknown] [modified 2011 Aug; cited 2015 Jul]. Available from:  
<http://www.cihr-irsc.gc.ca/e/43578.html#d1>
- Canadian Institutes of Health Research. Strategic Training Initiative in Health Research (STIHR): final evaluation report [Internet]. Ottawa (ON): CIHR; 2008 Aug [cited 2015 Jul]. Available from: <http://www.cihr-irsc.gc.ca/e/37630.html>
- Centre for Health Economics and Policy Analysis. Field of dreams: strengthening health policy scholarship in Canada: symposium summary document. Hamilton (ON): McMaster University; 2008.
- Columbia University Center for Career Education [Internet]. New York (NY): Columbia University; c2015. Non-academic career options for PhDs in the humanities and social sciences; [date unknown] [cited 2015 Jul]; [about 11 screens]. Available from:  
<http://www.careereducation.columbia.edu/resources/tipsheets/non-academic-career-options-phds-and-mas>
- Conrad P. To boldly go: a partnership enterprise to produce applied health and nursing services researchers in Canada. Healthc Policy [Internet]. 2008 May [cited 2015 Jul];3(Special Issue):13-30. Available from:  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2645186/>
- Council of Graduate Schools and Educational Testing Service. The path forward: the future of graduate education in the United States [Internet]. Princeton (NJ): Commission on the Future of Graduate Education in the United States; 2010 [cited 2015 Jul]. Available from: [http://www.fgereport.org/rsc/pdf/CFGE\\_report.pdf](http://www.fgereport.org/rsc/pdf/CFGE_report.pdf)
- Cyranoski D, Gilbert N, Ledford H, Nayar A, Yahia M. The PhD factory. Nature [Internet]. 2011 Apr [cited 2015 Jul];472(7343):276-279. Available from:  
<http://www.ncbi.nlm.nih.gov/pubmed/21512548>
- Desjardins L. Profile and labour market outcomes of doctoral graduates from Ontario universities [Internet]. Ottawa (ON): Statistic Canada; 2012 [cited 2015 Jul]. Available



from:

[http://www.heqco.ca/SiteCollectionDocuments/LabourMarketOutcomesDoctoral\\_ENG.pdf](http://www.heqco.ca/SiteCollectionDocuments/LabourMarketOutcomesDoctoral_ENG.pdf)

- DrPH for the 21st century [Internet]. [place unknown]: Association of Schools and Programs of Public Health; 2014 Nov [cited 2015 Jul]. Available from: [http://www.aspph.org/wp-content/uploads/2014/06/DrPH-Report\\_2014-11-05\\_FINAL.pdf](http://www.aspph.org/wp-content/uploads/2014/06/DrPH-Report_2014-11-05_FINAL.pdf)
- Edge J, Munro D. Inside and outside the academy: valuing and preparing PhDs for careers [Internet]. Ottawa (ON): Conference Board of Canada; 2015 November 24 [cited 2015 Nov]. Available from: <http://www.conferenceboard.ca/e-library/abstract.aspx?did=7564>
- Evaluation of the CFHI/CIHR Capacity for Applied and Developmental Research and Evaluation in Health Services and Nursing (CADRE) program. Ottawa (ON): Canadian Foundation for Healthcare Improvement; 2012 Oct.
- Ferguson SJ, Wang S. Graduating in Canada: profile, labour market outcomes and student debt of the class of 2009-2010 [Internet]. Ottawa (ON): Statistic Canada; 2014 Nov [cited 2015 Jul]. Available from: <http://www.statcan.gc.ca/pub/81-595-m/81-595-m2014101-eng.pdf>
- Forrest CB, Martin DP, Holve E, Millman A. Health services research doctoral competencies. *BMC Health Serv Res* [Internet]. 2009 Jun [cited 2015 Jul];9:107. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19555485>
- Grudniewicz *et al.* Capacity development in health systems and policy research: a survey of the Canadian context. *Health Research Policy and Systems* 2014 12:9.
- Institute for Health Services and Policy Research, ongoing work using CIHR application and peer review data (2003-2014)
- Institute on Governance. Health services and policy research capacity building in Canada [Internet]. Toronto (ON): IOG; 2010 Jul [cited 2015 Jul]. Available from: [http://iog.ca/wp-content/uploads/2012/12/2010\\_July\\_IHSPR-Capacity-Building-Report.pdf](http://iog.ca/wp-content/uploads/2012/12/2010_July_IHSPR-Capacity-Building-Report.pdf)
- Lee N, Khayat Z, Reithmeier R. Lessons learned from a grad course on professional development: transforming graduate education. *University Affairs* [Internet]. 2015 Jan 14 [cited 2015 Nov]. Available from: <http://www.universityaffairs.ca/career-advice/career-advice-article/lessons-learned-grad-course-professional-development/>
- Lee N, Plant P, Khayat Z, Reithmeier R. Training the trainers: the importance of mentorship in graduate education. *University Affairs* [Internet]. 2015 May 14 [cited 2015 Nov]. Available from: <http://www.universityaffairs.ca/career-advice/career-advice-article/training-the-trainers/>
- Maldonado, V., Wiggers, R., & Arnold, C. (2013). *So You Want to Earn a PhD? The Attraction, Realities, and Outcomes of Pursuing a Doctorate*. Toronto: Higher Education Quality Council of Ontario
- Martin DP. Health services research core competencies: final report [Internet]. Rockville (MD): AHRQ; 2008 Oct [cited 2015 Jul]. Available from: <http://archive.ahrq.gov/funding/hsrcomp08/hsrcomp08.html>
- Mitacs [Internet]. [place unknown]: Mitacs; c2015. About Mitacs; [date unknown] [cited 2015 Jul]; [about 2 screens]. Available from: <https://www.mitacs.ca/en/about-mitacs>
- Morgan S, Orr K, Mah C. Graduate attributes for master's programs in health services and policy research: results of a national consultation. *Healthc Policy* [Internet]. 2010 Aug [cited 2015 Jul];6(1):64-86. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21804839>
- Ontario Training Centre [Internet]. Ontario: OTC; c2007-2012. Health services and policy research competencies; [date unknown] [cited 2015 Jul]; [about 2 screens]. Available from: <http://www.otc-hsr.ca/>



- Pittman P, Holve E. The health services researcher of 2020: a summit to assess the field's workforce needs. *Health Serv Res* [Internet]. 2009 Dec [cited 2015 Jul];44(6):2198-2213. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796323/>
- Polziehn R. Skills expected from graduate students in search for employment in academic and non-academic settings [Internet]. Alberta: University of Alberta; 2011 Jan [cited 2015 Jul]. Available from: <http://uofa.ualberta.ca/graduate-studies/-/media/gradstudies/migrated-media/profdev/career/careerskillsexpected.pdf>
- Ricketts TC. Preparing the health services research workforce. *Health Serv Res* [Internet]. 2009 Dec [cited 2015 Jul];44(6):2227–2241. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796325/>
- State of Israel Ministry of Economy [Internet]. Israel: State of Israel Ministry of Economy; c2015. Magnet – support for generic R&D; [date unknown] [cited 2015 Jul]; [about 2 screens]. Available from: <http://www.moital.gov.il/NR/exeres/111E3D45-56E4-4752-BD27-F544B171B19A.htm>
- Tancred T, Schleiff M, Peters DH, Balabanova D. Global mapping of health policy and systems research training [Internet]. [place unknown]: Alliance for Health Policy and Systems Research; 2015 Feb [cited 2015 Mar]. Available from: <http://www.healthsystemsglobal.org/Portals/0/files/Blog%20attachments/Global%20Mapping%20of%20Health%20Policy%20and%20Systems%20Research%20Training.compressed.pdf>
- Terrence Sullivan & Associates. A pan-Canadian vision and strategy for health services and policy research. Phase 1: building the foundation [Internet]. Ottawa (ON): Canadian Institutes of Health Research; 2014 Jan [cited 2015 Jul]. Available from: <http://www.cihr-irsc.gc.ca/e/47946.html>
- The Conference Board of Canada [Internet]. Ottawa (ON): CBoC; c2015. PhD graduates; [date unknown] [cited 2015 Oct]; [about 6 screens]. Available from: <http://www.conferenceboard.ca/hcp/details/education/phd-graduates.aspx>
- The future of interdisciplinary doctoral education at Washington State University [Internet]. Washington: Washington State University; 2008 Feb [cited 2015 Jul]. Available from: <http://svr.gradschool.wsu.edu/Documents/PDF/InterdisciplinaryDoctoralEducationFinal2.pdf>
- The Versatile PhD [Internet]. Studio City (CA): The Versatile PhD; c2010-2015 [cited 2015 Jul]. Available from: <https://versatilephd.com/about/contact/>
- UBC Centre for Health Services and Policy Research [Internet]. Vancouver (BC): CHSPR; [date unknown]. HSPR careers; [date unknown] [cited 2015 Jul]; [about 3 screens]. Available from: <http://www.chspr.ubc.ca/education/hspr-careers>
- University of Edinburgh [Internet]. Edinburgh (UK): University of Edinburgh; c2015. Research in non-academic organisations; 2015 Jun [cited 2015 Jul]; [about 3 screens]. Available from: <http://www.ed.ac.uk/schools-departments/careers/postgrad/phd/options/non-academic-research>
- University of Minnesota [Internet]. Minnesota: University of Minnesota; c2015. School of Public Health; [date unknown] [cited 2015 Jul]; [about 3 screens]. Available from: <http://www.sph.umn.edu/academics/programs/phd/hsrpa/>
- White Paper for the Alliance Working Group, 2015
- *White Paper on the Future of the PhD in the Humanities*. Institute for the Public Life of Arts and Ideas, Mc Gill University. December 2013.
- Working Group of the Advisory Committee to the Director. Biomedical research workforce working group report [Internet]. US: National Institutes of Health; 2012 Jun [cited 2015 Oct]. Available from: [http://acd.od.nih.gov/biomedical\\_research\\_wgreport.pdf](http://acd.od.nih.gov/biomedical_research_wgreport.pdf)





## 8. Endnotes

---

<sup>1</sup> The Conference Board of Canada [Internet]. Ottawa (ON): CBoC; c2015. PhD graduates; [date unknown] [cited 2015 Oct]; [about 6 screens]. Available from: <http://www.conferenceboard.ca/hcp/details/education/phd-graduates.aspx>

<sup>2</sup> White Paper for the Alliance Working Group, 2015

<sup>3</sup> Desjardins L. Profile and labour market outcomes of doctoral graduates from Ontario universities [Internet]. Ottawa (ON): Statistic Canada; 2012 [cited 2015 Mar]. Available from: [http://www.heqco.ca/SiteCollectionDocuments/LabourMarketOutcomesDoctoral\\_ENG.pdf](http://www.heqco.ca/SiteCollectionDocuments/LabourMarketOutcomesDoctoral_ENG.pdf)

<sup>4</sup> Morgan S, Orr K, Mah C. Graduate attributes for master's programs in health services and policy research: results of a national consultation. *Healthc Policy* [Internet]. 2010 Aug [cited 2015 Mar];6(1):64-86. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21804839>

<sup>5</sup> Grudniewicz *et al.* Capacity development in health systems and policy research: a survey of the Canadian context. *Health Research Policy and Systems* 2014 12:9.

<sup>6</sup> Tancred T, Schleiff M, Peters DH, Balabanova D. Global mapping of health policy and systems research training [Internet]. [place unknown]: Alliance for Health Policy and Systems Research; 2015 Feb [cited 2015 Mar]. Available from: <http://www.healthsystemsglobal.org/Portals/0/files/Blog%20attachments/Global%20Mapping%20of%20Health%20Policy%20and%20Systems%20Research%20Training.compressed.pdf>

<sup>7</sup> Conrad P. To boldly go: a partnership enterprise to produce applied health and nursing services researchers in Canada. *Healthc Policy* [Internet]. 2008 May [cited 2015 Mar];3(Special Issue):13-30. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2645186/>

<sup>8</sup> Maldonado, V., Wiggers, R., & Arnold, C. (2013). *So You Want to Earn a PhD? The Attraction, Realities, and Outcomes of Pursuing a Doctorate*. Toronto: Higher Education Quality Council of Ontario

<sup>9</sup> Edge J, Munro D. Inside and outside the academy: valuing and preparing PhDs for careers [Internet]. Ottawa (ON): Conference Board of Canada; 2015 November 24 [cited 2015 Nov]. Available from: <http://www.conferenceboard.ca/e-library/abstract.aspx?did=7564>

<sup>10</sup> Working Group of the Advisory Committee to the Director. Biomedical research workforce working group report [Internet]. US: National Institutes of Health; 2012 Jun [cited 2015 Oct]. Available from: [http://acd.od.nih.gov/biomedical\\_research\\_wgreport.pdf](http://acd.od.nih.gov/biomedical_research_wgreport.pdf)

<sup>11</sup> Lee N, Plant P, Khayat Z, Reithmeier R. Training the trainers: the importance of mentorship in graduate education. *University Affairs* [Internet]. 2015 May 14 [cited 2015 Nov]. Available from: <http://www.universityaffairs.ca/career-advice/career-advice-article/training-the-trainers/>

<sup>12</sup> Lee N, Khayat Z, Reithmeier R. Lessons learned from a grad course on professional development: transforming graduate education. *University Affairs* [Internet]. 2015 Jan 14 [cited 2015 Nov]. Available from: <http://www.universityaffairs.ca/career-advice/career-advice-article/lessons-learned-grad-course-professional-development/>