Chapter 1

Transformative Learning in Health Education for a New Century: Interdependence in the Education of Health Professionals

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Introduction

Health professional education is essential to strengthen health systems. This chapter draws on the findings of the Lancet Commission on the Education of Health Professionals for the twenty-first century, which adopted a global approach to multi-professional education in an increasingly interdependent world. Based on an integrated framework of health and educational systems, instructional and institutional design are examined and recommendations made for improvements. The authors conclude that there are important opportunities for the private sector to contribute through leadership, financing, quality assurance, accreditation, certification, and knowledge development.

At the Cross-Roads

Health is all about people. Beyond the glittering surface of modern technology, the core space of every health system is occupied by the unique

encounter between one set of people who need services and another that has been entrusted by society to deliver them. This trust is earned through a special blend of technical competence and service orientation, steered by ethical commitment and social accountability, which forms the core of professional work. Developing such a blend requires a prolonged period of education and a substantial investment on the part of both students and society. Through a chain of events flowing from effective learning to high-quality services to improved health, professional education at its best is an essential ingredient for the well-being of persons, families, and communities. Yet, the context, content, and conditions of the social effort to train competent, caring, and committed health professionals are changing at an unprecedented pace.

In our complex and interdependent world, professional education is at the cross-roads. In all countries, rich and poor, the education of health professionals is confronting major challenges in meeting the needs of patients and populations.

Difficult to design and slow to implement, educational reforms in richer countries are attempting to develop professional competencies responsive to changing health needs, overcome professional silos through interprofessional education, empowered learning by harnessing information technology (IT), enhance cognitive skills for critical inquiry, and strengthen professional identity and values for health leadership.

Even more challenging are reforms in poorer countries, constrained by severely limited resources (Public Health Foundation of India, 2008; Ke and Sun, 2010; Lu *et al.*, 2010). Many countries are attempting to extend essential services to patients and populations through the deployment of basic health workers, even as most people resort to un-credentialed providers, both traditional and modern (Bhutta *et al.*, 2010). Mobilizing to achieve national and global health goals, many poorer countries are channeling significant but restricted external donor funding toward implementing disease-targeted initiatives. Consequently, in many countries, post-secondary professional education is low on the policy agenda — overtaken by “crash projects” and considered too costly, insufficiently relevant, or too long-term.

Paradoxically, despite glaring disparities, interdependence in health is growing. All countries are challenged by demographic and epidemiologic transitions, rapid technological change, and greater complexity and higher cost of health systems. Global flows across national borders are accelerating — health workers and patients, diseases and health risks, knowledge and financing. Poor and rich countries alike suffer from workforce shortages, skill-mix imbalances, and maldistribution of professionals¹ (Josiah Macy Jr. Foundation, 2008; Chen, 2010; Chen *et al.*, 2004; Amin *et al.*, 2010). In neither richer nor poorer countries is professional education generating sufficient value for money.

These are the reasons the Global Commission on the Education of Health Professionals for the twenty-first century embraced the mission of advancing health, both individual and population-based, through land-scaping instructional and institutional innovations in professional education to prepare the next generation for addressing frontier health challenges of the current century. The commissioners, professional leaders from diverse countries developed a shared approach to post-secondary education beyond the confines of national boundaries. Their report presents the first-ever global study of health professional education (Frenk *et al.*, 2010). It purposefully encompassed multiple health professions — focusing on medicine, nursing-midwifery, and public health while recognizing the importance of dentistry, pharmacy, and other disciplines — and moving beyond silos to expand space for professional collaboration. And the commission adopted an inclusive approach to both the public and private sectors. A new generation of educational reforms for the twenty-first century should be informed by the increasing interdependence that characterizes the health arena — just as reforms a century ago were propelled by the discovery of the germ theory with the emergence of modern medical sciences.

The Vision

Based on research and deliberations, the commission proposed two guiding notions to anchor its vision: (Figure 1.1): transformative learning and interdependence in professional education.

Figure 1.1 Vision for a New Era of Professional Education

Transformative Learning

Transformative learning captures the imperative of generating purposeful change in three directions:

- Transformation through acquisition of information and knowledge in the learning process to develop competent experts.
- Transformation of education in formative learning to develop professional values of responsibility, accountability, and service orientation.
- Transformation of learners as change agents and professional leaders to have an impact on social realities.

Transformative learning can project present and future professionals into a new era of pro-active, patient- and population-centered, competency-based, inter-professional, IT-empowered, and life-long learning. The purpose is to develop competencies effective in local contexts while harnessing global perspectives. The goal is to realize a new professionalism grounded on social accountability for mobilizing evidence and ethical deliberation to solve real-world problems by working with allies and stakeholders.

Interdependence in Professional Education

Interdependence in professional education underscores interactions that harmonize six key linkages:

- Between the local and global spheres of action
- Between the health and education systems
- Between health professionals and their patients and populations
- Across categories of the health workforce, leading to intra-, inter-, and transprofessional collaboration
- Between context and competencies, so that the latter respond to the former
- Between teachers and learners, so that education becomes a pro-active, mutually enriching process.

To realize this vision, the commission proposed instructional and institutional reforms. Curricular reforms should evolve to a competency-driven approach emphasizing local adaptation with global awareness, interprofessional and team-based work, harnessing the power of IT, and developing professional attitudes, values, and behavior. Institutional reforms should include joint planning by education and health authorities, extending learning sites into communities and homes, and development of collaborative networks, consortia, and alliances. Every country, no matter how rich or poor, should increase investments in professional education, and development assistance partners should increase donor financing. It is not enough, however, to increase the level of resources available for health professional education. In addition, financial flows to educational institutions should be reoriented to ensure maximum value for money, creating incentives for improved performance. Accreditation and credentialing systems should be aligned to national health goals, and global learning systems should be built to strengthen the knowledge base for steadily advancing professional education around the world.

Why Now?

Our great grandparents would never have dared to dream that life expectancy of their descendents would double over the course of the

twentieth century. Unprecedented in human history, these advances were knowledge-based and socially driven (Frenk, 2009; Chen and Berlinguer, 2001; Pablos-Mendez *et al.*, 2005). Scientific knowledge not only produces new technologies but also empowers citizens to adopt healthy lifestyles, improve care-seeking strategies, and become proactive citizens conscious of their rights. In addition, knowledge translated into evidence can guide practice as well as health policy and systems improvements. Alongside the centrality of knowledge, health progress is also socially driven through the determining effect that multiple social factors have on health, the social forces that historically shape national health systems, and the power of social movements for health.

Coming on the heels of the discovery of the germ theory that began in Europe in the nineteenth century, the twentieth century witnessed many reform efforts in professional education. In the United States, such reports as by Flexner (1910), Welch and Rose (1915), Goldmark Committee for the Study of Nursing Education (1923), and Gies and Pritchett (1926) transformed post-secondary education to equip physicians, public health workers, nurses, and dentists, respectively, to play key health roles — as brokers of knowledge, providers of care and services, team members, systems leaders, and agents for social change. Parallel developments were instituted in Europe and other regions. Through these roles, health professionals around the world can rightly claim some credit for the spectacular health achievements of the twentieth century (Anand and Barninghausen, 2004).

While much can be applauded, weaknesses in professional education also developed, especially the growing mismatch of competencies to patient and population priorities due to narrowly conceived and outdated static curricula producing ill-equipped graduates from underfinanced institutions (Institute of Medicine, 2002, 2003; Josiah Macy Jr. Foundation, 2008; UK General Medical Council, 2009; Benner *et al.*, 2010; Cooke *et al.*, 2010; AFMC, 2010; The Prime Minister's Commission on the Future of Nursing and Midwifery in England, 2010; Joint Learning Initiative 2004; WHO, 2006; Global Health Workforce Alliance, 2008). While the original reports issued recommendations for developed countries, they were rapidly disseminated to developing nations where their uncritical adoption led to educational programs that were grossly

unresponsive to local requirements. Not uncommonly, all public financing for professional education would be consumed by one or two national medical schools without balance of other professionals and the deployment of basic health workers. Partly as a result, the opening of a new century revealed an unfinished agenda of glaring health gaps affecting left-behind populations, alongside daunting new challenges posed by dynamic demographic, epidemiologic, and health care transitions (Institute of Medicine 2005, 2009; Commission on Social Determinants of Health, 2008).

Yet new opportunities are also emerging. The most important propelling forces are the changing expectations of patients and populations, especially the spreading global norm of health as a fundamental human right. Health has assumed political salience in both the national and global arenas. At the same time, there are new ways of harnessing the power of interdependence and mutual learning across countries that can capitalize on the global flow of information and knowledge while preserving local sensitivities and effectiveness (Frenk, 2009; Crisp, 2010). The digital revolution portends unprecedented transformation in professional education and practice. Not only can instructional and institutional innovations enhance learning across borders but cross-cultural educational experiences can also equip professionals with the tools and sensitivities to become even more effective domestically and internationally in a globalized world.

The Systems Framework

The Commission report adopted a systems approach to bring together the spheres of education and health. Opening the “black box” of the educational system, it considered aspects of both institutional and instructional design. Adopting such a comprehensive perspective was inspired by the original reports of the twentieth century, which sought to answer not only the question of what and how to teach, but also where to teach, in the sense of recommending the type of organization that should carry out the programs of instruction. However, in contrast to the original reports, the Commission report considers institutions not as individual organizations, but as part of an interrelated set of organizations charged with

Figure 1.2 Systems Framework

carrying out the diverse functions of an educational *system*: stewardship and governance (including such critical aspects as certification and accreditation), financing, provision of the educational service itself, and generation of essential resources like faculty and information. In this systemic perspective, institutional structures interact with instructional processes to generate educational outcomes.

Figure 1.2 (systems framework) is a graphic representation of the systems framework. In this figure, professional education is the product of two systems — education and health. The population is the base and the driver of these systems. Indeed, people are not exogenous to the systems. It is, after all, people who generate needs in both education and health, which in turn, may be translated into demand for educational and health services. The provision of educational services generates the *supply* of an educated workforce to meet the *demand* for professionals to work in the health system.

To have a positive impact on the functioning of health systems and, ultimately, on health outcomes of patients and populations, educational institutions must be designed to generate an optimal instructional process. Figure 1.3 shows the interaction of the two critical dimensions of education.

Figure 1.3 Key Components of the Educational System

Instructional design involves what can be presented as four C's: (1) criteria for admission; (2) competencies (not as they are attained, which is part of educational outcomes, but as they are defined in the process of designing programs of instruction); (3) curriculum; and (4) channels of instruction, defined here as the set of didactic methods and teaching technologies.

In contrast to the more limited scope of the twentieth century reports, today's interdependent world requires a global dimension to institutional design. Given current personnel shortages and resource constraints, it is impossible to conceive that every developing country will be able to train on its own the full required complement of health professionals. For this reason, the framework includes regional and global consortia as a crucial part of institutional design in the twenty-first century.

Educational outcomes from instructional and institutional designs are deeply influenced by contexts, both local and global. While many commonalities may be shared globally, there is local distinctiveness and richness. Whereas some professionals are being trained to manage sophisticated technologies in tertiary hospitals, others may be trained to improvise with

rudimentary equipment in rural community centers. Such diversity offers great opportunities for shared learning across countries at all levels of economic development.

Instructional Innovations

The authors of the present study of instructional design adopted a case study approach informed by literature review. Based on historical analyses of instructional and institutional innovations, three generations of reform in the past century, leading to five frontier instructional challenges, were identified.

To improve understanding, the commission developed a typology of three generations of reforms (Figure 1.4). Like all classification schemes, this one simplifies multidimensional realities. Yet, it has heuristic value. The word “generation” conveys the notion that this is not a linear succession of clear-cut reforms. Instead, elements of each generation persist in the following ones, in a complex and dynamic pattern of innovation. Innovation in medical learning has long and deep historical roots around the world that started well before the past century. Early systems of medical education were reported in India around the sixth century BCE in a classical text called *Susruta Samhita* (Filliozat, 1964) and in China from around the second to fourth centuries CE during the Wei and Jin Dynasties

Figure 1.4 Three Generations of Reform

(Zhu, 1998). Arabic civilization had flourishing medical learning systems as did the Greek and the Mesoamerican civilizations (Bonner, 1996; Porter, 1997). In the UK, the General Medical Council was established by the Medical Act of 1858 (Irvine, 2006), and similarly early roots may be found in Latin America and Africa.

Spurred by scientific advances in Europe during the second half of the nineteenth century, reforms introduced the modern medical sciences into classrooms and laboratories in medicine, nursing, and public health in the early twentieth century. These reforms in North America — usually sequencing biomedical sciences to clinical and public health practice — were joined by similar reforms in other countries. Curricular reform was linked to institutional transformation — university bases, academic hospitals linked to universities, closure of weak proprietary schools, and linking of education to research. The goals were to advance scientifically based professionalism with high technical and ethical standards.

A second generation of reforms witnessed the growth of schools after World War II, both in industrialized countries and in developing nations, many of them having just gained independence from colonialism (Rosenberg, 2007). Breakthrough innovations were problem-based learning and integrated curriculum, shifting learning from top-down into student-centered processes (Pickering, 1978; Papa and Harasym, 1999; Neville, 2009). Disciplinary expansion and interdisciplinary work characterized public health curricular change, and nursing-midwifery education pursued advanced graduate programs. The continuum from classroom to clinical training in medicine was linked through earlier student exposure to patients, including broadening training sites beyond hospitals into the community and home (Seipp, 1963; Wyon and Gordon, 1971; Kark, 1981; Chen and Bunge, 1989). The goals were to promote pro-active learning with stronger social accountability.

Recent reform efforts in the past two decades may be considered the beginnings of the third generation. Reforms have emphasized patient and population centeredness, competency-based curriculum, interprofessional and team-based education, IT-empowered learning, and policy and management leadership skills. While all countries are testing practical solutions by delegating authority and responsibility to more briefly trained workers, poorer countries — many without large cadres of

professionals — have by necessity been experimenting and demonstrating how non-professionals can master new knowledge and techniques at lower cost. Global perspectives and relationships have enriched learning through institutional connectivity and international collaboration. The goals are greater sharing of resources and development of partnerships within and across countries.

Instructional Challenges

With few exceptions, there is little hard evidence to demonstrate conclusively the superiority of any single individual innovation on educational outcomes. Most countries have mixed patterns of instruction, and no country has a single uniform generation of instructional design. There are no apparent barriers for institutions to “leap frog” from earlier to later generations. In the end, for this study, the authors selected five issues they considered frontier challenges in instruction: competencies and curriculum, adaptation to diverse contexts, interprofessional education, IT-empowered learning, and preparing for the professions.

Competencies and Curriculum

Competence-based education is an approach to design and conduct instruction that focuses on the desired performance characteristics of graduates. It is a disciplined approach to specify the health problems to be addressed, to identify the requisite competencies required of graduates, to tailor the curriculum to achieve competencies, and to assess achievements and shortfalls (Figure 1.5) The competency approach can promote reforms that better align education to health priorities — differing from the traditional model where a given curriculum anchored by historical legacies drives learning objectives.

Adaptation to Diverse Contexts

Striking a balance between global norms and transnational learning versus locally adapted competencies is a major challenge for every country. The world’s richest and poorest countries demonstrate a 100-fold

Figure 1.5 Competency-Based Education

differences in national income and a 1000-fold differences in health care expenditures. Indiscriminate adoption of curriculum and competencies can generate mismatches. It should be recognized, however, that many resource-poor institutions suffer from faculty and curriculum insufficiencies irrespective of competencies desired. The adaptation process can benefit from engaging stakeholders in addition to education professionals.

Interprofessional Education

Health has always been about team work, and the silos of individual professions hamper health system performance. Interprofessional education entails students of two or more professions learning together, especially about each other's roles, by interacting with each other on a common educational agenda. Though simple in concept, interprofessional education is difficult to implement. As argued later, transprofessional teamwork, involving also non-professional health workers, may be of equal importance for health system performance.

IT-Empowered Learning

The impact of e-learning is likely to be revolutionary, albeit how precisely e-learning will revamp professional education remains uncharted.

E-learning traditionally has included computer-assisted instruction to facilitate the delivery of standalone multimedia packages and distance learning for delivering instruction to learners in remote locations (Ruiz *et al.*, 2006). Explosive growth of the internet has brought power, speed, and versatility to both approaches.² And, in many cases, the uptake of new digital technologies has been faster and more widespread in poorer than in richer countries. As with all technologies, the drivers of constructive change are not the hardware and software by themselves, but rather the institutional transformation that the technologies enable, including what has been called “humanware.” IT-empowered learning is already a reality for the younger generation in most parts of the world. Educational institutions must now be reengineered to ride this wave of transformation, or else they risk being drowned by it. One particularly promising aspect of the revolution in information and communication technologies lies in the open education resources movement, with its potential to expand global access to didactic materials. Another exciting area of development is the application of information and communication technologies to build global consortia of educational institutions, in order to leverage their resources, realize synergies, and transform educational opportunity into a global public good. While much more experimentation and evaluation are required, the most promising approaches seem to be those that combine full exploitation of digital resources with the human interaction that is the very essence of true education.

Preparing for the Professions

Professionalism “signifies a set of values, behaviors, and relationships that underpin the trust” of the public (Royal College of Physicians, 2005: 14). Professional education must inculcate responsible professionalism, not only by developing explicit knowledge and skills, but also by aligning the “hidden curriculum” so that the learning environment is made consistent with professional rhetoric and values (Cooke *et al.*, 2010). Students should learn of different traditions of medicine, ethical dilemmas, and brighter and darker sides of professionalism. Far from being an exclusionary force that erects artificial barriers to entry, protects privileges, and promotes practice monopolies through “credential creep” (Starr, 1982), a

new professionalism for the twenty-first century should promote quality, embrace teamwork, uphold a strong service ethic, and be centered on the interests of patients and populations.

Institutional Landscaping

The commission undertook a quantitative landscaping of institutions and graduates in medicine, nursing-midwifery, and public health, the first-ever mapping of health professional education around the world. After showing the patterns of institutions and graduates globally, it focused on four frontier challenges as key levers for institutional and systems improvement — investment and financing, accreditation and stewardship, skill and labor markets, and collaborative and learning systems.

In 2008, an estimated 2,420 medical schools produced close to 389,000 medical graduates annually for a world population of 7 billion people (Table 1.1). Noteworthy are the large number of medical schools in India, China, Asia, Western Europe, and Latin America and the Caribbean, in contrast with the paucity of schools in Central Asia, Central and Eastern Europe, and sub-Saharan Africa. Data were insufficient to disaggregate these data into public and private institutions.

There also were an estimated 467 schools of public health, only 20 percent the number of medical schools. The count of public health schools is problematic because their definition varies — from entirely independent faculties to departments within medical schools with variable authority for degree granting. Nursing and midwifery school counts are even more difficult because of heterogeneity. While nursing and midwifery have many post-graduate programs, there are also many vocational schools offering certificates rather than post-secondary schooling.

Figure 1.6 shows density of medical schools. The best-endowed regions are Western Europe, North Africa and the Middle-East, and Latin America and the Caribbean; the lowest density is found in sub-Saharan Africa and parts of Southeast Asia.

The top four countries (India, China, Brazil, and the United States), each having more than 150 schools, comprise 35 percent of world's total. Thirty-one countries have no medical school whatsoever (including 9 in

Table 1.1 Institutions, Graduates, and Workforce, by Region

Region	Country	Population (millions)	Estimated number of schools		Estimated graduates per year (thousands)		Workforce (thousands)	
			Medical	Public health	Doctors	Nurses/ midwives	Doctors	Nurses/midwives
Asia	China	1,371	188	72	175	29	1,861	1,259
	India	1,230	300	4	30	36	646	1,372
	Other	1,075	241	33	18	55	494	1,300
	Central	82	51	2	6	15	235	603
	High-income Asia Pacific	227	168	26	10	56	409	1,543
Europe	Central	122	64	19	8	28	281	670
	Eastern	212	100	15	22	48	840	1,798
	Western	435	282	52	42	119	1,350	3,379
Americas	North America	361	173	65	19	74	793	2,997
	Latin American/Caribbean	602	513	82	35	33	827	1,099
Africa	North Africa/Middle East	450	206	46	17	22	540	925
	sub-Saharan Africa	868	134	51	6	26	125	739
World		7,036	2,420	467	389	541	8,401	17,684

Figure 1.6 Density of Medical Schools, by Region

sub-Saharan Africa), and 44 countries have only one medical school (including 17 sub-Saharan Africa).

There is a major mismatch between the density of medical schools and the burden of disease. Whereas world population is weighted toward Asia, the global burden of disease, as measured in disability-adjusted life years (DALYs), is heavily concentrated in Africa. Medical school numbers and distribution do not correspond well to either population size or disease burden. There are many schools in India, Brazil, North Africa, and the Middle East. These production capacities, modified by international migration, translate ultimately into the global stock of the workforce, which is heavily concentrated in Asia, North America, and Western Europe.

Institutional Challenges

Four areas present institutions with major challenges: investment and financing, accreditation and stewardship, skills and labor market, and collaboration and learning.

Investment and Financing

Total yearly expenditure in health professional education is estimated at about US\$100 billion for medicine, nursing, public health, and allied health professions. Education of medical graduates is estimated at US\$47.6 billion and nursing graduates at \$27.2 billion (Table 1.2). The figures for these individual professions are roughly inflated, in the absence of detailed information, to \$100 billion by inclusion of public health and other related professions. This represents less than 2 percent of the \$5.5 trillion that is spent globally on health — clearly an insufficient amount given the crucial role played by health professionals in determining the effectiveness and efficiency of those expenditures.

Altogether, there were 389,000 medical graduates in 2008, costing an average of \$122,000 per graduate. There is, however, huge variation in production and costs. Larger production of medical graduates is found in China and India, and also in Western Europe and in Latin America and the Caribbean, compared to lower production in Central Asia, Central Europe,

Table 1.2 Financing of Medical and Nursing Graduates, by Region

Region	Country	Doctors			Nurses/midwives		
		Graduates per year ^a (thousands)	Expenditure per graduate ^a (US\$ thousands)	Total expenditure (US\$ billions)	Graduates per year ^a (thousands)	Expenditure per graduate ^a (US\$ thousands)	Total expenditure (US\$ billions)
Asia	China	175	14	2.5	29	3	0.1
	India	30	35	1.0	36	7	0.2
	Other	18	85	1.6	55	20	1.1
	Central	6	74	0.4	15	13	0.2
	High-income Asia Pacific	10	381	3.8	56	75	4.2
Europe	Central	8	181	1.4	28	39	1.1
	Eastern	22	151	3.4	48	29	1.4
	Western	42	400	17.0	119	82	9.8
Americas	North America	19	497	9.7	74	101	7.5
	Latin America/Caribbean	35	132	4.6	33	26	0.9
Africa	North Africa/Middle East	17	113	1.9	22	24	0.5
	sub-Saharan Africa	6	52	0.3	26	11	0.3
World		389	122	47.6	541	50	27.2

Note: ^aEstimated.

Figure 1.7 New Medical Schools (Public and Private) in India and Brazil

and sub-Saharan Africa. The range in cost goes from a high of \$497,000 per graduate in North America to a low of \$14,000 in China. Surprisingly, sub-Saharan Africa exhibits a moderate \$52,000 per graduate, due most likely to small graduating cohorts.

Trend data for new schools are mostly unavailable. However, a few countries, like India and Brazil, show dramatic expansion, mostly of commercial for-profit schools (Figure 1.7). Similarly marked growth is also reported in China, but there it is financed by the government. In many developing countries, professional educational institutions must rely on external donor funding. While data are imprecise, most development partners have not ranked professional education as a major claimant for external donor funding.

Despite the data limitations, it is safe to conclude that investments in professional education are modest throughout the world. Particularly alarming is the fact that global investment in health professional education represents less than 2 percent of a global health care industry with an

annual turnover estimated at more than \$5.5 trillion yearly. Even in the United States, such investments represent a mere 0.3 percent of total health expenditures.

Beyond aggregate financial estimates, more detailed studies are needed on the way educational institutions receive investment flows and subsidies. Understanding the set of incentives that each financial model generates is particularly important. For example, many educational institutions receive public subsidies that are insensitive to their performance. In contrast, it is possible to empower students by providing scholarships that they can direct to the educational institution of their choice based on their perception of quality.

In light of the observed imbalances, the world as a whole is clearly not getting enough value for the money it invests in health professional education. To the insult of insufficient funding, many countries add the injury of inefficient expenditure.

Accreditation and Stewardship

Accreditation is the “control knob” of professional education as an instrument for good stewardship and as a pathway to individual certification and licensure. Currently, there are no global standards, many countries have weak or limited processes, and authority may vary between government, professional bodies, or independent councils. Lack of transparency in accreditation has been criticized by many seeking greater “social accountability”.

Skills and Labor Markets

Educational institutions determine how many of what kind of professionals are produced. Ideally, they do so in response to labor market signals generated by health institutions. Also ideally, those signals correctly respond to the needs of the population. In reality, though, there are several forms of imbalance: undersupply, quantitative underemployment (meaning professionals working less than full time), qualitative underemployment (meaning professionals working in jobs that require lower levels of knowledge and skill), unemployment, and qualitative inadequacy (meaning a mismatch with population health needs).

To avoid such imbalances, the educational system must respond to quantitative requirements of the health system. Also critical are the delivery models, which define rules and roles for the various personnel categories. In this respect, the skill mix of health workers would be expected to differ between richer countries with more professionals and poorer countries with more basic health workers. In both cases, transprofessional education is essential for teamwork among professional, basic, and other non-medical staff.

In addition, the incentives created by different processes of personnel management take into account, including recruitment, retention, and remuneration. There is also a political dimension, since health professionals do not act in isolation but are usually organized as interest groups.

Last, the fact that labor markets for health professionals are not only national but also global must be kept in mind. Among professionals with internationally recognized credentials, migration is a major challenge for countries that educate them, especially considering the chronic deficits in many importing countries and growing numbers of countries producing professionals for export. The only way of addressing this complex problem is through international cooperation, as exemplified by the global code of conduct for international migration recently adopted by the World Health Assembly.³

Collaboration and Learning

Positive synergies in professional education can be achieved through alliances and networks of two kinds. The first are educational collaborations that can pool resources, share information, and promote joint work. The second are cross-institutional collaborations between education and government, business, non-governmental agencies, and the media. Sharing and learning can also be enhanced by data, monitoring, and evaluation to strengthen the knowledge base in professional education.

Commission Recommendations

The vision of the commission calls for a new era of professional education that advances transformative learning and harnesses the power of

interdependence in education. Just as reforms in the early twentieth century rode on the wave of the germ theory and the establishment of the modern medical sciences, so too the commission believes that the future will be shaped by adaptation of competencies to specific contexts, drawing upon the power of global flows of information and knowledge. The vision is global rather than parochial, multi-professional and not confined to one group, committed to building sound evidence, encompassing of both individual and population-based approaches, focused on instructional and institutional innovations, and attempts to mobilize both the public and private sectors.

Ten major recommendations were prioritized. Six of them are instructional reforms and four are institutional reforms.

Proposed Instructional Reforms

Instructional reforms should encompass the entire range from admission to graduation, to generate a diverse study body with a competency-based curriculum that, through the creative use of information technology prepares students for the realities of teamwork, to develop flexible career paths that are based on the spirit and duty of new professionalism.

1. Adoption of competency-based curricula that are responsive to rapidly changing needs rather than being dominated by static coursework. Competencies should be adapted to local contexts and be determined by national stakeholders, while harnessing global knowledge and experiences.
2. Promotion of interprofessional and transprofessional education that breaks down professional silos while enhancing collaborative and non-hierarchical relationships in effective teams.
3. Exploitation of the power of IT for learning through development of evidence, capacity for data collection and analysis, simulation and testing, distance learning, collaborative connectivity, and management of the increase in knowledge.
4. Adaptation locally but harnessing of resources globally in a way that confers capacity to flexibly address local challenges while using global knowledge, experience, and shared resources, including faculty,

curriculum, didactic materials, and students linked internationally through exchange programs.

5. Strengthening of educational resources, since faculty, syllabuses, didactic materials, and infrastructure are necessary instruments to achieve competencies.
6. Promote a new professionalism that uses competencies as the objective criterion for the classification of health professionals, transforming present conventional silos, and developing a core set of attitudes, values, and behaviors.

Proposed Institutional Reforms

Institutional reforms should align national efforts through joint planning especially in the education and health sectors, engage all stakeholders in the reform process, extend academic learning sites into communities, develop global collaborative networks for mutual strengthening, and lead promotion of the culture of critical inquiry and public reasoning.

1. Establishment of joint planning mechanisms in every country to engage key stakeholders, especially ministries of education and health, professional associations, and the academic community, to overcome fragmentation by assessment of national conditions, setting priorities, shaping policies, tracking change, and harmonizing the supply of and demand for health professionals to meet the health needs of the population.
2. Expansion from academic centers to academic systems, extending the traditional discovery-care-education continuum in schools and hospitals into primary care settings and communities, strengthened through external collaboration as part of more responsive and dynamic professional education systems.
3. Linking together through networks, alliances, and consortia between educational institutions worldwide and across to allied actors, such as governments, civil society organizations, business, and media.
4. Nurturing of a culture of critical inquiry as a central function of universities and other institutions of higher learning, which is crucial to mobilize scientific knowledge, ethical deliberation, and public reasoning and debate to generate enlightened social transformation.

Mobilizing the Private Sector

Educational reform is not easy anywhere, and there will be many obstacles. Large numbers of students in classes, poor teacher-to-student ratios, compromised faculty time for teaching, and overwhelming expansion of the knowledge base all favor the status quo and the well-known lecture-based method of teaching with passive learning. In many places, faculty members, eager to see their specific fields of expertise reflected in the curriculum, may generate strong resistance to change. Accreditation bodies also may be conservative — preserving the status quo, seeking financial advantage, and promoting “tribalism” of individual professions. In most settings, incentives are insufficient to reward quality and innovation. Educational reform is a long and difficult process that cries for leadership and requires changing mindsets, work styles, and relationships among all actors. The commission called on the most important constituencies to embrace the imperative for reform through dialogue, open exchange, discussion, and debate over these recommendations. Professional educators are key players since change will not be possible without their leadership and ownership. So too are students and young professionals who have a stake in their own education and careers. Other stakeholders include professional bodies, universities, non-governmental organizations, international agencies, and donors and foundations.

The private sector, both non-profit and commercial, can and should play a vital role in this reform process. The private sector often has the financial and managerial capacity to innovate through the development of public-private partnerships for reform of health professional education. Indeed, the broad engagement of leaders from all sectors will be crucial to energize instructional and institutional reforms. While health professional education serves societal purposes, the private sector can be an important catalyst and leader in the reform process.

The private sector obviously is critically important for enhancing investments. Public financing is rarely sufficient. The private sector can be engaged across the full spectrum of professional education, although commercial investments are more likely to be forthcoming for degrees that are linked to well-paying jobs such as clinical medicine. Attention should be paid to balanced educational investments, as community-based workers and certain other professional groups may not be similarly attractive to

commercial investors. Here, public financing, non-profit private funding, and donor funding may be deployed to balance commercial investments.

As Flexner (1910) proposed a century ago, setting standards for accreditation and certification helps to ensure quality, in addition to establishing a level playing field for all actors.

Finally, private sector engagement may not simply be the establishment of more and better educational institutions. The private sector is active across the range of learning activities. For example, instruction is being transformed by IT innovations, simulation services, and new learning pedagogy that come mostly from private investments. Similarly, institutional networking recommended by the commission depends mostly on private sector provisioning of internet and other connectivity services. Opportunities for private sector contributions, therefore, extend far beyond the establishment of private schools.

The work of the commission has opened up many questions that require more detailed studies addressing the requirements of specific institutions and professions. It has also revealed promising avenues for innovation that need to be explored in greater depth through experimentation and evaluation, including that carried out by the private sector. Yet enough information and insights have been generated to guide concrete action along the lines suggested by the recommendations in this chapter.

Most important, implementation of the recommendations can be propelled by a global social movement engaging all stakeholders as part of a concerted effort to strengthen health systems. The result would be a more enlightened professionalism that can lead to better services and consequent improvements in the health of patients and populations. In this way, professional education would become a crucial component in the shared effort to address the daunting health challenges of the twenty-first century, and the world would move closer to new era of passionate, participatory, and people-centered action to progressively realize the right to the highest attainable standard of health.

Endnotes

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