

Keynote Address

Globalization and the Internationalization of Graduate Education: A Macro and Micro View

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INTRODUCTION

Since the 1990s, globalization has become a central phenomenon for all of society, including graduate education and particularly doctoral education. Globalization takes place in a context where doctoral education and research capacity are unevenly distributed and where a few research universities, mainly in wealthy countries, have become powerful social institutions. But all graduate education systems are increasingly part of an international context in which policy-makers – at every level – are aware of and responding to developments in higher education outside their national borders. For the first time, conditions exist for the emergence of a truly international system of doctoral education; this openness to innovation and expansion holds enormous potential for advancing a more effective future-oriented PhD.

The ideas presented in this article are a synthesis of published and in-process research on the impact of globalization and graduate education, which was mainly inspired by two international research workshops that focused on globalization's forces and trends in graduate education and its promising practices, rather than its best practices. One conference took place in 2005 in the United States (in Seattle) and the other in 2007 in Australia (University of Melbourne). Organized by the Center for Innovation and Research in Graduate Education (CIRGE) at the University of Washington in Seattle and mainly funded by the U.S. National Science Foundation, these two workshops brought together top university administrators, senior members of national research councils and institutes, and doctoral education researchers from 6 continents and 14 countries. The first book to emerge from this research collaboration – *Towards a Global PhD? Forces and Forms in Doctoral Education Worldwide* – was published in 2008 (Nerad & Heggelund, 2008).

Three major arguments are presented here. First, globalization has brought a number of common trends, or “converging practices,” to graduate education worldwide. It also has had different effects on different regions and the increasingly diverse graduate student population worldwide. Second, due to globalization, institutions responsible for graduate education today must fulfill a dual mission: building a nation’s infrastructure by preparing the next generation of professionals and scholars for the local and national economy, both inside and outside academia, and educating their domestic and international graduate students to participate in a global economy and an international scholarly community. This dual mission is often experienced as a tension, because universities in many ways operate under a sole national lens. Third, although globalization cannot be avoided, institutions of higher education can respond proactively by preparing doctoral students adequately to meet the challenges of globalization and the challenges of an increasing national interest in the role of doctoral education for the knowledge economy. Students must be educated to define and solve societal problems both at home and abroad – collectively, in trans-, multi-, and interdisciplinary and international groups. The slogan “Think globally and act locally” must be operationalized if a nation’s home campuses are to be truly international.

Today, doctoral education is precisely the place where there is an opportunity to look across national boundaries and beyond the academic sphere to study how the effects of certain approaches (e.g., waste management) benefit or harm people outside our national sphere. This means that research can no longer be thought of as solely local or be kept solely inside academic walls. Indeed, the history of universities has come full circle. From medieval universities that were centres of learning that functioned in the common language, Latin, and served an international clientele of students, to the nation-state universities of the 19th and 20th centuries that pursued national interests, to once again, universities that are emerging as international centers of learning and scholarship, in addition to serving particularly regional interests.

DEFINING GLOBALIZATION

The definition of globalization used here is that of Holtman (2005): “the intensified movement of goods, money, technology, information, people, ideas and cultural practice across political and cultural boundaries” (p. 14). Globalization is a multi-faceted process that affects each country differently. Both Tony Gibbons (2003) and Manuel Castell (2000) argue that the process of globalization as a force is more powerful than industrialization, urbanization, or secularization combined (see also Douglas 2005)

On the macro level, the skills bias of recent technological advancements is leading governments to strive for a competitive advantage in an emerging knowledge-based industry. In a recent *New York Times* editorial (May 2, 2008), David Brooks argued, “We are moving into a more demanding cognitive age. That is, in order to thrive people are compelled to become better at absorbing, processing and combining information.”

Nations without sufficient numbers of adequately educated and trained people have four choices: increase their higher-education production at home, as is happening in Europe, Asia, Australia, New Zealand, Malaysia, and so on; liberalize short-term immigration so that highly skilled labourers can be brought in; bring the work to a highly skilled labour force; or employ a combination of all three strategies.

For many nations, the first option – increasing PhD production – is costly and time consuming, while the immigration option depends on unpredictable political forces that may restrict immigration policies, as has occurred in the United States. As a consequence, the third option is often chosen, that is, capital and technology are brought to the highly skilled workers rather than the workers to the capital and technology. Work is outsourced to countries with a highly trained labour force and a somewhat lower salary scheme. Multinational companies have set up, and are still setting up, research and development (R&D) companies in China, India, Romania, and Ireland, rather than petitioning their own governments for more immigrant visas.

Given the current situation, a nation's doctoral programs need to position their domestic students to become mobile and capable of functioning anywhere in the world – as PhDs in business, industry, non-governmental organizations (NGOs), and academe.

THE EFFECTS OF GLOBALIZATION ON DOCTORAL EDUCATION

How does globalization affect higher education, particularly doctoral education? First, it increases PhD production. Since post-industrial societies need knowledge workers for the new economy, should there not be sufficient domestic students readily available, international students are recruited with the hope that they will remain in the country and join the national workforce. Emerging nations with flourishing economies, such as China, India, Malaysia, and Indonesia, also need knowledge workers for their growing economies. To fill this need, they are currently sending out their own people for doctoral education and increasing production at home. Second, higher education is responding to market forces faster than it has before. The increase in PhD production and the circulation of international students are based on the belief that knowledge and research skills lead to innovations and to direct societal and economic gains. Third, higher education has become commercial and now generates revenue. In other words, doctoral education has become a commodity that has value beyond pure knowledge production. A PhD can be bought and sold in the public marketplace of research development, policy information, and social and institutional change.

In terms of the knowledge economy, future economic performance is viewed here as being closely based on the skill and innovation levels of the labour force, underpinned by effective research and R&D capacity, which in turn requires people with doctorates. Universities are increasingly seen as significant knowledge producers and thus as agents for economic growth. Or, put

differently, in a society where knowledge is an economic force for innovation, universities become regional economic forces through doctoral education research. This applies particularly to the natural sciences, engineering, health, and business fields.

Nations such as China, Singapore, European Union members, Malaysia, Japan, and Canada have developed a new interest in their universities and in investing in knowledge, and they have translated this interest into a direct increase in funding of PhD production. For example, the European Union countries decided in the Bologna Treaty to invest 3% of their country's gross national product in R&D, including university R&D, by the year 2010.

Based on their size, demographic makeup, economic resources, and local professional labour-market infrastructure, nations have adopted a multitude of strategies. As noted earlier, they increase their PhD production and allow their students to be recruited to receive doctoral education elsewhere. Simultaneously, they provide competitive government fellowships for their best students to study fully or partially abroad on the condition they return home and contribute to their own internal labour force and infrastructure. This is happening right now in the case of China and Thailand, where students are provided with fellowships for one or two years of study and then have to return home.

Global Increases in Doctoral Education

According to the National Science Foundation (NSF) report *Science and Engineering Indicators 2008* the percentage increases in PhD production by nations around the world varied widely between 1991 and 2004. During those 13 years, China's PhD production increased by 815%, from 2,000 PhDs in 1991 to 22,000 in 2004; Taiwan's production rose by 379%, with the number of its PhDs climbing from 400 to about 2,000 in 2004; South Korea had a 166% increase in its PhD production, with 1,000 PhDs granted in 1991 to 3,500 in 2004; and Japan's production increased by 58%, from about 10,000 PhDs to 15,000. Over the same period in Europe, there was generally a smaller increase in PhD production as production was already quite large; for example, Germany had a 3% increase, from about 22,000 in 1991 to 23,000 PhDs granted in 2004. In contrast, the United Kingdom experienced an 82% increase – from about 8,000 PhDs in 1991 to 15,000 PhDs in 2004. This increase was mostly due to a large proportion of international doctoral students. Finally, during the same period, the United States experienced a 12% increase, from about 37,000 conferred in 1991 to 42,000 doctoral degrees conferred in 2004.

During the years between 1998 and 2004, Australia increased its PhD production by 46%, from about 3,000 to 5,000 degrees granted in 2004. (Evans, Gerdeman, Haines, Hall, Rylan, & Sebkova, 2009), while Canada increased its production by a modest 5%, from about 4,000 to 4,200 (Nerad, Evans, & Heggelund, 2009).

The percentage increase in degrees earned by international doctoral students were generally more modest and in one case (Japan) actually declined. According to the NSF's *Science and Engineering Indicators* for both 2006 and 2008, in

the three-year period from 2003 to 2005, of all the PhDs awarded in Germany, the proportion of international PhD students increased by 6%, from 10% to 16%; in the United Kingdom, this proportion increased by 3 percentage points, from 39% to 42%; in the United States, it increased from 30% to 33%; and in Japan, it declined, from 13% in 2003 to 9% in 2005 (the Japanese language is an obstacle in attracting more international students). In Canada, of all the PhDs awarded in 1998, 13% were earned by international students, the same proportion as in 2004 (552 of 4,164 PhD degrees awarded) (Evans T. et al., 2009).

A clear picture emerges from these statistics. In the 13 years from 1991 to 2004, there was a large increase in PhD production, specifically in Asian countries. The modest increase in PhD production in European countries seemed to be driven by an increase in international students, while in Australia (and New Zealand), the increase seemed to be due to investment at home and in international students. Finally, there was an increase in international students, specifically in English-speaking nations and in Europe, where doctoral education is increasingly offered in English.

Characteristics of Increases: Gender, Part-time, Full-time, Older Students

When the data are disaggregated by gender, it becomes apparent that women's participation in PhD production has increased in many countries. There has also been an increase in the participation of older students, coupled with a growth in part-time PhD students, as well as an increase in professional PhDs in education, public health, business, social work, and fields such as physical therapy or audiology, at least in the United States. More students also complete their studies now, thanks in part to the role played by government funding and accountability schemes. For example, in the United States, the Council of Graduate Schools (CGS) is driving an effort to shed light on how to increase doctoral completion (<http://www.cgsnet.org>).

What Other Global Trends Affect Doctoral Education?

Besides an increase in PhD production and in the international flow of doctoral students worldwide, five major trends that affect doctoral education can be identified: (1) a change in the mode of research production; (2) the increasing importance of translational skills; (3) the increasing standardization of doctoral education; (4) a quest for greater accountability; and (5) increased global communication and creation of international networks. _

Change in the Mode of Research Production

Gibbons, Limoges, Nowotney, Schwarzman, Scott, and Trow, in their book *The New Production of Knowledge* (1994), coined the term "Mode 2 production." This term refers to the fact that research now operates around application in a trans-disciplinary mode, a process that involves multiple actors: universities, industry, business, and governments. Knowledge production is becoming

more socially accountable and, as a consequence, an emphasis on translational research has emerged. This means that the research process does not stop at basic research findings but translates the basic findings into applications that respond to societal or business needs.¹

Translational Skills

New PhDs are expected to be competent writers, speakers, managers, and team members so they can communicate research goals and results effectively inside and outside the university. These skills are called professional or transferable skills in North America, and generic or soft skills in the United Kingdom and Australia (Council of Graduate Schools, 2008). However, “translational skills” is an even more appropriate term, as these skills are not only transferable but also necessary to translate research findings to societal applications.

Standardization of Doctoral Education

There is increased standardization both in the form of doctoral education and in the convergence toward a common definition.

Accountability

There is an increased demand for accountability by governments, by private agencies that have invested in higher education, and, subsequently, by individual universities and students in their roles as consumers. Increased accountability requests translate into the documentation of input measures in the admission process; throughput measures, including an emphasis on mandated coursework (in systems where courses were limited in the past); assessment of doctoral supervisors; departmental capacity assessments; and output measures in terms of time-to-degree, doctoral-completion rates, employment of graduates, and, increasingly, contributions to identified research agendas. Universities are operating to an ever-larger extent in a managerial mode similar to business and are applying quality standards through outcomes’ assessment systems, which include matrices of measurable objectives and benchmarking.

Trends of adopting quality-assurance schemes are visible in newly established accreditation agencies in Europe and Japan, in national data-collection efforts by European University Association (EUA), and in governmental assessment schemes, such as those found in the United Kingdom, Japan, Australia, and New Zealand, where the indicators identified above are included.²

Communication and International Networks

Increased global communication can also be observed. Spurred by technological innovation, it makes communication across vast spaces easier, faster, and more widespread. As a result, scholarly networks – actively and explicitly supported by the European Union, some international foundations, and some

governmental agencies (in the United States, by the National Science Foundation and the National Institutes of Health – have formed rapidly.

Challenges to Doctoral Education

Are these five global trends posing particular tensions for doctoral education? Yes. Globalization has a different effect on different regions of the world. For instance, although South Africa has some of the best medical doctors, particularly heart specialists, and steel researchers in the world, the country desperately needs additional expertise to build up its basic infrastructure – its overall people power. The South African population is young, and so the human capital of that young population must be built up. Training them at home is costly, and not all of South Africa's higher education institutions are fully equipped to do this at a competitive standard. However, sending students abroad increases the risk that they may not return and thus may contribute to the country's brain drain. When Western countries receive students from South Africa, they train them using the latest specialized technology and have them work on topics relevant to their national research agendas and expertise, which in the end does not train these students to solve their own country's societal problems. In the example used here, training South African students in topics relevant to their country is not an easy task for many Western faculty, as these faculty often have neither the particular expertise nor the grants they need to carry out research on South Africa.

Additional sources of tension are the need to prepare domestic students for participation in the international scholarly community and to attract international students. In an effort to attract international students, a number of countries have moved toward using English as a means of doctoral seminar instruction. Indeed, English has become the current lingua franca of scholarship, and many scholarly journals are in English, which in turn produces more tensions. Because one of the university's key roles is to pass on societal accumulated knowledge, including the transmission of certain cultural literature and knowledge, teaching in a foreign language is counter to this role. Countries with a language spoken by only a few people in the world are raising concerns about losing their literature and language heritage and about being unable to pass this heritage on to the next generation.

A MICRO VIEW OF DOCTORAL EDUCATION AROUND THE WORLD – CONVERGING PRACTICES

In order to discuss international doctoral education at the micro level, the concept of internationalization must first be defined. Jane Knight (2006) and Philip Altbach (2007) have used the concept to refer to proactive institutional behaviour, such as facilitating international education exchange and research collaboration, joint degrees, and the like. However, the internationalization of a campus can occur as much at home as it does abroad. Defining internation-

alization broadly requires a rethinking of daily practices in terms of possible international dimensions. Teaching, research, programming, and policy-making must reflect the impact of a truly internationalized campus.

Several converging practices and characteristics of doctoral education were gleaned from the research that was presented and the discussions that took place at the two international research workshops mentioned earlier in this article – one in the U.S., Seattle (2005), the other in Australia, Melbourne (2007). These features comprise the micro view of doctoral education because their focus is the daily experience of students and faculty in doctoral education. The group of experts who investigated whether there is a common understanding of a doctorate agreed on three points: a doctorate should contribute to knowledge through original research; PhD graduates should have a substantial knowledge in their area of study; and PhD training should include the development of transferable skills and competencies, also known as translational skills.

Beyond agreeing on this common understanding of a doctorate, these experts identified a number of converging practices. First, students are being prepared for a variety of careers, not just to become a professor but also to do research and teach in industry, business, governments, and non-profit organizations. The recently completed U.S. national study *Social Science PhDs – Five+ Years Out* (CIRGE, 2007) found that more students studied for their doctorate because they had a certain career in mind, rather than solely for the sake of knowledge creation. The study's authors also found that doctoral students were indeed employed in a variety of roles in academe, business, government, and non-profits, for example, political science PhDs were employed as writers, statisticians, project managers, and so on (Nerad 2009).

A second converging practice is that admission has become a defined, and competitive, process. The days of asking a professor whether he or she will accept another candidate are gone.

In order to attract the best students, students are now offered several years of funding, another converging practice. In some countries, student funding comes directly from the government; in other countries, such as the United States, students are funded indirectly, either by the federal government through research grants or by the states through teaching assistantships. Students are often offered a three-year package, consisting of a research assistantship, a teaching assistantship, and a fellowship. A fourth converging practice is that students have more than one supervisor or adviser. A dissertation committee, a panel of several people, guides doctoral students throughout the dissertation process.

Several of the identified converging practices involve the doctoral education process. New graduate schools, or research schools as they are called in Europe, are being established, and these schools are developing overall guidelines for the doctoral education process. These graduate schools are not only developing codes of practice for supervising faculty members but are also increasingly offering supervisor training – along with special awards for good mentoring – and evaluation surveys assessing what students think about the

quality of the program and the faculty's advising. Countries that currently require no examinations during doctoral study are debating the introduction of at least an oral examination, likely a dissertation defense, as in the case of Australia. Moreover, students in the sciences and economics increasingly have the possibility of choosing between a traditional dissertation or a compilation of several peer-reviewed articles based on their research; universities are starting to adopt policies that recognize such articles with multiple authors.

As mentioned earlier, training in professional skills was one of the three points of agreement on a common understanding of doctoral education. These translational skills are often offered through graduate or research schools, another example of converging practices. Such training focuses on conducting ethical research, working effectively in teams, and knowing how to teach, how to publish, how to present, how to communicate complex information, how to write group grants, and how to manage time and projects.

The final two converging practices involve funding and regulatory agencies. National funding agencies and universities are creating templates for the review of doctoral programs that synthesize international standards on PhD programs. To create these templates, they are reaching out to international review teams for program review. Due to outside pressure from funding and regulatory agencies, campuses are asking doctoral programs to undertake formative and summative evaluations for ongoing program improvements.

Current Challenges for the Internationalization of Doctoral Education

Although new practices are emerging, doctoral programs face major challenges, which graduate deans must debate. Two specific challenges – interdisciplinarity and transforming our campuses to become internationally aware – are discussed here.

Interdisciplinarity in research approach is not new. But how do we train the next generation to become effective interdisciplinary scholars? Currently, some doctoral programs include interdisciplinary or multidisciplinary components. Doctoral programs are experimenting with epistemology courses to make transparent “how do we know what we know” and what we regard as evidence. Most scientific, technical, and social problems have become too complicated and too large to be solved either individually or from a single-discipline perspective. Few scholars can truly master several disciplines, but to collaborate effectively, it is crucial to be able to understand each other's disciplinary concepts and world views and communicate these to each other.

A second challenge is how to internationalize graduate education at home. Presidents and provosts have visions and missions of educating world citizens and striving to be a world-class university, yet our everyday life in higher education has not kept pace with these changes. How can we integrate internationalization into the everyday life of teaching and learning?

Traditionally, internationalization in doctoral education has meant establishing international research collaboration with other nations, exchanging stu-

dents, post-doctoral students, or scholars, or creating joint or “off-shore” degrees. For example, European countries, such as Denmark, expect their doctoral students to carry out portions of their training and research in another country, and European universities are establishing international summer schools to bring together doctoral students around a common theme. However, not all countries have the money to send their students abroad, and not all people can easily pack up and leave home to study abroad because they have family obligations.

Although, ideally, all PhDs would be provided with international experience, something less extensive but still effective can be done at home. Today’s campus is a global village and this global village can be used to foster graduate education by purposefully assigning domestic students to work with international students. The current literature on international students focuses mainly on the flow and mobility of international students. Very little has been written about the actual experiences of international students, and what does exist focuses mainly on the adjustment process. The lens used in these studies is that of a one-way street, that is, international students have to adapt to the host country; a two-way street where domestic students and faculty equally adjust and learn from international students is not conceptualized.

One approach to internationalizing campuses is to fully integrate international students into everyday life. Currently, there are mostly separate activities, such as orientation for international students and orientation and activities for students of colour. But what are the implications of not integrating our international students? Three major opportunities are missed: the opportunity to create new international networks; the opportunity to learn about another culture on home campuses; and the opportunity to develop complex pedagogy that allows for the creation of international learning communities.

On a personal note, I recently offered a class called “Introduction to US Graduate Education for International and Domestic Students.” For many students, graduate school is clearly a foreign country. However, classes such as this one allow students to discover together the process of graduate education – its signature pedagogies, essential steps, and adviser/advisee relationships – as well as to understand the lenses through which international students are perceived, the writing and publishing process, and the career and family issues they may face, all of which helps to form learning communities across cultures.

Thus, with small incremental steps, it is possible to create communities that help graduate students become world citizens and cross cultural boundaries and accept differences.

CONCLUSION

The study of higher education through self studies could become an indispensable resource for universities, by helping them to understand the complexity of operating in a global context. To this end, the field of higher education could undertake studies worldwide in several areas: studies of promising prac-

tices that would feature effective ways of recruiting a diverse doctoral student body; studies on strategies of reducing attrition and

promoting diverse ways of knowing, or develop policies and practices that could create a more equitable distribution of intellectual capital across the globe. Critical analyses of national accountability measures and their impact on the local campus, as well as case studies on how universities internationalize, including their international entrepreneurship, would be welcomed. Finally, it is important to know what domestic students learn from their international peers, what impact international students have on the university, and how faculty view international students, including how they adjust their advising and mentoring practices for international students.

The study of doctoral education could be a voice that reminds universities to embrace equality for all and a diversity of intellectual approaches and to work toward a more equitable distribution of intellectual capital.

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NOTES

- 1 Some argue that translational research is just a new name for applied research, which has long had a secondary status in research universities.
- 2 In the United States, stronger quality-assurance measures are under discussion, but most of this is focused at the undergraduate level.