Chapter 10
A Comparative Analysis of Vietnamese and Australian Research Capacity, Policies, and Programmes

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Abstract The chapter explores the research capacity of academics within the contexts of Vietnamese and Australian universities in the following ways: (1) research productivity, (2) the research policies that support the engagement of academics in research, and (3) the national programmes that aim to enhance the research capacity of the academics. It provides insights and recommendations that have the potential to stimulate research activities that promote both the quantity and the quality of research outcomes for all.

Introduction

Higher education plays an important role in every country. Under the influences of globalisation in HE, there have been, to date, not only a significant transformation in the manner of how universities teach students but also changes to the roles of academics. In particular, the responsibility of undertaking research by academics beyond the traditional role of teaching is emphasised (Brew 2006). Some researchers indicated that a combination of teaching and research can enhance teaching quality – a desirable aim of most universities (Brew 2003; Brew and Boud 1995; Hattie and Marsh 1996; Jenkins et al. 1998). The general assumption that a synergistic relation exists between the research productivity of academics and their teaching quality is probably appropriate because universities nowadays aim to produce student learning, not to provide teaching instruction as they used to (Rice 2006). Scott (2004), as cited in Harman and Nguyen (2010), argued that teaching and research should be linked together because the integration of teaching into research

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helps to validate the university's academic authority. According to Brew and Boud (1995, p. 264), teaching and research are closely related to each other through the act of learning from each other, 'Doing research is not likely to enhance pedagogical skills, but it is likely to enhance a teacher's knowledge, interest in and enthusiasm for the subject' (p. 264). Similarly, research enhances the knowledge and competence of academics, which, in turn, strengthens capacity to supervise research projects of students, particularly postgraduate students (Lindsay et al. 2002). Supporting the above arguments, Jensen (1988) examined the 'unity of research and teaching' through interviews with about 50 teachers at higher education institutions in Denmark and found 3 significant influences of research to teaching. First, research 'fertilises teaching with new topics and methodological advances'. When academics bring research knowledge in teaching practices, they apply a student-focused teaching approach to facilitate student learning and make a conceptual change of phenomena. Second, research 'provides teachers with a personal engagement of great pedagogic significance'. And, third, 'university teaching, via research carried out by staff, maintains connections with developments in the world of international research' (Jensen 1988, p. 20). In recognition of the importance of academic research, the Vietnamese Government has made a reform known as Higher Education Reform Agenda (HERA) in order to develop a learning society. The HERA emphasises on the quality of teaching and learning and aims to develop curriculum that strongly supports research of academics and upgrade teaching materials that link to research practices.

In order to maintain a competitive edge in the global HE sector, many universities work towards being identified as high-performing universities through the research pursuits of academics. Academics nowadays are not simply knowledge transferors but more importantly, they must be knowledge creators. Due to such demands, academics are increasingly required to engage in both teaching and research in alignment with the expectations of their level of employment at universities (Brew 2006). This can be very challenging for academics that so many of them find it difficult for them to perform satisfactorily in both core missions. It is anticipated that with such increased expectations, all academics have to modify their working practices, attitudes, behaviours, and academic identities from teaching-focused to research-focused to meet the expectations of the twenty-first-century universities.

Universities continue to contribute significantly to the development and competitiveness of a country through the generation of knowledge, and collaboration with industry to conduct joint research and development projects (Cummings 2014). Universities are places that not only transfer knowledge, but also produce knowledge. Importantly, knowledge creation requires a network of scholars and academics that actively engage in future-focused research activities. It is projected that globalisation in HE has resulted in universities to experience greater external pressures to their operation and development and a greater sense of accountability for all academics. Research productivity of academics has become an important indicator used in the evaluation of research performance and serves a multiplicity of purposes

such as recruitment, job security, promotion, and salary increase, as well as of universities' rankings.

This chapter explores the research capacity of academics within the contexts of Vietnam and Australia universities in the following ways: (1) research productivity, (2) the research policies that support the engagement of academics in research, and (3) the national programmes that aim to enhance the research capacity of the academics. Additionally, the chapter compares Vietnamese academics' research capacity and productivity with those in the Association of Southeast Asian Nations (ASEAN) and other East Asian countries such as China, Japan and South Korea – these countries used to have similar historical, social, economic, and educational background with Vietnam 30 years ago. Albeit Vietnam's growth over the last 30 years, there remains a significant gap in higher education between Vietnam and other Asian countries. The inclusion of them into this chapter provides an overall picture of research capacity and productivity of the Vietnamese academics in comparison to other neighbouring countries. The chapter begins with a review of the social, political, and economic changes in Vietnam over the past 30 years, which subsequently has impacted on Vietnamese Higher Education.

Social, Political, and Economic Changes in Vietnam and Their Impacts on Vietnamese Higher Education

Since the end of the Resistance War against America in 1975, the North and the South of Vietnam united under the name of Socialist Republic of Vietnam. Between 1975 and 1985, Vietnam encountered numerous challenges and difficulties due to the sanctions and embargos imposed by the United States of America. Acknowledging the urgent need for changes, during the Sixth Congress of the Vietnam Communist Party in December 1986, the leaders of Vietnam launched an 'Economic Reforms' in the economy (widely known as Đổi Mới). The main purpose of the Economic Reforms was to create an environment which was conducive to transformation to occur. Such transformation aimed to convert the economy from a centralised and planned one, mostly founded on imports and subsidisation, to a socialist-oriented market economy. Through this Renovation, the Government of Vietnam 'made a commitment to increased economic liberalisation and structural reforms were implemented to modernise the economy and develop competitive, export-driven industries' (Westerheijden et al. 2010, p. 183). This change opened pathways for Vietnam to gradually take part in the world economy, align with the international development trends, and for the influence of globalisation to permeate in all sectors and industries in Vietnam. The VHE was not immune to this. Since that time, the economy of Vietnam has been improving incrementally and as a result, the standard of living for most Vietnamese people has increased. The Renovation opened opportunities for Vietnam to (re)-establish its diplomatic relations with the United States of America after a period of interruption and to forge new relations with other

Table 10.1 Statistics of colleges and universities in Vietnam 2000–2016

Year	2000	2006	2012	2016
Colleges				
Number of colleges	104	183	214	219
Number of students	186,723	367,054	724,232	449,558
Number of academics, *of which:*	7843	15,381	26,008	24,260
Doctorate	109	216	693	633
Master's	1468	3669	10,015	12,365
Universities				
Number of universities	74	139	207	203
Number of students	731,505	1,173,147	1,453,067	1,753,174
Number of academics, *of which:*	24,362	38,137	61,674	69,591
Doctorate	4454	5666	8869	13,598
Master's	6596	14,603	28,987	40,426

Source: Data collected from statistics of the Ministry of Education and Training over different years

countries. The Vietnam's increasing participation in the international organisations and associations such as the Association of Southeast Asian Nations (ASEAN) and the World Trade Organisation (WTO) has gradually strengthened its position in the global map.

Due to Economic Reforms in 1986 and various social and economic changes, the VHE has made positive advancements. The higher education system in Vietnam has been restructured to meet students' demands and to enhance the higher education quality. There have been diverse types of HE institutions (HEIs – Cơ sở giáo dục đại học trong hệ thống giáo dục quốc dân) existing across the higher education sector. According to the Article 7 of the Law of Higher Education 2012, HEIs include: (a) college (trường cao đẳng), (b) university (trường đại học) and institute (học viện), (c) regional university (đại học vùng) and national university (đại học quốc gia), and (d) research institute that is allowed to train doctoral candidates (viện nghiên cứu khoa học được phép đào tạo trình độ tiến sĩ).

Over the last 20 years, Vietnamese higher education has expanded dramatically. Table 10.1 provides an overview of the changes in 2000, 2006, 2012, and 2016. The number of colleges, universities, and academics since 2000 has increased significantly. Table 1 signposts that the number of colleges in 2016 has doubled, reaching 219 colleges compared to 104 colleges in 2000. Universities have tripled within 16 years (2000–2016), from 74 universities in 2000 to 203 universities in 2016. Although the number of academics at colleges and universities increased as a result of rapid expansion of universities and colleges, such increases have not caught up with the booming student enrolment demands of HE in Vietnam (Hayden and Thiep 2010).

Two hundred and three universities in Vietnam have been classified in three administratively hierarchical classes from top to bottom[1]: (1) national university (đại học quốc gia), (2) regional university (đại học vùng), and (3) university (trường đại học). National and regional universities have been established since 1990s on the basis of amalgamating several long-standing colleges and universities that already existed in the five key cities during that period. Currently, Vietnam has two national universities and three regional universities. The mission of the two national universities is to produce highly qualified human resources and talents for the industrialisation and modernisation of the whole country, while the three regional universities have been in charge of three regions where they are located. Under the globalised forces such as the need to join in the global knowledge society, which Nguyen and Tran (Chap. 1, p. 16) consider good conditions for the implementation of the higher education reform in Vietnam, these national and regional universities are expected become the research-oriented universities of Vietnam by 2020 (Thủ tướng Chính phủ 2012a). The establishment of such research-oriented universities helps to develop an effective academic system in order to improve the reputation and competitiveness of VHE on the world stage of higher education.

The period between 2012 and 2016 witnessed a colossal increase in the number of doctoral academics working at universities, from 8869 people in 2012 to 13,598 people in 2016. Despite the large number of doctorates, the average percentage of doctoral academics among teaching staff at HEIs remains comparatively low (10–25%), with the exception of the two leading universities of Vietnam: Vietnam National University-Ha Noi (VNU-HN) and Vietnam National University-Ho Chi Minh city (VNU-HCMC). As of 2016, the percentage of the doctoral holders over the total number of academic staff at VNU-HN is 47.62% (VNU-HN 2016) and at VNU-HCMC is 38.46% (VNU-HCMC 2016). Although two national universities of Vietnam[2] have the highest concentration of doctoral academics, such percentages are considered low compared to universities in other countries where approximately 90% of academics hold a doctoral degree (Altbach 2011).

Research Capacity, Policies, and Programmes in Vietnam

The next sections present the research capacity, policies, and programmes in higher education of Vietnam and Australia. Although analysis of each country will be made separately, a contrastive analysis between these two countries will be reflected during the presentation.

[1] Vietnamese Higher Education does not have a professional framework for classifying universities like the Carnegie Classification of Institutions of Higher Education in the USA.

[2] They are considered the top universities of Vietnam.

Research Capacity of Vietnamese Academics

Although Vietnam has implemented the Higher Education Reform Agenda since 2005 (see the section of Research Policies in Vietnam for further information), the research capacity of the Vietnamese academics appears to be relatively modest, resulting in low research productivity across the VHE system (Harman et al. 2010; Nguyen 2014, 2015a, b; Pham 2010). Hayden and Thiep (2010) indicated that a small number of academics have research interests while the majority of academics focus on teaching only. So, the research productivity of academics across the VHE system, including that of academics at the two national and three regional universities, is considerably low. According to the Ministry of Education and Training, Vietnam currently has 24,000 people with a doctoral degree (Hoang 2016). Half of them are currently working at universities and research institutes and publish in the region with a total of nearly 2000 journal articles per year. This equates to one international journal paper published per five doctorates per year (Le 2016). This ratio counts for all international journal publications, irrespective of ranking and reputation of journals. If only high-ranking journals indexed by ISI or Scopus were considered, the result would be extremely low.

This low level of research productivity is largely due to academics in Vietnam being teaching-intensive. In Vietnam, prior to the 2000s, there was no expectation for academics at universities to research or disseminate findings. This is a consequence of the adoption of the educational model applied in the National Academy of the Soviet-Union. For many years, research has been exclusively implemented by research institutes which are members of either of two national research academies: the Vietnam Academy of Social Sciences or the Vietnam Academy of Science and Technology. Furthermore, research institutes serve specific purposes of different ministries (Nguyen 2014).

Table 10.2 compares the number of international refereed journal articles published by the Vietnamese researchers and those in other Asian countries in the period 2000–2016. It is noteworthy that the following information reflects the number of articles published in academic journals by all academics, researchers, and scientists from each country and have been indexed in the databases of Thomson Reuter. It is unable to extract the number of articles published by academics of HEIs only. Although the information does not reflect the actual number of articles published by researchers in each country because a majority of documents have not been indexed by Thomson Reuter, these Web of Science's documents are the most prestigious and valuable publications which reflect the highest quality and knowledge contribution of the work, so it is used here as an illustration for the research productivity of researchers in each country.

Within the ASEAN region, Table 10.2 shows that the number of refereed journal articles indexed in databases of Thomson's Web of Science from Singapore, Malaysia, and Thailand is much higher than that from Vietnam (192,857; 138,090; and 102,658 respectively compared to 26,025). The data confirms a comment made by a senior official at the Minister of Science and Technology in 2012 that Vietnam

Table 10.2 International refereed journal articles of researchers in East and Southeast Asia countries, 2000–2016

Country	Web of science Documents[a]	Times cited	Citation impact
China	2,931,257	21,593,261	14.20
Japan	1,770,279	22,272,763	13.98
Australia	916,289	12,806,056	13.90
South Korea	765,519	7,307,271	13.58
Singapore	192,857	2,680,476	12.58
Malaysia	132,090	679,793	11.13
Thailand	102,658	950,293	10.60
Indonesia	31,796	212,968	9.55
Vietnam	26,025	209,313	9.26
Philippines	18,814	199,501	8.31
Cambodia	2458	33,383	8.04
Brunei	1608	10,686	6.70
Laos	1591	17,707	6.65
Myanmar	1265	10,516	5.15

[a]The data were extracted from the Incites database of Thomson Reuter as of 21 November 2016

has the largest number of doctorate and masters' among ASEAN countries, but that the research capacity of Vietnamese academics with regard to their publications (research productivity) has been considered to be at the bottom of the list in the region (Giáo dục Việt Nam 2012).

When Vietnam is compared to China, Japan, Australia, and South Korea, the indexed refereed journal articles from such countries are extremely higher than those of Vietnam. This comparison is somewhat unfair as all of the countries in the comparison are developed countries that have a high GDP while Vietnam is still a developing country with a small GDP. Of course, the GDP of a country is not the only causal factor on research productivity of academics of a country, many other factors such as research environment of a university, research motivation, and research behaviours of academics highly impacting to academics' research productivity exist (Nguyen 2015a, b). But it is understandable that a correlation between the GDP and the public funding for research and development of a country in general and for HEIs in particular exists which in turn impacts the research productivity of researchers and academics. Currently, the annual expenditure for research and development in Vietnam accounts for only 2% of the total state budget. Moreover, according to Nguyen (2014), 'of the 2% budget allocation for research and development, only three-fifths were actually spent on research. The majority of the research funding was spent on paying salaries for more than 60,000 employees of all state-owned research institutes throughout the country. Nearly 10% of the total research and development funding was spent on research through various research projects carried out at both local and national levels' (p. 197). Interestingly, Lee et al. (2011) confirmed that the GDP is an important factor which is highly correlated with research productivity. Their empirical study even found 'a mutual causality between research and economic growth in Asia' (Lee et al. 2011, p. 465).

Regarding the citation impact of each country presented in Table 10.2, it can be seen that Vietnam ranks 11th out of 15 countries. From the presentation of the total number of Web of Science's documents and the citation impact of each country in Table 10.2, the data shows both quantity and quality of publications from Vietnam are still low compared with those of other countries in the same region. The research capacity of Vietnamese researchers and academics could be absolutely considered behind those of their counterparts in other countries.

Apart from tallying the total number of publications and citations of each publication produced by each academic, utilising the h-index is another well-known indicator to measure research productivity. It is mostly used to evaluate research performance of individual researchers and as such in the scope of this chapter, the h-index indicator is not taken into account to reflect the research capacity of academics.

In a comparative study undertaken in 11 countries in East Asia (Pham 2010), Vietnam's research productivity was found to be significantly lower than that of other countries in the region. Surprisingly, the study reported that the total number of international refereed articles from Vietnam is even fewer than the number of a single university in Thailand (such as Chulalongkorn University or Mahidol University).

The number of publications from Vietnam accounted for the research productivity of all researchers at the two national academies of Vietnam (Vietnam Academy of Social Sciences – Viện Hàn lâm Khoa học Xã hội Việt Nam, VASS) and Vietnam Academy of Science and Technology – Viện Hàn lâm Khoa học và Công nghệ Việt Nam, VAST) and hundreds research institutes which belong to ministries, provinces, and central organisations. In contrast, the role of academics at universities has been mainly teaching. This distinction is a barrier that restrains the research productivity of academics. Research has indicated that a large number of the government's research funding has been allocated to research institutes of two national research academies, while a very small amount has been allocated to hundreds of HEIs (Nguyen 2014). Information in Table 10.3 reflects the fact that two national academies receive large budget contributions from the government to undertake research and produce publications.

Table 10.3 The national budget for research and technology each year (VND Million)

Organisation	2011	2012	2013	2014	2015	2016
Ministry of Education and Training.	272,749	326,940	239,050	238,790	206,370	217,480
Vietnam National Academy of Sciences and Technology.	391,120	485,330	555,110	607,010	820,240	633,070
Vietnam National Academy of Social Sciences.	224,280	233,460	282,490	279,170	366,980	352,700
Vietnam National University Hanoi.	66,406	68,250	68,640	50,600	129,090	194,280
Vietnam National University Hochiminh city.	65,630	137,980	73,090	61,390	56,510	62,110

Source: Data has been collected from the website of the Government of Vietnam (Chính phủ 2016)

Table 10.4 The number of universities of each country ranked in the World's Top 400 in 2015–2016 and 2016–2017

Country	World's top 400 in 2015–2016	World's top 400 in 2016–2017
Australia	22	23
Japan	6	8
China	8	7
South Korea	8	9
Singapore	2	2
Malaysia	0	0
Thailand	0	0
Indonesia	0	0
Vietnam	0	0

Source: The Times Higher Education (2015b, 2016b)

Table 10.5 The number of universities of each country ranked in the Asia's top 200 in 2015 and 2016

Country	Asia's top 100 in 2015	Asia's top 200 in 2016
Japan	19	39
China	21	39
South Korea	13	24
Singapore	2	2
Malaysia	0	4
Thailand	2	7
Indonesia	0	1
Vietnam	0	0

Source: The Times Higher Education (2015a, 2016a)

In a recent review of science, technology and innovation in Vietnam, World Bank indicated that Vietnam has a low level of research productivity and income, weak performance of public-sector research, weak in the science and technology infrastructure as regards laboratories and research equipment (The World Bank 2016). Vietnam has, however, been endeavouring to build research universities in recent years and aims to have at least one research university to be ranked in the top World's 200 universities by 2020. However, until 2016 which is only four years off the point of 2020, Vietnam is yet to be listed in the world's top 400 universities (Table 10.4) or even in the Asian University Rankings Top 200 (Table 10.5).

However, there is good news for the VHE that the research productivity of academics at some young universities such as Ton Duc Thang University (TDTU) has significantly increased in recent years. TDTU is the first and only public university that is fully independent in finance from the Vietnamese Government. In recent years, this university has focused on academic research and invested vast amounts of money in research activities of its academics. It is also the first public university of Vietnam that is seeking and recruiting foreign academics, researchers, and

Table 10.6 International refereed journal articles of Ton Duc Thang University and regional universities

	2000–2005	2006–2010	2011–2016
Ton Duc Thang University	0	20	468
Hue University	85	135	272
University of Danang	10	24	140
Thai Nguyen University	No information found		

Source: IncitesTM Thomson Reuters (2016)

renowned scientists. Consequently, its number of international publications, particularly high-quality journal articles indexed by Thomson Reuter is significantly high and even higher than that of the other so-called leading universities of Vietnam (the case of three regional universities of Hue, Danang, and Thai Nguyen are used for an illustration).

Table 10.6 illustrates that TDTU had no indexed publication in Thomson Reuters's database in the period of 2000–2005, and only 20 publications in the period of 2006–2010. But, its research output from 2011 to 2016 is 22 times higher than that of the previous period with 468 publications. It is remarkable that TDTU's output is nearly doubled that of the number of Hue University and 3 times higher than that of the University of Danang. For unknown reasons, the research output of Thai Nguyen University has not been found in the Web of Science at the time of access but there is a belief that this university has some international publications.

Research Policies in Vietnam

Vietnam has recently launched a wide range of policies that emphasise the role of academic research for national advancement. As most Vietnamese people imbue a fondness for learning, Vietnam expects its academics to connect to the global academic system to conduct research in fields relevant to national development. The following main policies serve as a legislative framework to enhance academics' research capacity and productivity.

Higher Education Reform Agenda in Vietnam

Officially launched in 200, the Higher Education Reform Agenda (HERA) was to implement substantial and comprehensive renewal of the VHE during the period 2006–2020. It aimed to establish a robust higher education system that is forward-thinking by international standards, competitive, and appropriate to the socialist-oriented market system by 2020 (Chính Phủ 2005). It focuses on all aspects of the VHE including teaching and learning programmes, curriculum, academic

qualifications, university governance, and academic research. Academic research has been emphasised in order to increase the research productivity of Vietnamese academics, in both quantity and quality, as well as both nationally and internationally. The HERA focuses on 'the development of an advanced research and development culture, with research and development activities to account for 25% of the higher education system's revenue by 2020 (currently it accounts for less than 2%)' (Harman et al. 2010, p. 3). In order to achieve that objective, the HERA suggests that Vietnamese Government spends at least 1% of the national budget to support research at HEIs. However, it is unable to realise this budget in the current financial constraints experienced by Vietnam at present. Furthermore, Nguyen (2014) indicated that if that 1% became available, it would still be very small because it would have to be divided across many colleges, universities, and research institutes.

The HERA also emphasises the need to link universities to enterprises in industry. The enterprises on the one hand play an important role as research product users for academics; on the other hand, they support academics in doing research by providing research funds and shared facilities. Although the HERA has some good points, it is considered an ambitious plan with many challenges. It has not been able to improve the research capacity of Vietnamese academics to a comparable international standard to date. This lack of attainment was, perhaps, largely due to the limited resources and finance allocated to support research and development in HEIs.

Strategy for Science and Technology Development Until 2020

On 11 April 2012, the Prime Minister of Vietnam approved the Strategy for Science and Technology Development for the period 2011–2020 (Thủ tướng Chính phủ 2012b). As Science and Technology play a crucial role in the development of a country, this Science and Technology Strategy serves as a means to increase the research capacity of the Vietnamese researchers in order to speed up the country's industrialisation and modernisation. It is expected that the government will spend more of the national budget on Science and Technology and increase the level of investment in research activities. Currently, Vietnam is striving to increase the total financial investment in Science and Technology from 1.52% of its GDP in 2015 to at least 2% of the GDP by 2020 (Hoang 2015).

Law of Higher Education

This inaugural Higher Education Law approved by the National Assembly of Vietnam on 18 June 2012 became effective on 1 January 2013. The Higher Education Law provides more autonomy to university governance such as strategic

plan of development, international collaboration, training, and research. Particularly, the Law values the importance of the HE system in the development of Vietnam under the globalised forces. Particularly, it identified the importance of academic research and indicated that the development of research universities to meet the demands of globalisation, industrialisation, and modernisation is imperative (Quốc Hội 2013). Accordingly, the Higher Education Law requested that all universities in Vietnam be accredited by an independent organisation using a unique assessment provided by the Ministry of Education and Training. One of the most important assessment criteria is the academics' research productivity at an institution and the number of highly qualified academics who hold a doctoral degree.

Although the Higher Education Law emphasises the institutional autonomy of universities, the reality is not the same. In order to attract distinguished and highly qualified academics, universities should have autonomy to recruit academics and offer attractive salary packages to them. It is difficult to expect academics to perform well in both teaching and research and not offer an attractive and commensurate remuneration. Hence, the tight top-down control of the government and relevant ministries (education and training, finance, domestic affair) should be further reduced in order to provide more autonomous governance to universities.

Science and Technology Law 2013

In order to support the national socio-economic development and international integration, the Law of Science and Technology 2013 was approved by the National Assembly of Vietnam as the foremost policy in Science and Technology in Vietnam. It provides clearer information and latest regulations to meet the actual situations of the country. The Science and Technology Law 2013 emphasises the attraction, appropriate use, and value of researchers. It guides that research funding allocated to organisations and individuals becomes more flexible and that it is critical to build national research organisations which have international capacity, sufficient research infrastructures and mechanisms so that these research organisations can attract research collaboration with other foreign research organisations.

Research Programmes in Vietnam

To enhance the research capacity and productivity of the Vietnamese academics/researchers, the Government of Vietnam has built a number of research programmes as below.

Building Research Universities in Vietnam

Brew and Lucas (2009) and Faust (2013) mentioned that the research university is the place that generates and disseminates knowledge through research publications. The research university not only provides a qualified labour force for a society to meet the demands of industrialisation and modernisation of the country, but also conducts research to serve society (Altbach 2007). The research university connects closely with its communities, local and international, and plays an important role in dealing with imperatives of a country and of the world, for example diseases, financial crises, or natural disasters. As such, research universities have rapidly emerged 'making it possible for [their] countries to join the global knowledge society and to compete effectively in the sophisticated knowledge economies of the twenty-first century' (Altbach 2013, p. 316).

In order to promote research activities and research capacity of the Vietnamese academics, the Government of Vietnam has been building four strategic research universities with an international standard by 2020. They include Vietnam-Germany University (Đại học Việt-Đức), University of Science and Technology of Hanoi (Đại học Việt-Pháp), a university belongs to the University of Danang (potentially called Vietnam-United Kingdom University-Đại học Việt-Anh), and another university in Can Tho province. While the first two universities have been in the operation for a few years, the later ones are still being established. The funding announced for these universities mainly comes from an international loan provided by World Bank and Asian Development Bank. With the capital investment of USD100 million for each university, the Government of Vietnam expects them to become world-class universities and to improve not only the global rankings but also the ranking of the whole VHE in the future.

Project 322 and Project 911

The Project 322 began in 2000 for the period 2000–2010 and the Project 911 started in 2011 for the period concluding in 2020. These projects provide scholarships for academics at colleges, universities, research institutes, and some public organisations to study overseas at a postgraduate level. They aim to train 20,000 doctorates for Vietnam by 2020. The Vietnamese Government believes that academic graduates from overseas will have a significant and effective contribution to research and development of universities which are key to the knowledge economy. It is anticipated that knowledge and research experiences that abroad graduates gain will be transferred to their colleagues who have been inaccessible to overseas study. There is also an expectation of a linkage between domestic academics and academics at their overseas universities be maintained to foster future research collaborations. The academics graduating from overseas are expected to play key roles in undertaking research and producing publications. These projects help the HERA achieve its

objective that at least 60% of academics at HEIs have a master's degree and at least 35% of them obtain a doctoral degree, as well as implement the aspiration of building research universities in Vietnam indicated in the Higher Education Law 2013.

The National Foundation for Science and Technology Development

The National Foundation for Science and Technology Development (NAFOSTED) was established in 2003 by the Vietnamese Government but it was not officially operated until 2008. This organisation is a member of the Ministry of Science and Technology. It serves as a non-profit office which facilitates research projects proposed by organisations and individuals from all universities and research institutes across the country. NAFOSTED provides research funds for researchers to conduct research projects. In particular, it aims to fund researchers to publish their research results internationally in high-quality journals. The following five statements indicate the missions of this newly established foundation:

- Build a durable, innovative, and conducive environment to research activities at universities and institutes;
- Improve the research capacity of young scientists and establish research centres that meet international standards;
- Enhance the quality of scientific research and increase the number of Vietnamese research published in ISI-covered journals;
- Encourage international cooperation for Vietnamese scientists to approach international research knowledge and to attract external funding to Vietnam's scientific projects; and
- Promote research efforts in enterprises, with a focus on core technologies development contributing to national economic growth and competitiveness. (NAFOSTED 2016b)

In order to achieve the goals, NAFOSTED, with a flexible funding mechanism (Nguyen 2015b), provides more opportunities for researchers to receive research funds. The funding is based on following criteria: (a) potential impact of the research, (b) originality and innovation of the work, (c) feasibility of the proposed research, (d) scientific capacity and expertise of the applicant, (e) expected results and scientific significance, and (f) research plan (NAFOSTED 2016a). Such criteria indicate that the funding mechanism of NAFOSTED apparently bases on the research capacity and productivity of applicants. In the context of declining public funding for research, this mechanism is considered to be more effective than the traditional model of fund allocations through administrative bodies such as ministries and provinces, which is ineffective and time-consuming. It is likely that the fund will not be equally distributed to organisations or researchers, but it will be based on the performance measure of academics and researchers. As long as the applicants are active and productive in research, their submission for a research grant is likely to be successful. Each research project's recipient is required to publish one or two articles listed in the index of ISI or Scopus depending on disciplines (Nguyen 2016).

Precisely, the successful implementation of these national initiatives is expected to improve the research capacity of the Vietnamese academics. However, in the current context of the VHE, the enhancement of research capacity of academics has encountered a plethora of challenges – the ones that require more effort and commitment of academics in addition to the strong support/investment from the government of Vietnam in general, and from MOET in particular.

Research Capacity, Policies, and Programmes in Australia

The following section will look at the research capacity of academics in Australia, and see how research policies and programmes currently existing in this country support Australian academics.

Research Capacity of Australian Academics

Unlike Vietnam, Australia is considered to have a strong research capacity internationally. The reform in HE of Australia started in the 1980s and had a strong focus on academic research (Li et al. 2008). The Government of Australia pays much attention and support to its HE system and attempts to build some best world-class universities in both teaching and research. The Australian universities have achieved international standards; they constantly seek to enhance their research capacity so that they are able to maintain and/or increase their world rankings.

On the one hand, the Australian universities must comply with national regulations, for example, undertaking research, in order to be labelled as 'university'. This is because the teaching-only institutions are not allowed to use the 'university' label (Bentley et al. 2014). On the other hand, Australian academics must do research in order to be identified as 'university academics' and confirm and maintain their academic identities. How much these academics engage in research depends on the missions assigned to academics by each university. For example, eight universities of Australia including University of Sydney, University of Melbourne, University of Adelaide, University of Western Australia, Monash University, Australian National University, University of Queensland, and New South Wales University formed an elite group called Group of Eight (Go8) to intensively collaborate in research. These universities are the sandstone universities of Australia and their research contributes significantly to Australia's social and economic development (Group of Eight Australia 2016). Another group of universities has formed a collaborative network called Innovative Research Universities (Sombatsompop et al. 2010). They aim to collaborate and support one another in undertaking national and international research (Innovative Research Universities 2016). Six universities have participated in the IRU including Griffith University, La Trobe University, Flinders University, James Cook University, Murdoch University, and Charles Darwin University.

Table 10.2 displays how the Australian academics have had 916,289 high-quality journal articles indexed by Thomson Reuter's database (ranked #3rd). However, it is ranked the second in terms of citation impact because articles by researchers in Australia have received the second largest number of the average number of citations a document has received. Apparently, the Australian academics are more productive than their counterparts in Vietnam because they spend more time engaged in research activities. In an international comparative study entitled *Changing Academic Profession* (CAP), Bentley et al. (2014) found that Australian academics spend on average 36% of their working time on teaching and 37% for research. As universities in the Go8 are research intensive and have long histories of training postgraduate students (doctoral level) and traditional research pathways, their academics were found to spend less time on teaching (31%) and more time on research (44%) compared with their colleagues at other universities. The following table illustrates the research productivity of academics at those universities. The number of international refereed journal articles indexed in the databases of Thomson Reuter for the period 2000–2016 is compared with the number of publications of two national universities and three regional universities of Vietnam to see the difference between the research productivity of academics in Vietnam and Australia.

The information contained in Table 10.7 reflects the academics of the Go8 universities being more productive than their colleagues at the IRU's universities.

Table 10.7 International refereed journal articles of academics in key Australia's and Vietnam's universities, 2000–2016

University	Web of science Documents	Times cited	Citation impact
University of Sydney	112,087	1,735,018	15.48
University of Melbourne	94,047	1,626,850	17.30
University of Queensland	83,443	1,424,806	17.08
Monash University	76,349	1,096,936	14.37
University of New South Wales	72,978	1,078,733	14.78
Australian National University	53,714	916,597	17.06
University of Western Australia	55,911	877,183	15.69
University of Adelaide	40,356	599,583	14.86
James Cook University	14,822	250,333	16.89
Griffith University	22,441	244,473	10.89
Flinders University South Australia	16,552	201,849	12.19
La Trobe University	17,636	194,485	11.03
Murdoch University	9146	119,399	13.05
Charles Darwin University	4229	64,127	15.16
Vietnam National University Hanoi	2114	18,358	8.68
Vietnam National University Hochiminh City	1217	5694	4.68
Hue University	492	2771	5.63
The University of Danang	174	653	3.75
Thai Nguyen University	No record found		

Although VNU-HN and VNU-HCMC of Vietnam have been considered as the two leading universities of Vietnam in terms of teaching and research, the number of international publications of academics from these Vietnamese universities is extremely low compared with the Australian counterparts. It is noteworthy that comparing the Vietnamese and the Australian academic research capacity and outputs appears to be rather superficial due to the stark differences, the local specificities and the unique dynamics existing in academic research field in these two countries, especially with regard to their research culture, research environment, and investments for research in each country. However, a contrastive analysis is necessary because it insinuates useful insights into the existing research and academic research capacity in Vietnam and Australia so as to identify the possible gap existing amongst universities labelled as 'research universities'. This information obtained from this contrastive analysis helps inform the educational leaders that changing a model of university from teaching-intensive to research-intensive appears to be challenging and that there is a long transition from a teaching university to a research university. This is because this transition requires not only the intention and determination of the key educational leaders, but also commands much joint-effort and commitment of both academics and educational leaders to bring about positive changes. Indeed, there is a whole spectrum between a teaching and a research university, and it takes universities years to shift from the first model to the second one. Clearly, transitioning from teaching-intensive to research-intensive university is unlikely to be achieved overnight, especially when the VHE is lagging behind regionally and internationally. Consequently, the goal set for HEIs in Vietnam to have at least a research university ranked in the world top 200 universities by 2020 definitely seems to be without reach in the short run.

Research Policies in Australia

Australia subscribes to a performance-based funding scheme which places accountability on academics and universities to produce research publications (Geuna and Martin 2003). This scheme emerged as a response to the knowledge economy, and it is effectively used to distribute research funding to universities based on their research performance. Li et al. (2008) emphasise that this funding scheme places enormous pressure on HEIs which necessitates the enhancement of their research capacity.

In 2015 the Government of Australia spent $9717 million in support of science, research and innovation of the country in which the research funding for higher education sector was $2828 million (Australian Department of Industry Innovation and Science 2015). The information reveals that within the amount of research funding for this sector, the government reserved AUD1,995.8 million for performance-based block funding. The more academics perform in research, the greater the amount of research funding is granted.

The research fund provided by the Australian Federal Government through the Australian Research Council (ARC) is complemented by each state to support academics and researchers. For example, Queensland State has a research fund called 'the Advance Queensland initiative' which supports researchers undertaking original work that will have a positive impact on Queensland. Academics at Queensland's universities can apply for a grant from this initiative, and their projects will help drive innovation and collaboration in new and existing industries and solidify the state's capacity and reputation as a global science and research leader.

The above-mentioned policies indicate that the Government of Australia emphasises the role of academic research to its national development through stimulating innovation and delivering solutions to the economic and social challenges facing the nation. As such, all Australian universities maintain a rigorous recruitment policy or framework to ensure their academics engage actively in research and contribute to research productivity.

Research Programmes in Australia

The following research programmes have been well established across the higher education of Australia and universities to ensure that academics are actively engaged in research activities which improve their research capacity and productivity.

Annual Review of Teaching and Research Performance

Academics in Australian universities are annually appraised for their research performance against what they have planned at the beginning of the academic year. The annual appraisal is an opportunity for the university to identify the strengths and weaknesses of its staff in order to provide appropriate support to maintain academic standards while advancing the university's strategic objectives in teaching and research. Through performance review, the university has an opportunity to have discussions about individual achievements, performance trajectories, development plans, and work profiles as well as leave plans or research plan.

Linkage Between Universities and Industry

Australian universities emphasise the importance of collaborations between the university and industry in undertaking research. Research universities make significant contributions to the development of the country because they not only generate knowledge, but also collaborate with business firms in industry to conduct joint research and development projects. The collaboration between universities and the

Australian industry is considered a necessary pathway to the development and prosperity of Australia. Cummings (2014) acknowledged that the linkage between Australian universities and industry is a good contribution to the knowledge-based economy.

Networking Among Universities

In 2009, the establishment of Collaborative Research Networks (CRN) heralded a significant policy initiative of the Australian Government's Department of Education and Training in improving the research capacity of academics. The CRN aimed to connect academics at less research-intensive universities with colleagues at research-intensive universities in order to develop their research capacity. This is an effective network in research collaboration through which less-experienced and junior academics/researchers have opportunities to learn from experienced academics/researchers (Australian Department of Industry Innovation and Science 2009). It is a channel to connect universities and research organisations with industry. One of the most important missions of the CRN is that 'researchers, businesses and governments work collaboratively to secure value from commercial innovation and to address national and global challenges' (Australian Department of Industry Innovation and Science 2009, p. 1). Further to this point, the establishment of CRN helps less research-intensive universities to develop their research capacity by collaborating with colleagues at more research-intensive universities. This network creates a linkage among universities in order to enhance the research capacity of academics in all linked universities (Bentley et al. 2014).

Other universities in the same broad field, such as technology form a group named Australian Technology Network to support one another in teaching and research. These universities also have a good relationship with industry so that their academics have more opportunities to receive research funding from industry. Intensive collaboration amongst members is essential for the ATN. Applying an end-user approach, these members particularly collaborate in research projects that address challenges of business, government, and industry so that the connection between them is very tight and effective.

Conclusion

Undertaking research and disseminating research findings tend to be amongst the most central functions of an academic at a university. As such, enhancing research capacity is considered to be important to benefit universities and communities worldwide. As highlighted in this chapter, the Vietnamese universities have to respond swiftly to the mounting pressure of transitioning from teaching-intensive to research-active universities. This is not an easy task when long-standing

practices of the Vietnamese academics have been engrained in the strong tradition of teaching only.

The chapter has examined the research publications of the Vietnamese academics in a comparison with those of other countries. In particular, contrasting them with Australian counterparts help provide readers with a useful picture of the existing practices and contextualisation of where research productivity and publication is positioned globally. Drawing on the success of the Australian case, it appears that it remains a challenge for the Vietnamese academics to develop their research capacity and produce research publications that meet the international standard of publication as that of their counterparts in the region and the world.

To warrant enhanced research capacity for the Vietnamese academics and contribute to the country's social and economic development, the Government of Vietnam requires extra effort and attempt in formulating and implementing research policies to support the Vietnamese HEIs. Limited research capacity of the Vietnamese academics are resulted from the lack of highly qualified academics with a doctoral degree (particularly those trained overseas in a western and/or developed country), the constraint of low remuneration, a high teaching load, poor research resources, insufficient research infrastructure, and incentive policies for allocating time, financially and research support, as well as academics' perception of and comment for research instead of being burdened with the heavy teaching load (Harman and Ngoc 2010; Nguyen 2015a, b; Nguyen et al. 2016).

Australian practices of building research programmes showcase a good example and provide useful implications for Vietnam. Conditioned by financial constraints, the Government of Vietnam should call for the wider contribution of the society, including private and public organisations to promote research and development of Vietnam. Despite having been raised in the Science and Technology Law 2013, attracting immense industry research collaboration and support is a viable option. The Vietnamese universities must be more proactive in establishing and fostering research partnerships with research end-users in and outside of the organisations/industry in a way that it garners mutual benefits. This partnership unfortunately remains pretty weak due to the ineffective tradition and culture of collaboration. If such a collaboration is enhanced, it enables employment opportunities (research jobs) and working places (to do experiments at industrial labs) for university academics.

Enhancing academics' research capacity requires a commitment from the academics and from the government and universities to keep academics' motivated, research productive, and committed to expanding the knowledge economy. Essentially, academics working at the Vietnamese universities should be autonomous and take lead in strengthening their research capacity and increasing their research productivity. This can be done by engaging in research activities that promote both the quantity and the quality of research publications.

Last but not least, the Vietnamese universities are required to continue providing a collegial environment that values high-quality teaching and research. The traditional practices of separating teaching from research and preferring one over

the other need changing. Since teaching and learning are inextricably linked, as such each requires equal support, recognition, and opportunity to flourish. This means there must be a paradigm shift in reorienting the Vietnamese universities towards research-intensive ones; this is accorded with introducing a more comprehensive strategic research policy system, applying a more robust and transparent support system, offering additional incentive schemes for research staff, alongside with professional development strategies to uplift the research capacities for the Vietnamese academic staff.

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