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Student and Skilled Labour Mobility in the Asia Pacific Region

Reflecting the Emerging Fourth Industrial Revolution

Edited by Shingo Ashizawa
Deane E. Neubauer

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Shingo Ashizawa • Deane E. Neubauer
Editors

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ISSN 2731-6424 ISSN 2731-6432 (electronic)
International and Development Education
ISBN 978-3-031-16064-6 ISBN 978-3-031-16065-3 (eBook)
https://doi.org/10.1007/978-3-031-16065-3

Cover illustration: MirageC/moment/Getty

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG.
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Contents

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List of Figures

List of Tables

Introduction

This volume was conceived and developed over a two-year period beginning in October 2018 at the annual meeting of the University Mobility in Asia and the Pacific Organization in Osaka, Japan. At that time the most pressing challenge facing the representatives constituting this multinational organization that concerned the mobility of high education students throughout the Pacific was the overall structural change beginning to emerge in the participating nations being driven by the dynamics of the Fourth Industrial Revolution, or Work 4.0. Within this frame of reference contributors set about examining both the nature of these changing structural dynamics and their likely differential impacts across the region.

Contributor chapters were just being initially assessed in January 2020 when the world was beset by the global COVID-19 pandemic. As we can see by the variety of individual interpretations of those events and the brief, but turbulent subsequent history of differential reactions throughout the world to the pandemic, both its nature and how it may and "should" play out throughout the world are subjects open to significant continued contestation and interpretation. At one level, it is clear from the cumulative, daily reports of the epidemic's course throughout the world

The publication process was coordinated and supported by Grants-in-Aid for Scientific Research (A), which is a part of JSPS (Japan Society for the Promotion of Science) funding. The project name is "The Role of University Networks in Student Mobility in Asia and the Pacific—Aiming to Broaden the Impact of UMAP (University Mobility in Asia and the Pacific)."

that how it is received and dealt with has been and will continue to be a matter of difference as each country will, for better or ill, fashion a response suitable for its prevailing climate of political, social and economic forces. At another level, it is also clear that genuine pandemics tend to be on the level of "once in a century" events as exemplified by the most common "recent" predecessor, the 1919 flu epidemic (Spinney 2017).

Thus, at this point in time we find ourselves across the world engaged in the vortex of these two powerful forces: the disruptive engagements of the Fourth Industrial Revolution and those of the COVID-19 pandemic. Each of these "forces" is proceeding, as it were, by its own interior "logics" and as such will affect and remake societies throughout the world. In addition, however, they will "engage" each other synergistically in ways that will be undoubtedly novel and to some degree unexpected and unpredictable, a dimension already much in evidence as education at all levels has been "reinventing itself" to deal with both the possibilities and the difficulties of non-face-to-face education.

Even as we are "into" the still early months of the current pandemic, it is clear that its consequences will be "life" and "history" changing. As this is being written, for example, Great Britain has indicated that its economy may shrink by 35% in the coming year, the largest negative impact since World War II. Another projection is that it could suffer the largest relative setback since the onset of the seventeenth century. Similar projections are being made throughout the world as it becomes clear that this pandemic is presenting through the world in successive "waves," each of which triggers new responses. Even as it is only a matter of somewhat ill-informed projections to attempt assessments of how overall social functions will be performed at various stages of the pandemic in the coming months and years, it is clear that higher education as a whole is undergoing substantial changes and will continue to do so as the pandemic proceeds and moves to further stages. In the chapters that follow we will point to these emergent responses to the pandemic in the several countries on which we focus.

These pandemic-related events, of course, are taking place within the setting that has been advanced in the past half dozen years or so concerning the varied impacts of the Fourth Industrial Revolution, powered by rapidly advancing Artificial Intelligence (AI), the original focus of the meetings that gave rise to this volume. With very little effort one can bring forward representatives of a rapidly growing literature that seeks to preview and outline the range of disruptive consequences likely to flow from the dynamics embedded within it. For example, in a widely cited recent

work Daniel Susskind has suggested that within a reasonably near future, 40% of existing jobs will "disappear" to be replaced by versions of automated processes (Susskind 2020). In an earlier "alert" provided by Alec Ross (2016), he underscored the task of his volume:

> This book explores the industries that will drive the next 20 years of change to our economies and societies … the key industries of the future—robotics, advanced life sciences, the code-ification of money, cybersecurity and big data—as well as the geopolitical, cultural, and generational contexts out of which they are emerging. (p. 12)

Since then, the literature on AI and its possible social consequences has continued to rapidly expand, and indeed it was the intersection between this expanding literature and the consequential impacts on higher education that provided the stimulus for this volume. In the initial organizing paper, contributors were encouraged to make use of their own experiences and those of the higher education institutions with which they were familiar to begin an informed inquiry into the possible eventual consequences of the Fourth Industrial Revolution for such institutions.

It is our view that the impacts of the pandemic warrant a significant review of this task. By way of example, the initial papers developed for this volume focused on the impacts of AI having wide and many varied consequences that ranged, for example, from a movement away from the commitment to physical classroom presence, one for which there would be a substantial commitment within a multi-national higher education mobility endeavor such as University Mobility in Asia and the Pacific (UMAP), to one in which various "virtual" modalities might be engaged on either a partial or a complete basis to create a substantial and realistic learning experience for students across borders. A year ago, this seemed like a process that might grow and be adopted incrementally within the accustomed routines of higher education institutions for which changes in routines and procedures tended to come slowly and with considerable caution. Within the dynamics of the pandemic, as we have learned, higher education institutions throughout the world were forced either to cancel current in-place face-to-face instruction or to transform them quickly and completely to distance modalities and, irrespective of the expressed view of both instructors and students alike that doing so has been a not entirely satisfying experience.

An even more critical issue that has become increasingly apparent as the pandemic has progressed is the extensive financial crisis that is engulfing all of higher education. Sorting out this dimension of impact is a matter of the first order, as it will, no doubt, create the context for how all of higher education within the region will function in the near and more distant future.

Neubauer and Ashizawa lead the discussion of these issues with an introductory chapter (Chap. 1) in which they provide an overall reassessment of student mobility with Asia Pacific Higher Education, developing a description and analysis (as will some other contributors as well) of the push and pull factors that have been present in such mobility and offering some initial suggestions of how these are beginning to change both in the context of the Fourth Industrial Revolution and as articulated and impacted in various ways by the dynamics of the pandemic. In doing so they give particular attention to a small but important range of "macro factors" that were in the process of impacting regional higher education dynamics even before the pandemic, including a range of special governmental-initiated pull factors by regional "players" seeking to draw larger numbers of students toward their higher education systems, a dynamic most prevalent in China, Japan, Korea, Malaysia and Taiwan. The chapter also gives focus to a set of macro factors that have arisen to reshape the more familiar push and pull factors that have characterized regional dynamics prior to the most recent 4–7 years, namely the continuing emergent tensions between a resurgent nationalism and an ever-changing and persistent pattern of globalization, which in the broadest terms have created a pervasive context for the emergent information revolution that the volume explores across the specific countries chosen for this examination.

In Chap. 2, Lili Shi and Akiyoshi Yonezawa examine the changing roles of university education in the context of these dynamics, focusing on their manifestations in China and Japan. They focus their examination on the varying ways in which university-industry collaborations are taking place within the knowledge industry sector. In their review the emphasis on university-industry linkages has changed from one focused on vocational training toward systems that explore how students and academics are engaged directly in the processes of knowledge creation and innovation, concluding that this engagement itself is becoming a "central value" in these transforming systems of education. Additional attention is given to the role that industries themselves are playing in engaging the education systems of both countries to affect how government and industry can

engage in creating cultures of educational transition to new industrial realities.

In Chap. 3 Nopraenue S. Dhirathiti explores the varied ways in which Work 4.0 is affecting, both directly and indirectly, student mobility across the Asia Pacific region. She organizes this investigation by first seeking to establish the policy framework and rhetoric within which Work 4.0 is occurring and from that to extract the range of influence that the resulting and changing paradigms of learning is having on student mobility. While providing and exploring broad avenues of inquiry for these developments, she focuses directly and specifically on the ways in which various countries, for example, Thailand, China and Taiwan, have sought to confront and direct these forces, through such emerging policy structures as Thailand 4.0, Made in China 2025 and Productivity 4.0. In addressing such issues directly, she explores the "so-called period of VUCADEMIA," which represents VUCA=volatility, uncertainty, complexity and ambiguity. Her primary argument is that given the myriad of demands that are impacting higher education institutions, including those for "access and accountability, fiscal austerity, and responsiveness to an unpredictable but connected world, all in the context of diminished resources and a pronounced demographic shift to an aging population," higher education must become nimble and adaptive to meet the range and extension of the challenges posed by Work 4.0.

In Chap. 4 Takashi Sekiyama shifts the focus to the fundamental issue of the education economics of student mobility and seeks to assess them in the context of Work 4.0. In doing so, he focuses on two distinct dimensions: a consumption function is represented in the fulfillment of individual intellectual desires and an investment function in the creation of human capital through the education process. He raises the fundamental question of how the Fourth Industrial Revolution may change the cost-utility function of studying abroad and seeks to delineate the challenges faced both by students engaged in the process and by the institutions that need to be aware of the constantly changing dynamics of international student exchanges and accommodate them accordingly within both the attractions and the limitations of their historic and transforming capabilities. Complicating all of this, Sekiyama emphasizes, is the need to conduct these complex dynamics within the framework of adapting to the "new realities" imposed by the COVID-19 pandemic.

Chapter 5 shifts the focus further to Thailand, where Prompilai Buasuwan and Meechai Orsuwan explore the variety of ways in which

higher education institutions can offer new types of practical learning opportunities which may provide new pathways into the emerging workforces of the countries in which they occur. These, they make clear, involve varied transformations in both existing pedagogies and teaching modalities, opportunities that are differentially achieved across the varying regions of Thailand. These include transformations influenced by Work 4.0, but are not limited to distance education, non-formal education, joint teaching and AI-assisted learning. Their review emphasizes the continuous nature of these changes stimulated both by outcomes and distributions of changing technologies and by the complex political dynamics that exist within the broader society as well. They view their review as focused on a determination of whether these changes are being "fitted into" the overall changing academic environment or are in fact being displaced by other elements within the broader context of educational change.

In Chap. 6, Shingo Hanada invites the reader to "reassess" the full range of push/pull factors at work in the process of student mobility in the Asia Pacific region as they are being transformed by Work 4.0. In engaging the reader in this transformation he reminds us that viewed within its broader historical perspective significant changes have come and gone along the decades of transformation in these processes, dating from the 1960s to the present, a time frame that embraces the complex dynamics of de-colonialization throughout Asia accompanied by the subsequent transformations brought about that multiple institutional organizational efforts have accomplished. In the process the traditional East to West transcontinental mobility patterns between the Asia Pacific region and Europe and North America have been supplanted to a significant degree by a new East to East mobility in which Asia Pacific students are looking toward Asia Pacific higher education institutions as their preferred destination. Within this overall transforming process is an equally complex set of engagements in which students make a determination to move within the Asia Pacific region for their educational experiences rather than remain within their home countries, a complex dynamic given the considerable efforts that are taking place throughout the region to make the higher educational experience more attractive to all, not least in terms of its presumptive benefits for engaging the demands of the Fourth Industrial Revolution.

In Chap. 7, Sarah R. Asada provides a broad perspective on the changing dynamics of Asia Pacific student mobility within the emergent Fourth Industrial Revolution context. She begins by reviewing the overall organizational behavior of universities in regard to international student

mobility, noting that while the "ad-hoc and fragmented international dimensions of universities are evident throughout history" the internationalization of higher education has been "more strategic, explicit, and comprehensive" from the 1990s on. This shift has included a "crisscross" engagement of such institutions between the "at-home" and "abroad" dimensions of internationalization. The resulting "environment" of international higher education defines the reality that Asia has become the center of the global landscape for student mobility, a process that has been spurred by the advent of the knowledge society and the formalization of governmental and societal responses to it throughout the region. One result of this process has been the perception of the comparative advantage(s) one society may possess over another, creating a powerful set of incentives that can and do propel student mobility. Within this framework she provides an extensive review of the trends of organizational structures that frame student mobility and the policies that actuate it.

In Chap. 8, W. James Jacob and Xi Wang turn our attention to how the dynamics of Work 4.0 are transforming the teaching experience as a result of these emergent technologies. They explore what they see as the constantly developing range of new and revised pedagogy and teaching methods that are emerging from the varied dimensions of the Fourth Industrial Revolution. These include, but by their estimate "in no way" are limited by, "new modalities of distance learning, non-formal education, collaborative teaching, interdisciplinary curricula and so on." They give particular attention to the role being placed by novel devices and technologies emerging out of the AI-Work 4.0 dynamics. They emphasize the ways that higher education institutions are increasingly organized and operating and look toward the further transformations that may result from these emergent technologies.

In Chap. 9 Christopher Ziguras reaches into the vast and unfolding universe of digital content across its many and proliferating platforms and queries the relatively slow pace of higher education institutions in adopting them on a scale that one would presume commensurate with the rate of innovation that has characterized them. In so doing, he both contributes very usefully to our collective understanding of the multiple dimensions of this phenomenon and alerts us to the potency of the change dynamics that underlie the technologies that have been a ready product of the Fourth Industrial Revolution and given stimulation of variation and usage by the COVID-19 pandemic including those of his own university.

Chapter 10 by Shingo Ashizawa ties the considerable global efforts to ensure the mobility of students internationally to the more recent impacts of the pandemic in the broader context of the Fourth Industrial Revolution through a detailed examination of how the recently adopted Tokyo Convention seeks to bring Japan into a closer linkage with other nations throughout the world. For much of the past several decades, Japan lagged behind other nations in terms of the means by which it facilitated the entry of international students into its higher education system. The Tokyo Convention seeks to remove many of these historical barriers to international movement, even as the overall dynamics of student mobility in general are placed on a new course by these unique structural disruptors.

The final chapter (Chap. 11) by the editors seeks to extract from the considerable diversity of these chapters a set of propositions that summarize some of the many factors currently impinging on and framing student mobility in the Asia Pacific.

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CHAPTER 1

Reassessing the Nature and Dynamics of Student Mobility Within Asia Pacific Higher Education

Deane E. Neubauer and Shingo Ashizawa

Introduction

In one way or another the process of the cross-border movement (mobility) of students has engaged combinations of what have been commonly viewed as "push" and "pull" factors, which in turn tend to operate as reciprocals of each other. Over the past several decades throughout Asia these factors have established a form of structural dynamic that has come to be accepted as the predominant process of student mobility within the Asia Pacific region and with others beyond. Beyond these dynamics, within which government and regional policies have been framed and operated,

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S. Ashizawa, D. E. Neubauer (eds.), *Student and Skilled Labour Mobility in the Asia Pacific Region*, International and Development Education, https://doi.org/10.1007/978-3-031-16065-3_1

three "extra-regional" forces have begun to emerge: namely (1) the rise of varieties of nationalism within what was until recently accepted as a dominant structure of globalization; (2) the onset of what has come to be termed the Fourth Industrial Revolution (Work 4.0) and (3) within these progressions, the emergence of what is being seen as the twenty-first-century university. Each of these, we assert, will come to affect in various ways both the concept of push/pull factors in Asia Pacific student migration such that within the quite near future prevailing notions of what these are and how they operate will require modification. This chapter provides a brief introduction of each of these change dynamics and offers a few insights into how their individual and collective impacts may affect higher education within the Asia Pacific Region with illustrative instances focused on Japan as an extant case in point.

Some Predominant Push/Pull Factors

Quality

Quality within higher education environments has historically been one of the most difficult "things" to measure and the literature is replete with various approaches. Over the past two decades, this very difficulty in specification has led to a number of "reductionist" approaches that seek to establish and legitimate quantitative approaches, the most obvious perhaps being the ranking phenomenon, to which the higher education community has become increasingly subject and committed. (For a useful analysis and critique see Marginson and Van der Wende 2007.) Where quality is perceived to be lacking in relative terms, its absence serves as a push factor, and the converse: where it is perceived to exist (especially when conceptualized in measurable terms such as rankings and to a lesser degree accreditation), it serves as a pull factor. As a fundamental dynamic that has come to underlie all of Asia Pacific higher education, it could be argued to be the most determinative of factors, especially to the extent that an effort to achieve and sustain rankings comes to be a basic strategy for government financial investment (World Economic Forum 2015), a view that is increasingly widely accepted.

The overall governmental goal, of course, is where an absence of relative quality exists as a push factor, to utilize targeted governmental investment to convert it to a pull factor, and thereby gain both social capital and income from attracting non-domestic students. Over the past several

decades we have witnessed a situation in which various regional "higher education capacity banks," most notably Australia and New Zealand, have been able to utilize their relative advantage as higher education systems with a strong historical investment base (with resulting higher quality) to "floor" their higher educational systems with external financial flows Choudaha and Hu 2016). This dynamic appears also in the explicit strategy of some nations to establish themselves as education "hubs." Both of these instances, it needs to be pointed out, are undergoing modification to account for the massive interruption of student flows due to the Pandemic, most notably with Asian students not traveling to many of their former destinations of choice: most particularly the movement of students from China and India to Australia, North America and European destinations. (In particular see: Altbach and de Wit 2020.)

Demographics and Capacity

Demographics across the Asia Pacific Region have been a dynamic change vector over the past five or so decades as multiple societies have experienced demographic booms followed by declining birth rates and significantly aging populations (e.g. Japan, Korea and more recently China and Thailand). In a pattern largely replicable throughout the region, these dynamics have resulted in situations in which countries have initially experienced a shortage of higher education capacity that has often triggered a rapid expansion of higher education systems, to be followed by a period of "overshoot," reflected in excess capacity. In this lower birthrate stage, systems tend both to contract and in turn to shift their mobility strategies from a push mode—sending out in the effort to obtain "brain gain" that can be employed in national development—to a pull mode. In this modality a significant proportion of what comes to be viewed as "excess" capacity seeks to be targeted toward inbound students, a pattern that has become increasingly common in Japan, Korea and Taiwan. In another version of these system dynamics, nations that had met their initial demographic challenges have sought to develop new and/or additional pull vectors with targeted expansions in graduate education (UNESCO 2014). As suggested above, these dynamics are basically inseparable from the overall nature of quality factors and the array of associated dynamics. As such, the role of Quality Assurance entities works in parallel with other governmental efforts to develop a holistic approach to this goal and to supply a "currency" for the process. Over time the process seeks to develop