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A Comparative perspective on the secondary and post-secondary education systems in six nations: Hong Kong, Japan, Switzerland, South Korea, Thailand and the United States

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Abstract

This research critically examines the education systems of six nations (Hong Kong, Japan, South Korea, Switzerland, Thailand, and the United States) in order to understand and compare approaches to general and vocational education, with a particular focus on secondary to postsecondary transitions. It follows an interpretative paradigm, emphasizing collaborative qualitative interpretation of data based on both documents and case studies led by the research team. Results are organized around four themes: (1) system structures, (2) degree of differentiation, (3) commonly held values and beliefs, and (4) postsecondary application/transition processes.

Keywords: Vocational education; secondary education; postsecondary education; crossnational comparisons; transition processes.

1. Introduction

We are witnessing rapid changes in educational context across the globe. While a secondary education guaranteed economic success in the past, the economic health of developed and developing nations has increasingly come to depend on higher levels of education and more specialized vocational training (Organization for Economic Cooperation and Development (OECD) 2006a) and countries are reforming their educational systems to better capitalize on their natural, social, and economic resources. Though developed countries have offered universal access to primary and secondary schooling along with reasonably accessible postsecondary education for many years, there is much diversity with regard to the level of vocational training embedded in their education systems. In addition, access to a nations’ most prestigious institutions can be severely limited for underrepresented and underprivileged populations (Alon and Tienda 2007; Bowen et al. 2005). This report critically examines the
education systems of six nations: Hong Kong, Japan, South Korea, Switzerland, Thailand, and the United States. With our focus on postsecondary transitions, we aim to provide a cross-national comparison of the distinct education systems, highlighting features that may be applicable to other nations in need of educational reform. Based on our findings, we offer recommendations for educational policy and practice that can benefit the six focal nations as well as other countries.

2. Context of the Study

The six nations participating in this project are diverse geographically, politically, and economically. The United States, with about 301 million residents, is large in terms of geography and population and the remaining five countries are small to modest geographically, ranging from 7 million to 127 million inhabitants (Central Intelligence Agency)\(^2\). The countries also display significant political diversity with Switzerland and the United States having substantial autonomy devolving to regional governmental units and the other nations with stronger national governments that influence economic, social, and educational policies. The most notable difference across the six nations relates to their economic health. Switzerland, the United States, and Japan all have very strong economies, with gross domestic product (GDP) per capita income of approximately $41,000, $45,000, and $33,000, respectively (Central Intelligence Agency). Hong Kong is in the middle range, with a GDP per capita about 60% that of the U.S., Switzerland, and Japan. Thailand and South Korea currently have the weakest economies, with GDP per capita incomes of $7,000 and $24,000, respectively (Central Intelligence Agency; U.S. Department of State).

In addition to their growing economies, all six countries have experienced increases in the educational attainment of their workforce (OECD 2008). The driving force behind the expansion of postsecondary education in Japan, Hong Kong, Thailand, and South Korea, for instance, has been the countries’ lack of natural resources to support their economies (Central Intelligence Agency). These countries have prioritized the expansion of their postsecondary education in an effort to address the increasing skill requirements of their labor markets.

3. Research Questions and Methodology

This study focused on four comparative research questions related understanding the following: (1) The characteristics of the six nations’ educational systems; (2) the types of academic and vocational postsecondary options available to students; (3) strategies for preparing students for these options; and (4) strategies for meeting the needs of youth who do not wish to attend a traditional academic postsecondary education. Our research proceeded in three phases. In phase one, we developed a conceptual model of factors affecting secondary to postsecondary transition processes and prepared individual country reports that led to developing the questions for our site visits. Phase two consisted of site visits in Switzerland, Thailand, and the United States to develop a deeper and shared understanding of the systems’ operation. Several members of the research group visited a small but representative sample of institutions and interviewed faculty, students, administrators, researchers, politicians and, in the case of Switzerland, managers and apprentices. The interviews were semi-structured, to allow flexibility in both the questions and the responses (Merriam 1998; Pring, 2000, 31-57). The team collected published documents and observed instructional settings during each site visit that helped triangulate the data obtained from the interviews. Phase three focused on cross-national comparisons, for which we used content analysis to identify themes from the data (Gall et al. 1996; Merriam 1998). In this phase, the team collectively developed recurrent themes and categories based on an inductive analysis of the country reports and site visit information (Merriam 1998). Ultimately, these themes became the findings from the study, and directly informed our final recommendations.

This represents an interpretative paradigm, emphasizing the qualitative interpretation of data, which has some limitations. For instance, non-random selection of participants based on convenience sampling render the findings not statistically generalizable. Furthermore, there is potential for bias associated with the background of the study.

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\(^2\) Japan is the second most populous country represented in the study, with a population of about 127 million in 2008, while Switzerland and Hong Kong are the least populous countries with populations of just over 7 million. Thailand has a population of about 65 million, and South Korea has a population of just over 49 million.
team and their prior relationships with respondents-- an issue that was ameliorated by having the research team exchange impressions following the interviews to check for impartiality and by having the research team share responsibility for generating the study conclusions.

4. The Six Nations and Their Education Systems

Table 1 provides a description and comparison of the education systems of the six nations along three dimensions—degree of differentiation, numbers of institutions and how the system is financed, and the postsecondary admissions/transition process.

| Country     | Degree of differentiation                                                                 | Number of institutions and financing the system                                                                 | Postsecondary admissions/transition process                                                   |
|-------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Switzerland | Differentiation begins with transition from primary to secondary school based on achievement groups. Secondary I schools provide basic academic requirements while secondary II schools provide intermediate or advanced requirements. Differentiation at the secondary II level where students can enroll in full-time academic schools or dual vocational education. The full-time academic schools are of two types—Gymnasium and Intermediate Schools. At the postsecondary level, students opt for the university system (traditional academic or 'specialized institutions') or higher continuing vocational education. | Number: 12 academic universities – 10 operated by single cantons and two by the federal government. Seven public and two private specialized institutions. Financing: Compulsory education is free and primary and secondarily level I are financed by each canton and its municipalities. Secondary II, the Gymnasium and Intermediate schools are financed by the cantons whereas vocational education is financed partly by the canton and partly by professional associations. | Students face high competition during transition from secondary I to secondary II (a prestigious secondary II grants students higher opportunities to attend a prestigious university). The credential from the Gymnasium exit exam determines acceptance into the university of choice and is comparatively low stakes. |
| United States | Schools differentiated by formal and informal “tracking” or “ability grouping” of students. Generally, students are placed into three tracks: college preparatory, general education, and vocational-technical. Some schools also include a higher track with Honors or Advanced Placement classes. Colleges and universities are differentiated in terms of selectivity. Selective institutions admit a small percentage of highly-qualified applicants demonstrating academic and personal excellence. Less-selective institutions admit a larger percentage of applicants, and are less stringent in terms of academic requirements. | Number: As of 2003-04, the total number of American postsecondary institutions – including vocational and for-profit institutions – reached 6,412 (U.S. Department of Education, National Center for Education Statistics 2008). Private postsecondary institutions are more prevalent than public institutions in the U.S. Financing: Tuition fee is a significant source of revenue for institutions at all levels. | Colleges are free to decide what criteria to consider for admissions. Several institutions have an “Early Decision” or “Early Action” process, during which students may apply to one or more institutions. There is a great deal of competition during these early rounds. Colleges and universities rely heavily on standardized test scores to assess academic ability. Competition to excel on these tests is quite high, as they determine entry into selective institutions. |
| Thailand     | No differentiation or tracking during the first nine years of schooling. Differentiation occurs at secondary level II, at which students choose to advance to general education schools or vocational schools. At this level, | Number: Prior to 1960, there were only five universities in Thailand – all in Bangkok. But as of 2006, there are 93 public and 59 private postsecondary institutions under jurisdiction of the Commission on Higher Education (CHE), and over 50 specialized institutions under | In the past postsecondary admission was based solely on students' national entrance examination results but since 2006 a centralized selection and application process has been adopted - the Central |

3 The three countries visited by the research team (Switzerland, Thailand, and the United States) are discussed first, followed by the three countries the team did not visit (Hong Kong, Japan, and Korea).
5. Cross-National Comparison

Several characteristics of the education systems are shared by all of the nations. However, there are also distinctions that showcase the strengths and weaknesses of each system – particularly in terms of students’ transition...
from secondary to postsecondary education. Overall, these similarities and differences can be categorized into four themes, discussed in detail below.

5.1 Structure of the Systems

The structure of the education system in all six participating countries follows a common scheme, from Kindergarten to primary school, followed by secondary (level I and II) and postsecondary education. There is some variation in terms of the levels’ proportions but all six nations have at least nine years of compulsory education. We observed differences in financing that reflect differences in emphasis on education for all citizens, and the notion that developing large numbers of colleges and universities to serve all people may stretch government funding – thus necessitating more privately-supported institutions. All six nations have significantly more public primary and secondary institutions than private primary and secondary institutions. However, this trend shifts when examining postsecondary education, especially with Japan, South Korea, and the United States. Sources of institutional funding also vary across the six nations, particularly on the postsecondary level. In some countries, colleges and universities are completely funded by the national government. For instance, Hong Kong’s government fully funds all but one university. In Switzerland, 10 of the 12 academic universities are operated by single cantons and subsidized by the federal government, as are seven of the nine Universities of Applied Sciences. On the other hand, 553 of the 726 Japanese universities are privately-funded, compared to only 173 government-funded universities. In a similar trend, 4,365 of the 6,412 colleges and universities in the United States are private institutions.

5.2 Degree of differentiation

All countries have educational differentiation. However, the degree of differentiation varies within and between countries and by level of education. For instance, Switzerland, Thailand, Korea, Japan and the United States have highly differentiated systems that separate secondary school students into general/academic, college preparatory and vocational tracks. General and college preparatory education typically prepare students to enter academic universities, whereas vocational education prepares students to enter vocational colleges or join the workforce. Along these lines, Switzerland has by far the strongest emphasis and appreciation for vocational education.

In these countries, tracking generally begins at secondary level II. For instance, Korean students are separated into academic, vocational, or “other” (e.g., science or art-talented) schools at secondary II level, as are American students. A similar system exists in Switzerland, where secondary II schools are separated into the Gymnasium (academic), Intermediate Schools (academic and vocational), and vocational schools (stressing vocational education but incorporating academic subjects). In contrast, Thailand only designates two types of secondary II schools: academic and vocational. Placement into different academic tracks is contingent upon grades (Switzerland, Japan, and Korea) or standardized or national examination scores. Contrastingly, students in the United States, Hong Kong, and Thailand are often permitted to choose which tracks to follow. Unlike the other five nations, tracking is not very prevalent in Hong Kong, and reflects the country’s lower value of vocational education.

In terms of postsecondary education, all six countries differentiate between academic versus non-academic or vocational tracks. The academic track is typically hosted by traditional universities and leads to a bachelor’s degree, whereas non-academic programs are typically offered by junior or vocational/technical colleges, culminating in lower-than academic degrees.

Colleges and universities are most notably differentiated in terms of their selectivity. In Japan and Thailand, selective colleges and universities admit only a small percentage of highly-qualified applicants with excellent entrance examination results. Less-selective Japanese, South Korean, U.S. and Thai institutions (i.e., junior colleges) typically admit a higher percentage of applicants, and are not as stringent in terms of academic requirements. While Hong Kong does not distinguish selective versus non-selective institutions, traditional universities are extremely competitive in terms of their admission. Switzerland’s postsecondary higher institutions are considered neither selective nor non-selective because all students with a General Matura are typically accepted to the university of their choice, and those with a Vocational Matura are generally accepted to the Universities of Applied Sciences. This differentiation in two types of universities and entry terms is selective in and of itself.
5.3. Commonly Held Educational Values and Beliefs

Individuals in all six nations seem to believe that education should be accessible for all, and citizens should receive as much education as they desire. In Korea, Japan and China, for instance, education was historically related to upward social mobility. Education is still perceived as a prerequisite for successful employment, which often leads to increased social/economic mobility in countries worldwide.

Our major finding with respect to vocational education is that only one of the six nations – Switzerland – places significant value on vocational education (see also Metzger, Fujita, Law, Zemsky, Berset, & Iannozzi, 2004). Differentiation by tracking begins early in several of the six nations, and permeability after the differentiation is rare. Tracking at the secondary level determines students’ postsecondary education as well as their employment options. Much unlike students in the other nations, the majority of Swiss students choose the vocational track. This reflects the significant value of vocational education in Switzerland. Students on this track can pursue higher vocational education if they desire; they also earn as much or even more money than those on the academic track. Swiss vocational education has been grandfathered through numerous generations of Swiss professionals, and the elaborate tradition of apprenticeship still continues today.

In contrast, our site visits confirmed that vocational education has substantially lower value in the Asian countries and, to some extent, in the United States. It is often associated with low academic requirements, lower social status and less economic opportunity. Thus, the status of universities (especially prestigious universities) is far higher than vocational institutions. In all countries except Switzerland, traditional university education is becoming the educational path of choice, or is at least envisioned by a majority. This trend is likely related to the escalating social ambitions of students and their families as well as the rising expectations of employers. The value of general education at the postsecondary level is also regarded as necessary given the demands of economic and social development. Therefore, even though the Thai, Japanese, Korean, and Hong Kong governments have tried to promote vocational education, it remains a difficult goal to achieve.

5.4. Post-secondary Application/Transition Processes

Postsecondary admissions processes across the countries studied are much more distinct. These institutions stress different criteria during their admissions processes. For example, Swiss universities place substantial weight on the Matura, which is the sole requirement for transition from secondary to higher postsecondary education. In contrast, Thai postsecondary admissions processes emphasize results from the national entrance examination (though more weight has recently been given to additional criteria such as grades and extracurricular participation).

In Thailand, Korea, Japan, and the United States postsecondary selection processes are more holistic. Instead of emphasizing a secondary school diploma or examination results, these nations highlight multiple aspects of students’ applications, including grades, essays, letters of recommendation, extracurricular involvement, standardized/institutional test scores, and personal interviews.

Yet, the three countries vary considerably in terms of their actual application processes. Korean students are permitted to choose a process based on demonstrated academic ability (grades and test scores), or the one used to select talented students from certain geographic areas or from disadvantaged backgrounds. These processes are similar to the central and direct admissions system in Thailand. Students from the U.S. and Korea are not able to select which aspects of their application are evaluated by the admissions staff, but they are often given a choice of when to apply. Many American institutions offer an “early admissions” program in which students submit their application materials before the regular application deadline and are notified of their acceptance before the general notification date. Each institution is free to decide whether the decision will be binding (i.e., students must commit to enrolling at that institution if admitted early) or non-binding (i.e., students are not committed to enrolling if admitted early). Korea has an analogous system: students are given five application opportunities per academic year with two “early rounds.” Korean students admitted during the early rounds are required to register at the institution to which they are accepted and may not apply to other schools.

5.4.1. The role of entrance and exit examinations

In all six nations, the transition from secondary to postsecondary education requires at least one major exit or entrance examination. But, the value placed on these examinations varies significantly among the countries.
Switzerland is the only one of the six nations that emphasizes the secondary II exit examination. Essentially, the secondary II exit examination is the only assessment that influences which institutions students may attend. The other five countries stress national or standardized entrance examinations in the secondary-to-postsecondary transition process. In Thailand, results from the nationally-administered examinations serve as the primary criteria for admissions decisions. Due to their significance in the admissions process and the fact that they are only offered once a year, these examinations create much stress for Thai students. Similarly, the Korean College Scholastic Ability Test (CSAT) is only administered once per year, which likely results in feelings of stress among secondary II students. Japan’s National Center for University Entrance Examination (NCUEE) is required by all public and some private institutions, and is only offered once every year. A distinctive aspect of the Japanese system is that many universities that require NCUEE also require institutionally-administered examinations in hopes of more accurately measuring students’ academic ability.

There are no nationally-mandated entrance or exit examinations in the United States, and most postsecondary institutions require that students complete at least one standardized assessment – such as the SAT – before they apply. However, standardized entrance examinations are offered more frequently in the U.S. than in the other nations. Many American universities also require additional standardized examinations or institution-specific assessments for admission, much like those required by Japanese universities.

5.4.2. Access to postsecondary education

As discussed earlier, access to postsecondary education is highly valued in all six nations as evidenced by each country’s enforcement of open-access admissions policies at multiple institutions including the growing number of community and vocational colleges. Students possessing a Swiss general Matura are guaranteed admission to any academic university, while those possessing a vocational Matura are granted admission to any university of applied sciences. Other countries have open enrollment only at the vocational and community colleges. For example, Thailand has two open-enrollment institutions and myriad vocational colleges whose mission is to provide nationwide access to postsecondary education. The Korean system also includes many less-selective junior and vocational colleges, which is the same for Japan, Hong Kong, and the United States. By incorporating these institutions into the education system, it is clear that the six nations are committed to providing access for students of all backgrounds. Additionally, open-enrollment institutions can ease students’ transition into postsecondary education by allowing them to begin their studies in a less competitive academic environment. This is common in the United States, where many students enroll in junior colleges for 1-2 years before transferring to a traditional four-year bachelor’s program (U.S. Department of Education, National Center for Education Statistics 2003).

6. Conclusions and Recommendations

Each of the six nations studied has many commendable features of its educational system, particularly as they relate to moving youth successfully through the secondary education system and into post-secondary educational and employment activities. Through comparisons of the successful and challenging features of the various systems, we arrived at several conclusions and recommendations that could help countries build on their strengths and shore up their weakness. However, readers should be reminded that: (1) our conclusions are based on examinations of the policies and practices of six countries that differ from one another in their social, economic and political contexts; and (2) we examined the educational systems of three nations—Switzerland, Thailand, and the United States—much more thoroughly than those of the other three nations—Japan, Hong Kong, and South Korea. In formulating our recommendations, we gave more weight to observations from the three focal nations, where we were able to observe firsthand the influence of educational values and beliefs on policies, practices and outcomes. In these countries, we also had greater ability to observe the role of social context and economic needs in shaping national decisions and the quantity and quality of educational output, including investments in educational resources and policies regarding access and supports.

We offer the following observations and recommendations for improving secondary and post secondary education and employment options for youth, and the efficiency of the secondary to post secondary transition process.

1. It is desirable to have well-articulated systems of secondary and post secondary education and job training and policies and practices for supporting students (with the help of their parents and school counselors) to make
informed decisions regarding the pathways they follow. Nations need workforces that include vocationally prepared workers, some with high levels of academic skills (particularly language, math, and science skills) at levels typical for graduates of four-year colleges and universities and others of with job-specific vocational skills and more basic academic skills. To efficiently channel students into the appropriate educational and training programs in numbers that meet national interests, nations need to establish clearly articulated sectors of secondary and post secondary education and training systems such that students can seamlessly move from one level to the next with the required skills and with a full understanding of the implications of their choices for future education and employment options. Switzerland, for example, has reasonably well-articulated curricula between the secondary and post-secondary levels of education, such that there is relatively little need for remedial education at the post-secondary level. But Swiss education does not offer much permeability between the academic and vocational tracks. By contrast, the United States has a highly permeable system of post secondary education options, allowing virtually any young adult access to vocational or academic post secondary education programs (two or four year). However, there is not strong articulation between the secondary and post secondary education tracks in the United States. Consequently, (1) drop-out rates in post secondary education and training are high; and (2) many students entering higher education (particularly academic programs) require remedial education. These consequences prove costly for the individuals and for the economy.

We suggest the following criteria that nations can adopt in redesigning secondary and postsecondary systems. First, systems to offer at least three quality education tracks at the secondary level—one geared toward preparing students for skilled vocational positions immediately following high school; one that prepares students to move seamlessly from secondary school to post secondary vocational school; and a third that prepares students to move seamlessly to quality 4-year colleges and universities. Second, systems to have clear standards for completion of secondary education programs and for progressing to various types of postsecondary education and training along with a clearly articulated information regarding processes, and procedures for gaining admission to post secondary education. Third, systems should provide multiple options for taking any high stakes test—either for admission to secondary schools or for admission to colleges and universities. Such a policy recognizes the normal error in tests and lowering the stakes associated with a single test would lower the importance of test preparation programs and pressure on adolescents.

2. Develop more high-quality vocational education programs. While the majority of the six nations in the study offer vocational training at both the secondary and postsecondary levels, only Switzerland exhibits strong national pride and commitment to vocational education. The Swiss system of vocational education produces graduates who are equally if not more successful economically than students who choose the traditional academic track. However, we also noted that all of the other five nations in the study seem appeared to be seeking ways to improve employment skills of its lower-wage workers in ways that are quite compatible with strong vocational education training. Indeed, there are model vocational education programs in particularly the United States and Thailand that show promise for closing the skills gap. But, in both cases, these model programs are not yet well integrated into the overall secondary and post secondary education systems. It seems highly promising for nations to create quality vocational education programs at both the secondary and post secondary levels that are closely aligned with the national and local economic needs for workforce skills; and that engage employers in the design of training programs and the creation of apprenticeship opportunities.

3. It seems desirable for there to be multi-dimensional admissions criteria for various secondary and post-secondary education tracks and the means for ensuring that the quality of educational programs is maintained. In our study, three countries (South Korea, Japan, and the United States) had multi-dimensional admissions policies for the prestigious post secondary education options (four year colleges and universities) and two countries (Thailand and Hong Kong) rely exclusively on national entrance exams. If countries succeeded in instituting well-articulated curricula tracks and provided clear information about the entrance criteria, it would seem practical for there to be more shared responsibility between the secondary and post secondary education and training programs regarding signaling the preparedness of students to succeed at the higher levels of education. One might imagine a system of exit exams administered by the secondary schools that offered post secondary institutions and employers reliable information about the skills of students; and there could be a system of exams and other criteria used by post-secondary education and training programs to supplement secondary exit exams with information specific to particular program demands. Indeed, the degree to which the secondary level exit exams and supporting information meets the information needs of post secondary institutions may vary depending on the nature and
diversity of a country’s education system, its economic diversity, and the manner in which the secondary and post secondary curricula are laid out and articulated between the two levels.

Without question, some of these recommendations may take substantial time and resources to implement. However, the lessons learned from studying these six nations provide valuable suggestions for educational policy and practice worldwide. As stated in the opening section, this study was conducted in order to understand how diverse educational systems operate, but also how we can ease students’ transitions to postsecondary schooling in order to promote more educated citizens who contribute to countries’ economic and social development. Thus, while these recommendations may not be suitable for every nation, our hope is that governing bodies and institutional leaders will be able to glean useful information from this research that helps improve their educational system as well as students’ transitions within it.

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