

The Indonesian Journal of Leadership, Policy and World Affairs



# STRATEGIC REVIEW

www.sr-indonesia.com

JANUARY-MARCH 2015/VOLUME 5/NUMBER 1

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## International education's role in Indonesia's "mental revolution"

A path to prosperity in the global economy?

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**D**uring Indonesia's presidential election campaign last year, Joko Widodo often spoke of the country's need for a "mental revolution" – a paradigm shift in thinking that the Indonesian people and government would need to make in order to achieve what he called a "free, fair and prosperous" Indonesia.

For Indonesia to map its own paradigm shift would require it to start by asking itself where it is now, how it would like to see itself in a few decades and what it takes to get there. Is it content with being a middle-income country? Does it seek to make further progress in reducing poverty or in improving the educational levels and capacity

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of its citizens? Is it satisfied being a heavily commodities-based economy or does it seek to compete in the global economy in areas of innovation, science and technology? Where Indonesia stands in two or three decades from now will depend on how Indonesians and their leaders answer these questions as they create policies and investments. Achieving the goals they set may require some difficult cultural shifts in how they think, plan and hold one another accountable.

There are precedents that Indonesians can successfully implement difficult reforms and embrace change. Since 1998, Indonesia has implemented many new and difficult reforms, from democratic elections to decentralized government, all while managing to grow its economy and increase the number of university graduates. Although these reforms and accomplishments have been positive, they have not been sufficient to advance Indonesia to the rank of an innovative global economic leader.

As Indonesia moves forward with reform and its mental revolution, is there a helpful role for the international educational community to play? We believe the answer is a resounding “yes.” Indonesia has a long history of strong educational ties with countries and universities around the world, and in particular with the United States. Whether helping build the capacity of Indonesian universities to produce future business leaders and scientists or assisting its educational system to produce

more innovative and entrepreneurial graduates, the United States and the rest of the world have a wealth of universities that can, as they have done before in Indonesia, play a substantial role in assisting the country in getting where it wants to go.

### **Stuck in the middle**

Indonesia has seen tremendous economic growth and educational advancement since its independence in the 1940s. World Bank researchers report that since the 1960s, it has averaged a 7 percent growth rate and seen poverty rates drop from 70 percent to 11 percent. Simultaneously, it has expanded educational opportunities to more of its citizens in the past 70 years by increasing the number of primary, secondary and tertiary institutions. From approximately 15,500 primary and secondary schools and just five universities in 1945, the nation now boasts more than 225,000 primary and secondary schools and over 3,500 universities. The increase in access to education profoundly affected the country’s literacy rate – which rose from 5 percent in 1945 to 95 percent today. But are these economic and educational successes sufficient to propel the nation forward and keep it from getting stuck as a middle-income country?

A 2013 World Bank Policy Research Working Paper offers an idea of what it is to

be a middle-income country, or MIC, stuck in the middle-income trap: “The basic idea is that incomes (and wages) in MICs have increased enough to require graduation from low-skilled, labor-intensive activities, but MICs have not yet developed national innovation systems – or perhaps not even accumulated enough physical and human capital – to compete with high-income countries in more sophisticated products.”

Given this definition, it appears that countries need to innovate their way out of middle-income status through investment in education and infrastructure. But Indonesia’s middle-income trap would differ in important ways from this description. “Typical” countries get stuck in the middle-income trap as follows: attracted by cheaper labor, foreign and domestic investment flows into lower-skilled manufacturing; as this sector grows, so do workers’ salaries. Thus manufacturing costs increase, eroding the country’s competitive advantage to attract further investment in lower-skilled manufacturing. If a country

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is unable to produce higher-skilled labor to attract higher-skilled, higher-paid manufacturing jobs, the country gets stuck in the middle-income category, with a higher standard of living than before but an economy that is stagnant.

However, in Indonesia’s case, much of the growth over the last decade has been in the service sector, which, according to a recent report by the McKinsey Global Institute, is now growing faster than manufacturing, agriculture, mining, quarrying, oil and gas combined. The service sector includes such important fields as media, telecommunications, transportation, finance, and logistics and supply chain management – all critically important for Indonesia’s economic growth.

What this means is that unlike the typical case, Indonesia’s short-term labor market needs are actually aligned with the longer-term human capital goals needed to drive the economy to high-income status. It isn’t low-skilled and semi-skilled factory workers, but high-skilled university graduates who are in demand. This alignment presents the new government with an opportunity for a clear policy priority focused on the development of human capital.

**H**ow can Indonesia avoid its own middle-income trap? Recent reports by the Boston Consulting Group, the McKinsey Global Institute and the Asian Development Bank, among others, suggest that further improvements should be made in three factors in Indonesia’s educational system:

**1. Indonesian universities are not producing**

enough quality, high-skilled labor to meet sector-specific demand.

Indonesia faces several key challenges in producing a sufficient amount and mix of college graduates in the future. The World Bank reported in May 2014 that between 2000 and 2010, the number of graduates holding a tertiary degree more than doubled, from five million to more than 10 million. That number has increased even more and today nearly 8 percent of Indonesians have a college degree. Despite this success, the World Bank notes that the demand for college-educated workers in the Indonesian economy stands at 21 percent. Thus, although the nation more than doubled its number of graduates since 2000, it really needed to quadruple that number.

The following are two ways Indonesia could take advantage of its best natural resource – its people – in meeting the country’s needs for high-skilled labor:

**a. Greatly expand university capacity to graduate more students.** The McKinsey Global Institute report indicates that Indonesia will need to produce an additional 113 million skilled workers during the next 15 years. Given that as of 2012 it had only 55 million skilled workers, the country will need to more than double its skilled work force in the span of just 15 years.

It does not appear likely that the demand for higher education will slow, especially as Indonesia’s economy continues to grow and the middle class expands. According to a 2012 British Council report, Indonesia is expected to become one of the 10 largest countries in terms of demand for higher education within

**Despite allocating one-fifth of the national budget to education and despite tremendous achievements in literacy and increasing access to education, Indonesia does not fare well in educational outcomes compared with other developing and developed countries.**

the next 20 years. It will need to expand its already strained higher education system while sending more and more students abroad in the short term.

**b. Incentivize students to enter specific fields of study, such as STEM fields.** Indonesia needs to end its practice of inadvertently discouraging students from studying in such disciplines as science, technology, engineering and math, or STEM, through its policy of tuition differentiation. Currently, students pay less in tuition for some fields of study and more for others, making it cheaper to study education or language than to study engineering. Is it any surprise the country is graduating such a higher percentage of teachers than engineers?

According to the May 2014 World Bank policy brief, “Indonesia’s Higher Education System: How Responsive Is It to the Labor Market?” graduates from Indonesia’s teacher training colleges now account for one-third of all college graduates. While high-skilled teachers are needed to educate the next

generation and prepare them for critical jobs in Indonesia, the policy of tuition differentiation is having the unintended result of graduating more teachers at the expense of other subjects such as engineering.

Indonesia could reverse this trend by either eliminating differential tuition pricing or by offering discounted tuition in priority subject areas such as the STEM fields.

## **2: Indonesian graduates are not well matched to work force demand.**

In addition to graduating more college students, Indonesia needs to ensure these graduates are well matched for its current and future work force demands. Changyong Rhee, the Asian Development Bank's chief economist, has argued that Indonesia must address the crucial challenge of matching its young work force with decent jobs, and preparing them to succeed at those jobs, if it is to avoid the middle-income trap.

According to the Boston Consulting Group's May 2013 report, "Growing Pains, Lasting Advantage: Tackling Indonesia's Talent Challenges," recent graduates hired by Indonesian companies showed "a severe lack of appropriate education, skills, and training." It is therefore no wonder that many of Indonesia's top companies hire graduates only from a small number of top Indonesian universities – or from the pool of workers who completed their education abroad.

It does not appear that demand for more highly skilled workers will slow. Both the McKinsey and Boston Consulting reports noted that there would be strong demand for high-skilled labor during the next 15 years.

Since much of Indonesia's economic growth has been, and will continue to be, driven by expansion of the service sector, meeting talent needs will require a higher proportion of workers with skills beyond vocational training.

According to the Boston Consulting report, "Fifty-five percent of the jobs in Indonesia will be administrative or managerial, compared with 36 percent today." According to McKinsey, new jobs in the service sector will grow faster than Indonesia's traditional economic sectors, such as manufacturing, agriculture and extractive industries, and will require "90 percent of workers to be skilled or semi-skilled."

Therefore, Indonesia's universities, both public and private, will need to match their skills education with these growing economic sectors – particularly the STEM fields and in social science fields emphasizing entrepreneurialism, innovation and professional managerial skills.

## **3. Many Indonesian college students lack a strong academic foundation.**

Much attention is paid to tertiary education; however, Indonesian universities can only do so much if the educational quality at primary and secondary schools is insufficient in preparing students for the academic demands of university. With a stronger primary and secondary academic foundation, the better-prepared college students will be able to pursue advanced studies and help grow Indonesia's economy.

Although Indonesia invests more in education than many other countries, that funding is not resulting commensurately in improved educational skills. Despite allocating one-fifth of the national budget to education, and despite tremendous achievements in literacy and

increasing access to education, Indonesia does not fare well in educational outcomes compared with other developing and developed countries (see box 1 and figure 1).

**Box 1:**

Indonesian Results from the OECD's 2012 PISA Test

- **Mathematics: 375**

Second-to-last in mathematics performance, only Peru scored lower.

- **Reading: 396**

Bottom decile; only Albania, Kazakhstan, Peru, and Qatar scored worse.

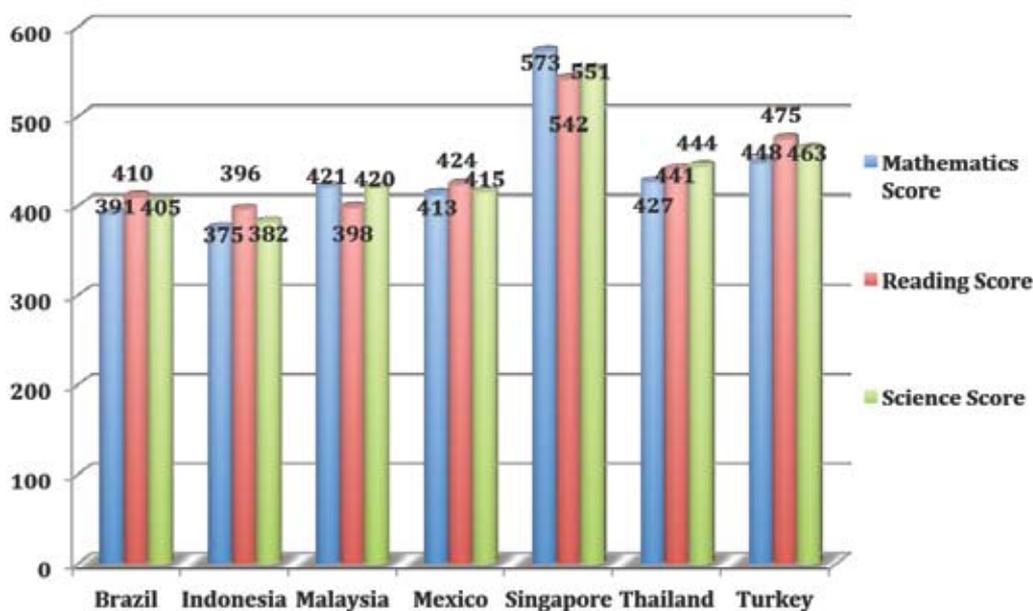
- **Science: 382**

Second-to-last in science performance with a PISA score of 382 – only Peru scored worse.

Every three years, the Organization for Economic Cooperation and Development tests students in 65 countries – both developed and developing – in three main areas: mathematics, reading and science. The tests, known as PISA tests after the OECD's Program for International Student Assessment, emphasize these three subject areas because, according to the OECD, "research shows that these skills are more reliable predictors of economic and social well-being than the number of years spent in school or in post-formal education."

With such low student achievement scores in math, reading and science after primary and secondary school, how are Indonesian universities supposed to produce the high-

**Figure 1: Indonesian Mean PISA Score Compared to other ASEAN Countries and Comparable Middle-Income Countries**





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skilled talent the economy demands? Thus, a formidable challenge exists at the primary and secondary levels, as well as helping to build human capital and avoid the middle-income trap.

### Is investment sufficient?

The Indonesian government appears well aware of the need to invest in its people and infrastructure. In 2011, the National Development Planning Agency released the Master Plan for Acceleration and Expansion of Indonesia's Economic Development, or MP3EI, which set out an ambitious plan to make the following improvements by 2025:

- Increase economic development through value-added production and the creation of regional economic activities to better access natural and human resources.
- Improve human capacity through

improvements in education to promote innovation and public-private partnerships to prepare skilled labor for a transition toward downstream manufacturing.

- Expand and improve infrastructure and regional connectivity.

The government has made progress in implementing this plan through initial investment in infrastructure – notably airports and harbors; the creation of community colleges to produce the skilled work force needed; and through laws and regulations requiring investments in downstream manufacturing and production. Additionally, it has invested in human capacity through the establishment of graduate scholarships and funding, to spur greater research at universities and collaboration with foreign universities.

The government, with support from the World Bank, has invested heavily in improving

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the number of Indonesian nationals with advanced degrees through the creation of three funding mechanisms.

1. Indonesian Endowment Fund for Education, or LPDP, funding. This new and highly significant program was established in 2012 with an endowment fund of \$1.4 billion.

LPDP funds are available to any Indonesian national with previous strong academic achievement and leadership potential seeking to pursue master's and doctoral degrees abroad.

2. Directorate General for Higher Education, or DIKTI, funding. DIKTI scholarships are available to any full-time public or private university faculty seeking to upgrade their academic credentials by pursuing master's and doctoral degrees in Indonesia or abroad.

3. Ministry funds. Funding varies by ministry, but most have their own scholarship programs available to selected civil servants seeking specific advanced training and skills, both in-country and abroad. The total amount of funds is substantial.

At the time of writing this essay, the first two funding mechanisms described, LPDP and DIKTI, were still operating as two separately

managed funds within different government agencies. It is understood that these two sources of funds may merge into one larger LPDP fund open to all Indonesians.

These three scholarship funds appear to address two real challenges that Indonesia faces. The first is the short-term need to produce more highly skilled labor to work in the public and private sectors. And second, the need to strengthen the institutional capacity at universities and government ministries, in order to produce a greater number of highly skilled workers and future leaders who will help create a more dynamic economy, academic community and civil service, with the potential to innovate and help Indonesia compete globally.

Very fortunately, Indonesia already has in place these three funding mechanisms, which have the amount of funding, scope and potential to create the critical mass of high-skilled talent the country needs to compete both regionally within the Asean Economic Community and globally with other G-20 countries. They also have the potential to help the nation follow the lead of its East Asian counterparts – Japan, South Korea, Taiwan – which have moved from middle-income status to high-income countries during the past 50 years.

The success of these scholarships will depend importantly, however, on how well the investments are targeted and implemented to create an innovative economy and society.

This will require serious educational reforms and a commitment at the tertiary level to continue to fund capacity-building

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projects at Indonesian universities, such as collaborative international research projects; funding to establish joint degrees with foreign universities; increased quantity and quality of other types of institutional partnerships between Indonesian and foreign universities; and substantial investment in research funding at Indonesian universities.

### **Now for the hard stuff**

**E**conomies are not developed overnight, nor are educational systems. Countries such as Japan, South Korea and Taiwan took decades, and billions of dollars in investment in education, to develop into the highly advanced economies they are today.

Indonesia will surely be better off through current efforts to establish domestic graduate scholarships; construct ports, bridges and railways; and through greater regional economic connectivity. However, to compete equally with such advanced economies as Japan, the United States, Europe and China, Indonesia will also need to enroll more and more students at universities abroad. The country will also eventually need to create the conditions for building similar institutions at home to produce the skills and mind-sets required to innovate the economy and move permanently out of middle-income status.

Such innovation is not easy. Since 1960, only 13 of 101 countries have successfully managed to move from middle-income into high-income

status. South Korea, Japan, Singapore and Taiwan are a few that have managed to escape the trap; each did so through strategic investments in both infrastructure and education.

These investments require more than building additional schools and filling them with students. They must instead emphasize the quality of instruction, higher expectations for student achievement outcomes, and research and collaboration between universities both at home and abroad. It is more than providing scholarships to students; it is building a culture of learning and risk-taking, beginning in primary school, that will spur the creative thought and innovation, which will drive tomorrow's economy. This is Indonesia's mental revolution.

### **Stronger educational ties with the US**

**E**ducating the work force a country needs to compete in an interdependent global economy is a challenge that, by its inherent nature, Indonesia – like most countries – cannot successfully meet without established patterns of dynamic interaction with the global community and with the world's foremost educational systems. Such interaction takes two main forms: graduate education for Indonesians in a diversity of overseas colleges and universities, and capacity-building partnerships between foreign and Indonesian institutions.

The world's strong educational systems – including Australia, Canada, Japan, Germany,



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France, the Netherlands, the United States and Britain – can and should play a role in helping Indonesia's future higher educational and economic development, as they have during the past several decades of growth.

However, few countries can match the United States when it comes to the depth, breadth and quality of its higher education system. Apart from being one of the world's largest higher education systems, the United States is consistently ranked by international groups as one of the best, and credited for helping produce innovative and entrepreneurial graduates.

The international network of research universities Universitas 21, founded in Australia, once again ranked the United States as having the best higher education system in the world due to its high levels of research output, funding spent on research, number of international collaborations

and connections between academia and industry, among other factors. The British-based Center for Policy Studies ranks the United States as producing the highest number of entrepreneurs, and the 2014 Global Innovation Index ranks it as one of the five most innovative countries in the world.

We believe five key attributes of the American education system, relevant for Indonesia's development, support these rankings:

- **A record of producing innovative and entrepreneurial students.** Google, Facebook, Apple and Microsoft all started with strong ties to US universities. They have continued those ties as they have grown and innovated to become the world-class companies they are today. It is noteworthy that many middle-income countries that attained high-income status in the past 50 years are countries that

sent disproportionately high numbers of their citizens to the United States.

- **Ability to match education to jobs.** American community colleges – part of the US higher education system – are global leaders in matching the academic preparation offered to students with the needs of the local work force.
- **Large research funding.** US universities are the world's leader in both academic and applied research. According to the National Science Foundation, the United States accounted for one-third of all the world's research and development funding. This year, American universities spent more than \$63 billion on research and development – more than any other country's higher education system. Such spending means greater access to work on cutting-edge research and the most advanced technology to perform that research.
- **High capacity.** The United States has one of the largest higher education systems in the world, with a tremendous variety of undergraduate and graduate offerings. As Indonesia looks to boost its own university capacity, the United States can serve as a useful model.
- **Effective international academic and business networks.** American colleges and universities host the largest number of international students in the world, as well as attracting a disproportionately large share of the world's top faculty. Students at US universities will likely sit next to students from all over the world who may become key business and government contacts, and be educated by some of the best and brightest minds. Additionally, American universities emphasize strong alumni networks,

keeping graduates connected to one another and to their faculty.

Yet despite the strength of the American higher education system, US-Indonesian higher educational ties have largely diminished over the past two decades, while Indonesia's ties with other countries in Oceania, Asia and Europe have become stronger. Since 1997, the number of Indonesians studying in the United States has dropped by 40 percent, from 13,282 to 7,920, despite a greater number of Indonesians choosing to study abroad during this same period. Fewer American-Indonesian university partnerships are being developed compared to the strong partnerships that existed from the 1970s to the 1990s.

During Indonesia's greatest periods of economic growth – from the 1960s through the 1990s – American universities were heavily engaged in developing Indonesia's universities and producing the human capital that in turn grew the country's economy. But in the past 15 years, US and Indonesian higher educational ties have stagnated. Increasingly, more and more students are choosing to study in other countries rather than the United States, even when funding is not an issue.

Despite huge financial investment in government scholarships for university faculty and Indonesian graduate students to study abroad, only around 5 percent of scholarship recipients are choosing to study at US universities.

### What can be done?

**A**s students have the right to choose where to pursue their studies, and as the Indonesian

government must be neutral in terms of these decisions, it is up to the concerned parties to understand and address any constraints on the choice of the United States by Indonesians.

Measures that can be taken include increasing information flow about US university programs and their accessibility, equalizing US application costs and admissions procedures, and bringing about partnerships between American and Indonesian universities. These and similar measures could aim for an appropriate share of Indonesians studying in the United States – certainly much higher than 5 percent and perhaps closer to 20 percent – so that Indonesia maintains a balanced and diverse exposure to the world’s great educational systems.

First, concerted action by many parties has already started to reverse the decline. This includes both government and nongovernment efforts under the US-Indonesia Comprehensive Partnership, which began in 2010. Between 2010 and 2014, the number of Indonesians studying in the United States increased by 14 percent to 7,920 and at least 20 new US-Indonesia university partnerships were created. The US State Department, the US Agency for International Development and independent initiatives inspired by the Comprehensive Partnership, such as the US-Indonesia Joint Council on Higher Education Partnership, have all worked successfully toward these ends. But much more still needs to be done.

The Joint Council, comprised of many universities, higher education associations and corporations, is removing a major constraint to choosing to study in the United States: the cost of graduate admission tests such as the Graduate Record Examination. With financial support

from several American universities, free GRE testing vouchers will be provided to LPDP scholarship recipients to apply to US universities. Ways are also being sought to fund GRE test preparation courses for US-bound Indonesians. And information flow to Indonesia about top American university graduate departments in fields relevant to Indonesia’s development needs and which seek more Indonesian students is being increased.

Private Indonesian institutions are also taking initiatives to increase the number of students at US universities at a reasonable cost. The Sampoerna Foundation’s Universitas Siswa Bangsa Internasional has developed several pathways to help students afford a US education. Under a partnership with Lone Star Community College in Texas, Indonesian students can now earn a US-accredited associate’s degree, allowing them to transfer their credits to complete their undergraduate education in the United States in just two additional years.

In addition to the good work being done by private organizations and institutions, there is a role for the Indonesian government to support some additional changes that may help launch the

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nation's next generation of leaders and promote a culture of research and innovation.

Here are some suggestions for the Joko Widodo administration to consider:

- Allow Indonesian government-funded scholars to enroll in graduate programs in the United States and other selected higher education systems at universities not currently listed under the LPDP-approved list. As various reports have pointed out, Indonesia needs innovative and entrepreneurial workers and leaders to develop its economy, increase its global competitiveness and reduce poverty. Instead of looking only at universities, open up options for students to study in some of the best graduate programs, not just universities, abroad.
- Invest more heavily in university-to-university partnerships with countries that have strong research capacity in order to boost local capacity. Current funding provides for short-term faculty research as well as travel expenses to initiate international collaboration. But compared with other countries, Indonesia still invests a relatively low amount of funding into actual research and the facilities needed to perform this research. Investing in the physical infrastructure at home while also investing in the human capacity with academically strong and research-oriented universities abroad will have long-term positive impacts on Indonesia's ability to innovate and advance its economy.
- Foster collaboration and multidisciplinary approaches to problem-based learning. There are currently too many silos within Indonesian universities and too little interaction between academia and industry. How often do faculty

members from one academic department work with faculty from another department on an applied research project benefiting Indonesian industry? The answer is far too infrequently, and yet in our increasingly more advanced world there is a greater need for such problem-based, multidisciplinary collaboration.

- Through funding grants to support students, faculty and local industry to conduct collaborative, multidisciplinary research on topics that benefit the local economy, the government can simultaneously increase research collaboration and innovation with an economically beneficial impact.

Indonesia, though it has some formidable challenges, is in better shape than many other countries to successfully navigate its way to higher-income status. It has a large and creative population, plentiful natural resources and government support to address some of these challenges. President Widodo's call for a mental revolution to ensure future reforms and investments take root is also a positive sign that Indonesia is serious about positively changing its future.

Indonesia has proven that it can implement difficult reforms and address the challenges the country faces directly. This experience will prove valuable as it seeks to transition to a more advanced economy that takes better advantage of the country's natural resources and increases the standard of living for its citizens.

As in the past, we hope that the United States, as well as the international higher education system, can assist Indonesia as it makes this transition and advances its economy and its people.