

TECHNICAL ACADEMIC INTERACTION

BETWEEN EAST AND WEST

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An overview, based on a wide and deep, cross-cultural academic and industry experience in several countries, is presented.



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INTRODUCTION

The article covers not only the principles relating to classroom pedagogy, but also the adaptation to differing cultural impacts from and on students. In the final analysis, the aspirations of academics all over the world are the same, but we must accept and celebrate the differences in the various cultures and sub-cultures.

While the article focuses on technical education, peripheral non-technical concerns will also be mentioned, to support the analysis.

ASEAN AND ITS POTENTIAL DOMAINS OF INFLUENCE

ASEAN, the Association of South East Asian Nations was formed in 1967, with five states as members, and a vision of living together in peace, stability and prosperity, in a community of caring societies and in a partnership to achieve dynamic development. Today, ASEAN consists of 10 nations - Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

ASEAN is right in the middle of a region that also includes India, China and Australia.

For many decades, however, for some reason, ASEAN's and in fact Asia's technical links have been with the West, mostly North America and Europe, rather than amongst the Asian nations, whilst also skipping the Middle East. ASEAN members have also had more planned interaction amongst themselves than with the other nations in Asia.

COLLABORATION VERSUS COOPERATION

Interaction between nations may be by collaboration or cooperation, and we must keep the differences between the two types of interaction in mind, here. There are many definitions of the two terms. Most of them agree that in both collaboration and cooperation, people work together to achieve the same target. Yet, there are differences in their functioning.

To avoid confusion, 'collaboration' can be defined as a shared activity between near-equals as partners in the venture, and 'cooperation' can be defined as a shared activity between unequal contributors, with some giving more and others receiving more. As a real-life example, two companies in a joint-venture can 'collaborate' on a

new mega-project, but contractors and sub-contractors in a project must 'cooperate' for the common good.

By these definitions, basically, for many decades past, certain Asian countries (and more particularly, some ASEAN members) have been 'cooperating' with the West, in the sense of having received technical assistance and guidance from the West under some broad agreements, rather than sharing resources or exchanging knowledge or materials, as partners, as should have been the case, if there was collaboration. As and when Asia (or ASEAN) contributes as 'partners' in shared goals, together with other cooperating nations, the relationship between these nations may be considered as 'collaboration'.

India's experience with cooperation and collaboration

During the 1950s, which was soon after India got independence from the British, in 1947, the country received a big helping hand, when many advanced nations in the West established industries and educational institutions in India, including the following Indian Institutes of Technology:

- 1958 - IIT Bombay, with Russian collaboration
- 1959 - IIT Kanpur, with American collaboration
- 1959 - IIT Madras, with German collaboration

After the establishment of these educational institutions, India itself has developed more IITs, as well as Regional Institutes of Technology (RITs) on these Western models, with great success. IIT graduates are sought after by academia and industry the world over!

Even currently, collaborative and cooperative schemes continue to develop and function:

- The scheme of 'Indo-US Collaboration for Engineering Education' is aimed at assisting the creation of good quality engineering talent that can help develop solutions to global challenges facing humanity, in areas such as energy, environment, health and communications, by improving engineering education and research, through four pillars of education:
 - Learner-centric teaching
 - Research excellence
 - Outcome-based quality supported by accreditation
 - Innovation and entrepreneurship

- Likewise, the American Society for Engineering Education, involving academic and business leaders from leading US and Indian universities, plans to make engineering education and research more relevant to global social needs and aspirations of the new generation of youth.
- The International Committee on Engineering Education and Innovation will promote the International Decade for Engineering Advancement, to cultivate a new generation of youth that is able to improve wealth generation as well as enhance the quality of life, worldwide.

A few decades earlier, the US and other European nations had a large edge over Asia in laboratory and computer facilities, but the disparity has been mostly evened out by now.

Moreover, while in earlier decades, India has been generally at the receiving end of technical expertise, even during the 'exchange' programmes, in recent decades, India has shown its competence in a number of scientific areas, such as space technology and software development, where it has contributed to the progress of Western and certain Asian countries.

TRANSNATIONAL EDUCATION

For all the identity of goals and similarity of contributions in the academic arena, many attitudinal and motivational differences may be found between the Western and Eastern teaching systems and student involvement.

'Transnational education', that is, education across national boundaries, has been amplified and accelerated by on-line (computer-based) and distance education programmes, which are experiencing unprecedented growth globally, in both scope and scale.

Transnational education is of three kinds:

- **Asian students studying in Western or Australian universities**

This has been going on for decades and is now increasing. The majority of foreign students (earning more than two-thirds of engineering PhDs from USA universities) are from India and China. Australia hosts the highest proportion of foreign students, at one-fourth of its enrolment.

- **Foreign universities establishing campuses in Asian regions**

This is relatively new, but increasing at a fast rate. China is one of the top 10 host countries for higher education, with about 1,400 foreign institutions currently offering higher education programmes there, and with the majority of these being Australian.

- **Asian students enrolling in on-line courses run by foreign universities**

This is also relatively new, and its popularity is increasing at a fast rate. Regions with well-developed higher education infrastructure are shifting from traditional classrooms to on-line education which come in many flavours.

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In open education or free access programmes, education resources and free (or low-priced) classes are offered on-line. Massive Open On-line Courses (MOOCs) are quite popular, but have been losing steam in the past few years.

Open universities are gaining in popularity from wide and free opportunities for higher education. Economies of scale have allowed the open university concept to become financially solvent easily, while conventional higher education institutions are facing financial constraints.

However, recent reactions from employers of on-line graduates indicate concerns, even complaints, on deficiencies and inconsistencies arising from lack of face-to-face guidance.

By and large, transnational education programmes offer great promise for expanding access to higher education for individuals throughout the world, with far fewer geographical and geopolitical barriers than traditional, face-to-face, college and university programmes.

When properly designed and carefully implemented, transnational education programmes can greatly assist developing nations in expanding their intellectual infrastructure. These programmes also hold the potential to increase the preparedness of students in many nations, to work collaboratively within and beyond their increasingly globalised societies.

ASIAN ACADEMIC COLLABORATION AND/OR COOPERATION

Most Asian nations receive technical and academic educational (and other) resources from technologically advanced nations, such as USA, UK and other countries in Europe, and to a smaller extent, from Australia and Japan. While Japan has not been too proactive in contributing to ASEAN's educational activities, Australia's academic interaction with Singapore and other Asian nations is quite visible and increasing.

Academic cooperation with the West by ASEAN might have been quite appropriate during the stages of development, when basic strengths and skills were being built up. Culturally, however, some international authorities have referred to this one-way transfer of technical knowledge as 'Educational Imperialism' or 'Academic Neo-colonialism'.

While this is unavoidable and not necessarily bad for the outcome, those who have been deeply involved for many years in such knowledge transfer can indeed affirm that, to some extent, ASEAN and Asia have had to contend with imbalances in cultural orientation of study materials and other academic resources, with no similar regional alternatives available.

The benefits of transnational education programmes must be weighed against the risks of the so-called educational imperialism. For instance, what could be the potential impact of transnational education providers being mostly from English-speaking nations?

There are, of course, rare exceptions of reverse flow of knowledge from and about Asia, such as through Nobel Laureate, Prof Amartya Sen who has been instrumental in awakening the West to the strengths of Asian cultures.

Reasons for one-way influence

What could be the reasons for this one-way traffic of technical education in earlier eras?

- In many modern technological areas, the West (plus Australia and Japan) has been leading in recent decades, and to catch up, the East has had to look towards these technically advanced nations for co-operation.
- For efficient transfer of technical knowledge, Asia's academic programmes and pedagogical methods must also parallel those of the West, which requires changes in our indigenous systems.
- Most innovations in the transfer of technology are initiated by and based in the West.

- Most of the required documentation is in the English language, putting nations not sufficiently familiar with technical English, at a disadvantage - although this gap is fast being closed. It must be admitted here that adopting English for educational purposes has greatly assisted many nations in developing robust transnational partnerships.

TRAINING RESOURCES

Technological academic training for students in Western countries is often different from those for students in many Asian countries. Hence, text books, published articles, and training tools available from the West are not always synchronous with Asian views and comfort zones.

In spite of sincere attempts by Western authors to include Eastern thought, those who have not 'lived in' and personally experienced the region they wish to reach, often miss the point.

American and British books, and English versions of European books also have their own language quirks! Colloquial phrases and idioms, metaphors and analogies used have little or no part in the experience of many Asian students. With most teaching resources coming from the West, case studies and examples are based mostly on Western incidents, reflecting their ways of life and daily experience, requiring the Asian students to understand the language nuances and cultural aspects before they can solve problems.

A main reason for the dominance of Western academic resources in Asia is partly the fault of Asian nations, in that we in Asia are not as free or effective, as the West is, in the communication, dissemination, and documentation of technical information and knowledge, both among ourselves as well as with other nations.

This may not be a major problem in engineering and math-based courses, but can cause considerable difficulty in other technical courses requiring descriptions and abstract ideas.

A particular problem is in senior-level individual projects. While in group projects, Asian students manage to meet the project report standards quite well, they fumble in individual essays and presentations on descriptive and abstract material.

Many industries in Asia are now multi-national and looking for attributes such as good communication skills and international experience, when hiring engineering graduates. In the classroom, it is not an easy task to spread this emphasis on communication skills!

It has been the experience of teachers that, in classes attended by students from many Southeast Asian countries, while the teaching and assessment were all in English, students tended to think in their national languages and they even sit together in class so they could chat freely with their country-mates.

As for their Western experience, most students knew only superficialities of the Western world such as cellphone use and pop music, but not much of the

historical origins of Western technology or the mindset of Westerners which made them so confident and innovative.

What we might need is a 'bridging' course to infuse into the students better regional communication skills, and more knowledge-based international 'experience'.

CONSTRUCTIVISM

Distance learning programmes and other pedagogical methods from the West are dominated by 'Constructivist' approaches to teaching and learning, used in the West.

According to 'Concept to Classroom' [1], 'Constructivism' is a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we reconcile it with our previous ideas and experience, maybe changing what we believe, or maybe discarding new information as irrelevant.

There are benefits in constructivism, in the Western academic ambience, and even in mainstream universities in Asian countries, where the student pool evolves together from entry level to graduation [2].

But the situation is different in courses attended by students coming from different backgrounds and with very little in common.

There are many differences among students, in the largely culture-based perceptions of 'good' and 'bad', 'acceptable' and 'forbidden'. The differences are not only between students from the two hemispheres but also between students within the same region. Such cultural differences have surfaced on certain topics, as can be observed while teaching in Asia to Asian students.

Further, Asian students would do well in deriving equations, applying formulas, and listing bullet points (exactly as in the source) on technical matters. But they fared badly in writing sentences of their own, to describe something, or give their own opinion on anything.

To them, the English language was a major barrier for non-mathematical and non-scientific topics, even in engineering courses.

Basic differences in thinking and motivation

In general, Western students are more serious about the process than about the end result, while Eastern students behaved in quite the reverse manner. Eastern students felt more 'pressured'. They would want to get to the correct result, somehow, even to the extent of 'reversing from the answer'!

A Westerner would start from A, and 'try' to reach B, experimenting with different paths, viewing scenery en route and not caring about when he reached B, or even if he reached B! An Easterner would find out the shortest and fastest path from A to B, and launch headlong on this fixed path, come what may.

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Western curricula are generally quite flexible and offer a wide variety of choices, including many abstract 'humanities' topics. Eastern curricula are generally quite rigid, with fixed concrete, 'scientific' choices, although recently more versatility is being injected.

Western students are more independent, financially and emotionally, than their Eastern counterparts, and freer to choose their pathways. This has a great bearing on their different academic experience.

In addition to the language itself, we must consider the impact of culture on learning in transnational education programmes.

In English-speaking nations, the home of most of the transnational education providers, presentation of information is explicit - almost all meaning being conveyed in words. In Asian nations, presentation of information is implicit, with meaning conveyed through gestures and other social cues, as much as in actual words, with language already being a problem.

This may not be such a major problem in mainstream, local universities, where even students from other nations soon get integrated with the local students and manage quite well. But problems arise in the local campus of foreign universities when (a) The university attempts to enforce, in the host country, the same resources, assessment system etc as at its

home campus, and (b) Courses are aimed at part-time professionals who work all day and study to get a degree, in their 'free' time.

The concept of working professionals taking part-time courses is defined by a lack of uniformity in the background of the students. In many instances, the motivation was exclusively on 'somehow' managing to get the pass grade (or even 1% less, because nobody would fail an adult for a shortfall of 1%), rather than on learning the subject to improve themselves.

In the US, by and large, partly due to being 'self-driven' and partly because of the continuous assessment process, students come to learn, and would quit rather than 'suffer' the course, or crib and whine about how tough studying was, after long and hard hours of work.

Quality concerns of transnational education

Perceptions of quality of on-line and other distance education programmes vary significantly throughout the world. In the US, most academic leaders perceive outcomes in on-line programmes as the same as or superior to those from face-to-face programmes.

Quality control measures in US are fairly robust, with tight regulations on the quality of programmes within its states. In sharp contrast, education leaders elsewhere express concerns about the low quality and questionable accreditation of foreign transnational education providers, particularly the 'for-profit' ones.

Overall, this gap is so apparent that transnational education, as a means of building academic competence in developing nations, is viewed sceptically and even disparagingly.

Quality control also seems to correlate with national development. Already, nations such as India and Australia appear to be benefitting well. China seems to prefer traditional brick and mortar universities.

Obstacles to international experience

The alternative to actually studying and working in foreign lands is to put all engineering graduates through a rigorous, immersive 'briefing' course on selected foreign cultures, offered by mentors who themselves have the multi-cultural experience. Such a course goes beyond just addressing the technical content.

There will be difficulties in importing and adjusting to the transfer of technical knowledge from Western countries into ASEAN and Asia, in general.

Parkinson [3] noted the following obstacles for participation in international experiences:

- Difficulty in scaling
- Negative impact on time to graduate
- Negative impact on finances
- Lack of faculty incentives
- Unclear outcomes assessment
- Rigid curriculum structure

CONCLUSION

We need international cooperation and collaboration, and yes, there are many things ASEAN members (in fact most of Asia) have to learn from the West, in engineering and technology.

But for sustained outcomes and mutual international respect, it must be 'two-way' exchange.

- Let us certainly learn the techniques and receive the products of advanced technology from the West. But let us also learn the principles behind the technology, and the materials and processes behind the products - like learning to fish rather than keep receiving gifts of fish!
- Let us also try to give something in return for the 'gifts' we get!
- Let us remember with pride the vast technical knowledge and expertise that Asia gave the West in earlier eras.
- Let us now support and encourage innovation in Asia and its member nations.
- Let us develop our own training materials for our own needs.
- Let us interact more within ASEAN and also facilitate interaction between ASEAN and the rest of Asia, to develop all countries in the domain.
- Let us inspire ASEAN and ASIAN youth to more self-reliance!

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