

# Research And Development For Capacity Building In TVET: The International PhD Programme Between UTHM And ITB Germany

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## Abstract

The Ninth Malaysia Plan, which is one step on the way to achieve Vision 2020, features a separate section on Technical and Vocational Education and Training (TVET). It assigns responsibilities for TVET teacher education at the various levels to specific institutions such as polytechnics and community colleges. Malaysia will also face significant challenge as the country is set to become industrialized. Strategic knowledge and skill have to be the basic form of capital to position Malaysia towards industrialization. The education system especially in TVET must yield K-workers to push Malaysia into the K-economy. The Malaysian government has been dedicated to reform the education system and to place Malaysia into a world-class education hub. One critical strategy taken by the government is to implement the National Dual Training System (NDTS). Universiti Tun Hussein Onn Malaysia (UTHM) has been the key institution that strives to fulfil the national objective. UTHM offers and supply qualified TVET professionals at the academic levels of Bachelor, Master, and PhD programme to enrich the human capital of the nation. Due to the active international involvement and excellence recognition of UTHM as a TVET provider, a cross country research project involving UTHM from Malaysia, Universitat Autònoma de Barcelona (UAB) from Spain, The Institute Technik und Bildung (ITB), Universität Bremen from Germany and Vocational Education Development Centre (VEDC) Malang, Universitas Pendidikan Indonesia (UPI) Bandung and Technical Education Development Centre (TEDC) Bandung from Indonesia has agreed to partnership cooperation on a research project funded by the European Union Asia Link project headed by ITB. The research is focus on the development of trans-national standards of teacher training, their accreditation as well as the development of curricula. To strengthen the international collaboration, UTHM has taken an innovative initiative to work closely with the Universität Bremen from Germany to structure a German-Malaysian PhD programme. The cooperative program will facilitate the reorganization of Malaysia's professional training scheme by benchmarking the German's work-based TVET system. Currently, 18 candidates have already enrolled into the programme pursuing their doctorate academic advancement. As the Prime Minister of Malaysia put forward in his speech "We will need more thought-leaders, creators and innovators to achieve our aspirations", this PhD graduates will definitely becoming the backbone to our NDTS transformation. The paper will highlight the existence, process and implementation of the innovative German-Malaysia Joint PhD programme.

**Keywords:** capacity building, TVET, international collaboration, joint programme.

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## Introduction

Universiti Tun Hussein Onn Malaysia (UTHM) has been proactive in building the capacity in TVET. UTHM is a recognised UNESCO-UNEVOC centre for the country since 2001. In relation to the recognition several important activities have been initiated and organised through the Faculty of Technical Education to justify and promote its existence in TVET. Apart from specialising in TVET teacher training, other strategic and equally important activities include enhancing bilateral relationship with several local, regional and international based communities, such as professional bodies, multi-nationals companies and TVET providers. The purpose is to become a leading provider and referral centre in TVET through positioning ourselves in the centre of the networks. Among the platforms are inter-varsity academic support and exchange of expertise, advance studies and graduates supervision, research and staff development activities, and also engaging in collaboration projects with other local entities and international TVET providers. Hopefully through these bilateral relationships may help us to enhance our TVET programmes towards becoming one of the world-class TVET providers. One of our strategies is by learning from more successful and renowned TVET providers and community globally.

Until today, Faculty of Technical Education has produced more than 2000 graduates currently serving as TVET teachers, instructors and lecturers in schools, polytechnics and community colleges, public and private institutions throughout the country. At the international level, we have engaged in collaborations and networking with international organizations such as Southeast Asian Ministers of Education Organization Regional Centre for Vocational and Technical Education and Training (SEAMEO VOCTECH), Korea Research Institute for Vocational Education and Training (KRIVET), Colombo Plan Staff College for Technician Education Philippines (CPSC), The National Centre for Career and Technical Education USA (NCCTE), European Centre for the Development of Vocational Training (CEDEFOP) and many more.

We also have expanded our research building capacity to international level. For example, in December 2005, UTHM joined consortia of researchers from Germany, Spain and Indonesia in an international research grant in teacher education in TVET. This interaction in international research activities also served as a platform for enhancing closer rapport and understandings between the participating institutions and resulted in more opportunities for further cooperation. The International Joint PhD programme in TVET is the exemplar of how the idea that first informally conceived out during the interactions has today, become the reality.

Therefore, this paper briefly describes the measures adopted by the Faculty of Technical Education UTHM in handling the International Joint PhD programme between UTHM and ITB Germany. Among the points included in this paper are how the measures were taken to ensure the best interests of research students are met and also on how the enhancement of the core competencies and expertise of faculty being implemented through the programme.

## The National Scenario

The Ninth Malaysia Plan, which is one step on the way to achieve Vision 2020, features a separate section on Technical and Vocational Education and Training (TVET). One of the issues that had been recognized as very important towards achieving the vision was the development of human resources (Abdullah, Rose & Kumar, 2007). Human Resource Development (HRD) appears to be a key factor in further developing the country and to be expected that TVET will and should grow even faster than the economy as a whole. High growth rates of education and TVET are well within the governments financial capabilities. Human resource capital also represents the most valuable asset to ensure that Malaysia can increase its competitiveness at the global level.

The focus towards HRD had, been intensified and became one of the regular features in the government policy. Strategic knowledge and skills have to be the basic form of human capital. In order to position Malaysia towards industrialization, skills training had emerged as a visible and distinct component of Malaysia's education and training system by the late 1970s. TVET has been rest with an important social task in the country as the future orientation of the workforce preparation and training is based on the cultivation of occupational competencies as prescribed by institutions, which was dominated by three different streams or pathways, distinguishable in terms of producing the country's workforce:

Table 1: Main Streams of the Education and Training System in Malaysia

<b>Stream or Pathway</b>	<b>Institutions</b>	<b>Workforce Preparation</b>
1. Higher Education	Universities and other institutions of higher learning, both public and private	Professional and managerial personnel such as engineers, architects, and surveyors
2. Technical and vocational education	Polytechnics, technical colleges and (more recently) community colleges	Supervisory personnel such as technical assistants and supervisors
3. Vocational skills training	Skills training institutions, public and private	Skilled and semi-skilled workers

The Malaysian government has been dedicated to reform the education system and to place Malaysia into a world-class education hub. This is due to rapidly growing economy and urgent requirements for qualified workers, to face an education system which no longer satisfies the demands. The education system especially in TVET must yield K-workers to push Malaysia into the K-economy. K-workers are essential for the country to make investments in technology and workplace requirements which will contribute to sustainable growth.

Therefore, Malaysia requires a flexible and competence workforce that is adaptive to change. The workforce needs to be continuously equipped with knowledge and skills to increase Malaysia's competitiveness in the global market. This requirement is leading to a

demand on the skills delivery system, which are particularly the roles and responsibilities of TVET teachers or trainers. With the sharp focus in producing skilled labour-force, each level of target workers in Malaysia should be provided with different needs of teacher training.

For this reason, Malaysia decided to remodel its professional qualification system according to German standards, which was designed as early as in 1999. On 13<sup>th</sup> June 2003, the Economic Planning Unit (EPU) has announced that they will go for the dual system in the delivery of TVET. Thus, the Government of Malaysia decided on 19<sup>th</sup> May 2004 to implement the National Dual Training System (NDTS). In recognition of the excellent contribution in TVET teacher training, UTHM was invited to support the NDTS through providing pre-service and in-service training, research and development activities as well as providing higher studies in NDTS. In the initiative of Malaysia to achieve NDTS, at the same time UTHM have already committed in the EU-AsiaLink's project which has bearing with TVET. One of the project outcomes was to help the implementation of NDTS in Malaysia. Therefore, UTHM has made a drastic collaborative effort with ITB to structure a Joint PhD programme. The Joint PhD programme is solitary approach to qualify future leadership. With research done in the scope of their doctoral theses, programme participants are concerned with the construction of the NDTS which is supposed to guarantee the high professional training quality in the future.

## **Internationalization Programme**

Internationalization is an ongoing and future-oriented process of integrating various international perspectives into our higher education. The perspectives may be related to the curriculum, programmes offered, top managers, faculty members, students, facilities and even the institutional visions, to suit the diverse and ever-changing environment and demands that are more global (Saat, 2007). The reasons for internationalization are such as an increase student and faculty international knowledge capacity and production; strengthen research and knowledge capacity and production; create international profile and reputation; contribute to academic quality; broaden and diversify faculty sources and students and promote curriculum development and innovation (Biarnason, 2007). Therefore, internationalization programme is defined as a programme with an international orientation in content, aimed at preparing students for performing (professionally/socially) internationally and multicultural context, and designed for domestic students and/or foreign students. Through internationalization programme, university also can strengthen research and innovation activities through international collaborations and network, and wider recognition.

## **International Collaboration**

Collaboration is a recursive process where two or more people or organizations such as university work together toward an intersection of common goals – for example, an intellectual endeavour that is creative in nature – by sharing knowledge, learning and building consensus. International collaboration is a key link in the university's activities. Its ancient tradition of learning and its outstanding research have earned the University

an excellent reputation and a given place in the international research community. The University is much in demand as a collaborative partner from universities around the world. Improvement in the quality of research, the teaching and learning process and curriculum has long been heralded as a positive outcome of international collaboration. Through exchange of good practice, shared curricular research collaboration, and mobility of professors or students, there is much to be gained through international collaboration. A recent trend has been the establishment of joint programmes between universities in different countries that lead to double (or multiple degrees) and in some cases a joint degree, although the latter faces steep legal constraints. Joint programmes are intended to provide a rich international and comparative academic experience for students and to improve their opportunities for employment (Knight, 2008).

## **The International PhD Joint Programme**

The early idea of having a joint programme was discussed informally during a research project interaction in a European Union Asia Link Research partners attended by UTHM and ITB. Then the idea was taken up by UTHM as a basis of having a formal academic cooperation with ITB in the area of teacher training at higher level. This brings to formal discussion and exchange of opinions between the two universities.

In 2006, the Faculty of Technical Education Universiti Tun Hussein Onn Malaysia (UTHM) and Institut Technik und Bildung, Universität Bremen, Germany (ITB) have set up a joint PhD programme in TVET, a teacher training programme at higher education level (Spottl, 2007). Students on this special programme can expect to obtain their doctoral degrees after the minimum period of four years of study. The purpose of this programme is to provide teacher qualification at PhD level to personnel engaged in the training sector. As part of the capacity building for the newly introduced National Dual Training Scheme (NDTS), this programme also provides a direct exposure to the actual practicing system of traditional dual training system in Germany. This research-based programme enables the students to do their research partly in Germany and partly in Malaysia. The specific focused research themes generated by the students, also provide new and useful insights for both countries. For Malaysia, it is useful in providing concurrent awareness on how best to fit the newly NDTS in the country, while for Germany, it is also useful to open the eyes for alternative routes for the modernization of the German TVET system (Dittrich, 2006).

## **The Implementation**

Before the implementation of the International Joint PhD programme, the faculty has identified four equally important and interrelated factors that must be carefully addressed in any decisions being made to implement the programme. The factors that offered utmost challenges to the programme designers of this programme are as follows;

- Firstly, the expectations from the government, in particular the Ministry of Human Resources (MoHR) as the major stakeholder of training in Malaysia, to strengthen the delivery of training through NDTS. UTHM has been invited to support the Department of Skills Development (DSD) of the MoHR to ensure the success of the

NDTS through providing special pre-services and in-services programmes for the staff. This International Joint PhD programme is one of the first commitments of UTHM for NDTS.

- Secondly, the PhD students have to satisfy the minimum of six month stay as the eligibility period at ITB. However, as full-time staff, they are only permitted to be off duty up to the maximum of three months. By taking this challenge into account, their stay at ITB has to be planned into two stages of three months respectively.
- Thirdly, the belief that the faculty understanding knowledge on the German model of Dual Training System are still relatively inadequate without having seen the actual practice in the country. Hence, UTHM need to find partners in Germany to provide direct exposure on the actual practice in the country.
- Finally, in order to fulfill the vision of UTHM to become a world class TVET provider, there is a need to strengthen the provision of its programme through international collaboration channels so as to be abreast to the challenge of globalization.

## Joint Supervision

Joint supervision encompasses a range of supervisory practices, but at heart refers as two or more supervisors sharing responsibility for the academic support and development of a research student's doctoral education. Departmental, faculty and institutional practices, as well as personal preferences and the demands of one's subject area make it more or less easy to adopt one of the ranges of models of joint supervision (Peelo, 2008)

The reasons of joint supervision are a mixture of pragmatic and academic, grouped under three headings of benefits to supervisors, students and universities:

- **Benefits to supervisors**
  1. For supervisors' support and development, especially for new researcher to gain an experience and knowledge from the experts who has a great deal of experience in his or her research field.
  2. Separate tasks can be allocated to different members in a team. For example research ideas from other researcher will be beneficial for knowledge development process.
- **Benefits to students**
  1. To provide a range of judgments and experience to draw on throughout the student's doctorate study.
  2. The students still remain with the research study even though the supervisor is transferred to other universities. This is because either internal or external supervisors will leave, students can still refer their research study with the other supervisor.
- **Benefits to universities**
  1. Less problematic to change supervisors if there are disagreements between a student and a supervisor.
  2. Compliance by local university regulations and joint funding councils.

## Structure of the Programme

In the implementation of any programme, the major concern for the designer is to find the best approach that may provide the best possible solution to the problems that may otherwise hinder potential students from taking up the programme. Without compromising the quality of the programme and also the interest of the students, our challenge is how adjustment should be made so that expectation of the government and the interest of the students can be blended harmoniously to meet the qualifying criteria of the universities.

Therefore, based on the identified challenges mentioned as above, and also to ensure that the best interest of students is met, UTHM has adopted the following component and structure of implementation (Appendix).

### 1. Premise of the Programme

The programme is divided into two components based on the premises of study that is in Malaysia and in Germany. The component in Malaysia is divided into the research and the teaching parts. While the Germany component is implemented in two stages of visits of three months each by the students. The detail picture of how the programme is being carried out is as follows;

#### 1.1 In Malaysia

During the study period in Malaysia, students should enrol at UTHM and are required to fulfill the academic components of the PhD programme of about 110 credit hours. It is divided into 20 credit hours of compulsory subjects and the 90 credit hours of equivalent research works throughout the programme. The 20 credit hours of compulsory classes are given during the first two semester of their study in research methods, statistics, and teacher education and also basic German Language classes. The purpose is to help the students in their future research works as well as to prepare them during their visit to Germany. While the 90 credit hours of equivalent research works are assessed through presentation of proposal, semester progress reports, supervisors reports and the final viva voce (KUiTTHO, 2001). It also covers both the component in Germany and Malaysia. The continuous assessment adopted by UTHM is to monitor their progress to ensure their success in PhD programme.

#### 1.2 In Germany

The six months of study period in Germany is divided into two visits of three months each. In the first visit, students are to develop their proposal. In the process and with the help of their supervisors they are to learn and expose themselves to the dual training system in Germany through industrial visits and attachment and also to conduct literature search related to their specific area of research. The first experience in Germany will provide the opportunity to explore and understand the real concept and practices of dual training system in Germany. The second three months of visit to Germany is, to continue their research work. With the help of their supervisor in Germany, they are given the second opportunity to arrange for a re-visit to industries to conduct an in-depth study in their area of research. The second experience in Germany will provide them with a thorough understanding on the actual strength of the system from the perspective of their focus area of study.

## 2. Research Supervision

Supervision of graduate works is carried out by both of the universities where each student shall be supervised jointly by UTHM and ITB. The supervision in UTHM will be complemented and refined by the supervision process in ITB and vice versa. In Malaysia, the student will be supervised by professors appointed by UTHM, and while in Germany by professors appointed by ITB. To enhance the quality of supervision and also to build up the capacity of the faculty, the university has appointed two supervisors for each student. At the same time co-supervisors from other local universities are invited and appointed to conduct team supervision. The supervisor(s) are selected and appointed based on their expertise and recognized strength in PhD level supervision in TVET. The benefit of this local co-operation in PhD supervision is in the pooling of expertise, maintaining standard and as way of knowledge sharing among local providers.

Upon registration, students meet and discussed with their supervisors assigned by the Graduate Schools of UTHM. Within the first six months of their study, they are to prepared a brief but highly focus proposal of what they intend to do as their research works. It is mandatory for the students to present and satisfy the proposal screening process and also to take compulsory subjects before being allowed to proceed to the next stage in ITB Germany.

At ITB Germany, the students will spend their next three months to refine their draft to sufficient proposal under the guidance of supervisors assigned by ITB. They will have to satisfy another screening of proposal in order to be accepted as PhD students by ITB.

Upon returning home, the students have to report their proposal's progress to UTHM before being allowed to proceed to the next stage. They shall spend the rest of their study period for field observation and data collection in Malaysia. In the process, they are expected to work closely with supervisors, both local and abroad through attended and unattended means. Continuous online supervision and consultation are expected to be maintained between students and both of their supervisors in Germany and in Malaysia. The students may exchange messages through emails, internet, fax, telephones and the Blackboard 8.0 online learning facility set up by UTHM to seek opinions and check on progress with their supervisors and also to the faculty. Supervisors from ITB Germany shall also visit UTHM to check on the progress of students during their research stage in Malaysia.

The academic procedure in UTHM requires students to submit a written progress report on their achievement for every semester to the Graduate School. Only upon satisfying this requirement, the students may be allowed to further their study into the next semester.

## 3. Research Area

As the focus of the programme is to provide PhD qualifications to the students in the area of dual training system, the focus area is predetermined by the faculty. Students together with their supervisors are allowed to make amendments to suit their specific interest of study. Thus, the findings of the research works will contribute to enhance the capacity of NDTs framework in Malaysia and also as an eye opener in improving the provision of the traditional dual training system in Germany.



Examples of the proposed research topics are as the following:

- Customer Satisfaction and Effectiveness of National Dual Training System (NDTS) Programmes.
- The Role of Organisational Development in National Vocational Training Council (NVTC) To Enhance the Implementation of National Dual Training System (NDTS).
- The Participant of the Small and Medium-Sized Industries (SMIs) In National Dual Training System (NDTS).
- Role of Industry Personnel as Coach in the Implementation of National Dual Training System (NDTS).
- Generic Skills in the National Dual Training System: Implications on Institutions and Industry.
- The Development of a New Curriculum Model for the National Dual Training System in Malaysia.
- The Readiness Level of Vocational Training Institution in Malaysia for the Implementation of National Dual Training System.
- The Integration of the National Occupational Skill Standard (NOSS) Into the National Dual Training System.
- A Malaysian Model of Training Collaboration between Government Technical Institution and Industry, Based On National Dual Training System.
- Developing And Testing Assessment Framework For National Occupational Skills Standard (NOSS) And National Dual Training System (NDTS) Based Training System.

#### **4. Teaching Component in UTHM**

The purpose of the teaching components is to support the students to enhance their research ability. The first cohort with two groups of five students each is combined to enhance the effectiveness of the delivery. Therefore, the teaching component at UTHM is only conducted when the two group are available in the campus. The first teaching component was conducted during their initial proposal stage while the second teaching component immediately upon the first group returns from Germany. While for the second group of five students the class is conducted before their first visit to Germany. The benefits are to enable discussions and sharing of experiences between the students that have return from Germany and those who are going for their first trip to Germany.

#### **5. Examination**

The programme is expected to be completed within the minimum period of four years. The final examination stage in the form of oral and verification of thesis shall be conducted in accordance to the agreed procedures by both universities. Eventually, upon satisfying the conditions of UTHM and ITB, the students shall be entitled for the PhD degree awarded by each university, which they have involved.

## Our Expectation from the Programme

The International Joint PhD Programme between UTHM and ITB has provided a new and useful experience for UTHM as it is the first of joint programme ever conducted by the Faculty of Technical Education with the Institut Technik und Bildung Universitat Bremen, Germany. This international cooperation in academic programme is very unique. The programme not only open a new horizon in the international cooperation but also offers synergy effect in its own and special manner.

1. The international Joint PhD Programme between UTHM Malaysia and ITB Germany has contributed to the promotion of bilateral relationship and understandings between Malaysia and Germany, both in the cultivation of intellectual knowledge and also cultural knowledge that are most beneficial in cultivating closer ties between the two countries.
2. The character of development and delivery of the programme which is highly customized may has set new dimension for the international cooperation and also the future delivery of TVET in the forms of resources sharing and focusing of expertise.
3. The topics undertaken by research students in this programme are directly related to practice-related problems of NDTs confronting the training sector in Malaysia.

As a whole, it has been expected that this program is unique in many ways. From the macro perspective, this programme provide as a platform to enhance knowledge transfer between the two countries, and as an effective approach of raising expertise and potentials of local cooperating institutions to the new standards of international practices. While from the micro perspective this programme has significant impact in changing the manner of conducting research-based programmes from traditional approach towards a more creative and innovative mode of delivery between the international providers in a win-win situation for the collaborating parties.

Therefore, in addition to the personal benefits gained by the student, this programme is also an eye opening to the policy makers of the vast potential international interaction between the TVET players and providers. In this example, the students engaged in this programme shall have the opportunity doing research in the German TVET system and concurrently explore the possibilities of how to implement and modify the traditional system into the new Malaysian version of NDTs implementation.

This research will also contribute to the development of NDTs in Malaysia whereby more realistic and systematic approach will be employed which would led to a more guaranteed and effective system of training.

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Appendix:

