

**Sven Schulte** (TU Dortmund University), **Tutin Aryanti** (University of Bremen), **Ade Gafar Abdullah** (University of Bremen), **Ana** (International Senior Expert TVET-Asia)

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## **Editorial TVET@Asia Issue 9:**

### **Enhancement of Work-Integrated Learning (WIL) through cooperation of TVET Institutions, Companies, and Universities**

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ASEAN has gradually developed into an increasingly dynamic and competitive region economically. TVET aims to prepare learners for a labour market and society persistently undergoing rapid change. As a result, Technical and Vocational Education and Training (TVET) has to develop its objectives, systems and didactical concepts further.

It is widely anticipated that the involvement of industry in TVET will lead to an improved and advanced quality of TVET programmes. This, in turn, is directly related to the modern requirements of the labour market and specific concepts of workplace orientated learning. Furthermore, new didactical approaches explore and develop the workplace as a learning venue that aims at goal-oriented competence development. The successful organization of modern learning arrangements in TVET and beyond depends on a close cooperation and coordination of the various learning environments.

The Indonesia University of Education (UPI) of Bandung, Indonesia, is one the numerous educational institutions that have been established in the realization of the importance of educating people. Specially qualified teachers were required to increase the quality of education and to help create a prosperous society. During November 15th/16th UPI organised the 4. UPI Conference on Technical and Vocational Education and Training (“Regionalization and Harmonization in TVET”).

The present 9th Issue of TVET@Asia links to some of the conference’s major topics. It comprises ten papers addressing a range of the most relevant topics regarding the approaches and didactical settings of WIL. The papers submitted discuss the theoretical concepts of WIL, in different occupational areas and target groups involved in implementing WIL and the meaning and consequences of WIL for educational policy. The following authors and topics present the potentials of WIL:

THOMAS SCHRÖDER and PETER DEHNBOSTEL (TU Dortmund University, Germany) differentiate between Work-based and Work-related Learning – Models and Learning Concepts. Beginning with the historic origin of “Learning in the process of work”, the authors introduce the discussion and theoretical concepts behind the three variants of work-integrated learning, work-connected learning and work-orientated learning. They provide an understanding of the criteria of a learning organization, different types of work-based-learning are described and connected with corresponding learning concepts, especially the concepts of

situative learning, self-directed learning and reflexive learning. The outlook demonstrates the meaning of the accreditation and validation of informal learning as a prospective relevant research topic.

SIRIPHORN PHALASOON (Technical University of Dortmund, Germany/Rajamangala University of Technology Lanna, Thailand) contributed a paper about School in Factory: an approach of Work-integrated learning in Thailand. Beginning with an introduction to the labour market situation and the educational system in Thailand, the author indicates the mismatch of supply and demand between educational institutes and industry. The government managed this issue by promoting work-integrated learning (WIL) as one of the strategies to cope with the challenges of producing job-ready graduates. As a result, various forms of WIL have been implemented and many instances of cooperation with industry sectors have been established through this educational program. The paper's discussion summary concludes that in solving the problem of mismatching graduates' qualifications regarding demand and supply, it is crucial to build effective collaborations between educational institutes and the industrial sectors to provide significantly better student education. The School-in-Factory project is one of the best practice-examples implemented in Thailand that showed appropriate positive outcomes for all stakeholders.

XUAN TIEN VO (University of Technology and Education, Vietnam) is detailing The concept of CDIO in Vocational Teacher Education in Vietnam. At the beginning the author reveals the gap between the need for specifically skilled labour forces (required in industry) and the quality of the labour forces trained by TVET institutions in Vietnam. The results of a field study that examined on-the-job-training at companies point to the positive effects of WIL within a cooperation between TVET institutions, companies and universities. The WIL concept is based on the CDIO principle and presented in the form of a best-practice example.

ILHAMDANIAH SALEH (Universitas Pendidikan Indonesia, Indonesia) has titled her paper The Role of Vocational Training in Reducing Unemployment Rate in the Outlying States of United States of America. She analyses the contribution of vocational training in reducing the unemployment rate in four outlying states of the United States. Using the data from the U.S. Census and a logistic regression method, the positive results of WIL confirm the theoretical predictions and suggest that vocational training increases the likelihood of the unemployment rate to decline. Despite the statistical limitations, the author also gives recommendations for further research activities and the continuation and improvement of vocational programs from U.S. Department of Labor.

TRUONG MINH TRI, BUI VAN HONG and VO THI XUAN (HCMC University of Technology and Education, Vietnam) focus on Self-directed learning in the context of internationalization in TVET in Vietnam. In their paper both sides of the learning process are discussed: on the one hand self-directed learning emphasising the active part the learners (students) have to play in identifying their needs and learning goals. On the other hand, trainers need adequate teaching content, teaching methods, studying methods and examination methods. Finally, self-directed learning can be linked within real work processes to satisfy the demand of training human resources for industrial a modern workforce. The conclusions link the discussion with self-directed learning skills and the challenges for students (that can finally

be transferred to the discussion of WIL concepts).

BART HOREMANS (Belgian Development Agency, Palestine) and RANDA HILAL (OPTIMUM for Consultancy and Training, Palestine) contributed an article called Closing the Gap: The Introduction of Work Based Learning Schemes in Palestine. A pilot programme for introducing work-based learning (WBL) schemes that support private-public partnerships in TVET, is discussed by the authors presenting different preparatory steps and the roll-out of a WBL concept in Palestine as well as the first preliminary results on the effect towards employment opportunities for its graduates. The paper includes some lessons learned about the implementation of WIL in the context of improving (or even changing) a TVET system.

BEATE DALLMEIER (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH), TVET Myanmar, focussing on her paper Work-integrated learning in-service teacher training at the Industrial Training Centre in Sinda she addresses how TVET-teachers' competency development can be supported through the implementation of a mentoring structure at a TVET school in a remote area in Myanmar. This school aims to perform the transformation from input-oriented education towards Work-Integrated Learning (WIL) with the aim of improving the school's labour-market-orientation. First experiences indicate how very supportive the mentoring structure and network synergies are.

THOMAS SCHRÖDER (TU Dortmund University, Germany) will introduce his paper on Work-based Learning in a Virtual Work Environment – the Future of Learning? He presents a didactical concept that integrates work-based learning, which is experiential and based on real work tasks comprising an input-based approach of E-learning, with both fruitfully combined in a virtual work and learning environment. Developed in the context of a research project this virtual concept at present only allows for a few specific occupational profiles from the IT Sector to participate. Most significantly, in the light of continuously advancing information technology, the concept itself may well point to a future path of work-based learning for those who have no direct access to real work

DING JINCHANG (Zhejiang Institute of Mechanical and Electrical Engineering, China) submitted a paper on Establishment of a Talent Cultivation Platform for the Intelligent Industry in China. Based on the Zhejiang Action Plan for Made in China 2025, the author reveals the change of China's manufacturing industry and the demand for technical professionals. After discussing three main problems in the Higher Vocational Education sector in China the author outlines the three major practices of a highly regarded TVET institution in Zhejiang in coping with these challenges and fulfilling the objectives of the Made in China 2025-policy. Referring to the training of skilled workers for intelligent manufacturing and information technologies, some examples (e.g. setting up a training base for applied robot technology and a training centre for intelligent manufacturing) provide some clues to the possibilities of WIL implementation in TVET.

RAZALI BIN HASSAN (Universiti Tun Hussein Onn Malaysia), MUHAMMAD MUJTABA ASAD (Universiti Tun Hussein Onn Malaysia), QADIR MEHMOOD SOOMRO (OSHTC Pakistan) and FAHAD SHERWANI (Universiti Tun Hussein Onn Malaysia) will discuss the Systematic Determination of Potential Hazards in TVET Activities in the Oil and Gas Industries. According to the paper's overall findings, most of the drilling operations at onshore

and offshore extraction sites are moderately hazardous in the targeted industries associated with safety, ergonomic, chemical and environmental hazards. Thus, a mixed-method research approach for the identification of hazardous activities is forwarded. The outcomes are seen by the authors as a guide and reference for further activities in the technical and vocational training sector focused on work-integrated-learning concepts.

All together the papers embrace the countries of Vietnam, Malaysia, South Korea, Indonesia, Myanmar, China, Germany and even Palestine. They offer theoretical concepts and practical approaches of linking work processes and learning to train skilled workers or rather expert trainers in TVET. Thus, Issue 9 shows the variety of WIL and the efforts that have been made in a dynamic developing region experiencing growing economic strength and educational expertise. Furthermore, the ASEAN and RAVTE networks are growing too, and together the improvement of the quality of TVET can be perceived over the entire international research community.

A very big thank you to all contributors – wishing you all great reading pleasure!

*The editors of Issue 11*

*Sven Schulte, Tutin Aryanti, Ade Gafar Abdullah, Ana*

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