

ISSN 1810-5416



ISO 9001 - 2008  
Certified Organisation  
" Together We Excel "

# SEAMEO VOCTECH Journal



Volume 10 Number 1, December 2010

*Journal for Vocational and Technical  
Education and Training*

**ADVISOR**

AWANG ALIAS BIN HAJI ABU BAKAR  
DIRECTOR OF SEAMEO VOCTECH

**EDITORIAL BOARD MEMBERS**

DR PARYONO, SEAMEO VOCTECH  
MR PHILIP LOVEDER, NCVET Australia  
PROF RICHARD G. BAGNALL, Hong Kong Institute of Education  
DR CORAZON DAUZ SAMPANG, SEAMEO VOCTECH

**REVIEWERS**

DR CHIN WEI KEH, Universiti Brunei Darussalam  
DR GILBERT FUNG CHAI WING, Universiti Brunei Darussalam  
DR LIM CHER PING, The Hong Kong Institute of Education  
DR HENDARMAN ANWAR, Ministry of National Education, Indonesia  
PROF DR MUHAMMAD RASHID RAJUDDIN, Universiti Teknologi Malaysia  
MR EDWARD M. DELA ROSA, SEAMEO VOCTECH  
MR BENJAMIN GUEVARRA QUITO, SEAMEO VOCTECH

**MANUSCRIPT EDITOR**

MS NOORASHIKIN HAJI NAWA, SEAMEO VOCTECH

**SEAMEO VOCTECH Journal**  
**Journal for Vocational and Technical Education and Training**

Published by SEAMEO VOCTECH Regional Centre  
Jalan Pasar Baharu, Gadong BE1318  
Negara Brunei Darussalam  
E-mail: [info@voctech.org](mailto:info@voctech.org)  
URL: <http://www.voctech.org>

## SEAMEO VOCTECH Journal

The SEAMEO VOCTECH Journal is the official journal of SEAMEO VOCTECH Regional Centre for Vocational and Technical Education and Training. This is an international journal whereby the Editorial Board Members, Reviewers and Authors are from various countries not only from Southeast Asian region but also beyond. The articles published have been selected based on their quality and relevance and have gone through the blind review process by peers.

It is a medium of sharing and disseminating information and experiences in Vocational and Technical Education and Training (VTET) to all. We believe that much can be gained when there is a focal point where information is sought and utilised to enhance vocational and technical education and training, particularly in Southeast Asia.

The editorial objectives of the SEAMEO VOCTECH Journal are as follows:

- To provide all readers involved in VTET with current practices, ideas, news and research on major issues in the area concerned.
- To inform readers on major developments in VTET to enable sharing of experiences.

The following areas are covered in the journal:

- Innovations in vocational and technical teaching and curriculum development.
- Human resources development in VTET.
- Technological advancements and practices in VTET.
- Researches in VTET.

Readers and contributors wishing to submit manuscript for publication should refer to the guidelines and details on the inside back cover of this journal.

---

*SEAMEO VOCTECH would like to emphasise that all opinions expressed in the published articles are those of the Authors of the respective articles and do not necessarily reflect the views of SEAMEO VOCTECH or any member government of the Southeast Asian Ministers of Education Organisation (SEAMEO).*

---

## DIRECTOR'S MESSAGE

The past few months have indeed been a very busy time for us. Several international as well as national events have been held by SEAMEO VOCTECH Regional Centre. The largest event was of course the 2<sup>nd</sup> International Conference on Vocational and Technical Education and Training (VTET) Research and Networking conducted at The Rizqun International Hotel in Brunei Darussalam on 23-24 June 2010 in collaboration with The Netherlands government. As the pinnacle of a three-year research collaboration effort under the Southeast Asian Vocational Education Research Network (SEAVERN), the conference reaffirmed the region's awareness on the importance of VTET Research and Networking hosted by four international keynote speakers and participated by 198 researchers, teachers, and administrators presenting a total of 38 papers in the plenary and parallel sessions.

In addition to the above international conference, this year 2010 also commemorates the platinum Anniversary of 20<sup>th</sup> Year of Service of VOCTECH as a SEAMEO Centre on 28 August 2010. Many other events in conjunction to the celebration such as Anniversary Dinner and Launching of the Anniversary Book; SEAMEO VOCTECH Exhibitions & D-Book Seminar Workshop for Teachers in Brunei Darussalam; and VTE Project Development Competition 2010 were organised as well as quizzes on Radio & Television Brunei, and Kristal FM Station.

To all our contributors of this SEAMEO VOCTECH Journal December 2010 Issue... Our sincerest thanks and appreciation as you shared your expertise, wisdom, significant findings and studies in research and current VTET policy and practices. For that, we hope that greater awareness and interest will be induced from targeted readers and other stakeholders.

Last but not least, to the Editorial Board, Reviewers and Manuscript Editor... my deepest appreciation.

Thank you and Wassalam



*"Together We Excel"*

**AWANG ALIAS BIN HAJI ABU BAKAR**  
Centre Director

## EDITORIAL

Dear Readers

In this December 2010 SEAMEO VOCTECH Journal edition, we would like to take this opportunity to welcome and thank you our new reviewers: Dr Chin Wei Keh of Universiti Brunei Darussalam, Dr Lim Cher Ping of The Hong Kong Institute of Education, Dr Hendarman Anwar of Ministry of National Education, Indonesia, Prof. Dr Muhammad Rashid Rajuddin of Universiti Teknologi Malaysia, Malaysia, Mr Edward M. Dela Rosa and Mr Benjamin Guevarra Quito, both SEAMEO VOCTECH Specialists; and our Manuscript Editor, Ms. Noorashikin Haji Nawe. Welcome all aboard!

In this 21<sup>st</sup> century whereby globalisation is rampant accompanied by fast changing technology especially on Information and Communication Technology (ICT) has affected the way we teach and assess our students. More women are pursuing their career in teaching engineering and the mobility of students and workforce continues to grow that signifies the importance of having frameworks that can facilitate education and workforce mobility. In this edition, eight (8) articles try to address various trends and issue above.

The first article is titled *Vocational Education and Training (VET) Practices in Industrialised Economies: A Benchmark to Improve VET Practices in Malaysia* written by Abdullah Ibrahim. This paper explores a number of key issues and strategies with regard to VET provision from the experiences of established industrialised countries such as the United Kingdom, Germany, France and the United States as a benchmark for the best practices of VET in Southeast Asia.

The second article is by Punang Amaripuja on *The Role of e-Government for Vocational and Technical Education* that explores potential avenues to utilise e-government for the benefit of Vocational and Technical Education and Training (VTET) institutions in Southeast Asia. The trends and issues faced by VTET as well as an identification of VTET stakeholder are also presented, followed by possible e-government initiatives to address the needs of these stakeholders.

The third article is by Paryono on *Regional Qualification Frameworks in Southeast Asia: Current Status, Opportunities, and Challenges*. This paper explores frameworks that may facilitate the transfer, transparency and recognition of qualifications within a country or across region, such as national and regional qualification frameworks (NQFs and RQsF). It also highlight some of the opportunities and challenges of initiating RQF in the region, the efforts that have been exerted to provide a picture of the current development and propose viable agendas to push through or expedite the implementation RQFs in Southeast Asia.

The fourth article is titled *Software Performance Assessment Using Goal-Question-Metric Approach to Improve Interactive ICT Usage* written by Tariq Mahmood emphasizes the usage of ICT in the educational arena, methods to assess the performance and impact of software programs used within the organizational set-up have become important and necessary. It also presents a model for Software Performance Assessment of an operational software system based on the Goal-Question-Metric approach.

The fifth article is by Haji Afzaal H. Seyal, Serina Mohd. Ali, Haji Awang Yussof Haji Awang Mohamad and Haji Mohd Noah Abdul Rahman on *Understanding Students' e-Learning Attitudes: Evidence from Bruneian Vocational and Technical Education*, analyses students of technical and vocational institution in assessing their attitudes toward e-learning. The study carried out in one of the technical institutions in Brunei Darussalam. As a result, some conclusions are drawn and recommendations are made for the relevant authorities.

The sixth article is titled *Competencies of Female Lecturers in Handling Mechanical Workshop in Malaysian Polytechnics* written by Othman and Irdayanti Mat Nashir, reveals that these days more women are pursuing their career as a lecturer in the Mechanical Engineering fields particularly in polytechnics that traditionally employs male staff. This study was conducted to identify the competencies of female lecturers during their session of mechanical workshops module, and to identify whether there are differences in competencies between male and female lecturers in handling machines during the workshop sessions.

The seventh article is by David D. Curtis on *Teaching, Learning and Assessment in TVET: The Case for an Ecology of Assessment*. This paper argues that assessment can play a central role in teaching and learning and that selecting an appropriate mix of assessment strategies can satisfy multiple goals of key stakeholders in TVET. The goals include promoting learning, certifying learning and program evaluation. Implications for practitioners and for policy makers at regional, national and local levels are also identified.

The eighth article is titled *The ISO 9000 Quality Management System in Education: A Systematic Review* written by Sang Hoon Bae, addresses the ISO 9000 quality management system in education. The application of ISO 9000 standards to public schools was found to be intimately related to the current standards-based education reform movement and the widespread shift towards educational consumerism and managerialism in South Korea.

Despite the efforts that have been exerted to ensure this edition to be printed on time, we regret that this edition was printed after December 2010. Enjoy reading!

Editor

## CONTENTS

Abdullah Ibrahim	Vocational Education and Training (VET) Practices in Industrialised Economies: A Benchmark to Improve VET Practices in Malaysia
Punang Amaripuja	The Role of e-Government for Vocational and Technical Education and Training
Paryono	Regional Qualification Frameworks in Southeast Asia: Current Status, Opportunities, and Challenges
Tariq Mahmood	Software Performance Assessment Using Goal-Question-Metric Approach to Improve Interactive ICT Usage
Haji Afzaal H. Seyal, Serina Mohd Ali, Haji Awang Yussof Haji Awang Mohamad & Haji Mohd Noah Abdul Rahman	Understanding Students' e-Learning Attitudes: Evidence from Bruneian Vocational and Technical Education
Ahmad Othman & Irdayanti Mat Nashir	Competencies of Female Lecturers in Handling Mechanical Workshop in Malaysian Polytechnics
David D. Curtis	Teaching, Learning and Assessment in TVET: The Case for an Ecology of Assessment
Sang Hoon Bae	The ISO 9000 Quality Management System in Education: A Systematic Review
About the Authors	
Guidelines for Contributors	

# **VOCATIONAL EDUCATION AND TRAINING (VET) PRACTICES IN INDUSTRIALISED COUNTRIES: A BENCHMARK TO IMPROVE VET PRACTICES IN MALAYSIA**

**Abdullah Ibrahim**

Universiti Malaysia Pahang, Malaysia

## **Abstract**

*There is a considerable diversity in the Vocational Education and Training (VET) systems around the world. Characteristic patterns of historical development with respect to economy, politics and culture imply that each VET system has its own particular features. Nevertheless, it is necessary to identify some common preoccupations of strategy with regard to VET provision from the experiences of established industrialised countries as a benchmark for the best practices of VET in Southeast Asia including Malaysia. This paper is aimed at examining the provision of VET in industrialised Western countries that are showing a growing interest in this kind of provision. Information is gathered through literature study on several countries such as the United Kingdom, Germany, France and the United States. A literature study is also made on such provision in industrialised countries in East Asia, concentrating particularly on Hong Kong and Japan. The study found that state formation and industrialisation are major factors in determining the main functions and structure of VET in these countries. The institutional conditions required in achieving a high skills trajectory highlight the importance of employers' involvement in training, albeit in different ways. Employers in Germany, for example, are involved directly in the provision of VET in the way that they are given the responsibility to establish the standard of training and curriculum. Similarly, employers in Japan are equally involved in VET system when they tend to practice lifetime employment and provide training within their enterprises. The situation is different in Southeast Asia whereby the governments play the key mediating roles in the VET systems.*

**Keywords:** Vocational Education and Training (VET) System, Industrialised countries, employment, best practices



## THE ROLE OF E-GOVERNMENT FOR VOCATIONAL AND TECHNICAL EDUCATION AND TRAINING

**Punang Amaripuja**

Yogyakarta Muhammadiyah University  
Indonesia

### **Abstract**

*Several initiatives have focused on the use of e-government to link governments with their citizens and businesses. However, in the field of education, the use of e-government has mostly been through portals to link with e-learning systems and school websites. In this form, improvements in educational sector public services would mainly be limited to the dissemination of information without much change in interaction and business processes. This paper explores potential avenues to utilise e-government for the benefit of Vocational and Technical Education and Training (VTET) institutions. The trends and issues faced by VTET in Southeast Asia and an identification of VTET stakeholder is presented, followed by possible e-government initiatives to address the needs of these stakeholders.*

**Keywords:** e-government, VTET, trends and issues, stakeholder

## **REGIONAL QUALIFICATION FRAMEWORKS IN SOUTHEAST ASIA: CURRENT STATUS, OPPORTUNITIES, AND CHALLENGES**

**Dr. Paryono**

SEAMEO VOTECH Regional Centre  
Brunei Darussalam

Seconded from the State University of Malang, Indonesia

### **Abstract**

*To facilitate the transfer, transparency and recognition of qualifications within a country or across region, national and regional qualification frameworks (NQFs and RQsF) have been introduced in Southeast Asia. Several countries in the region, such as Indonesia, Malaysia, Philippines, Singapore, and Thailand have implemented the NQF at some degree. Various organizations and institutions in the region have been actively involved in introducing and promoting RQFs in the region such as ASEAN, ILO Bangkok, UNESCO Bangkok, SEAMEO, and Colombo Plan Staff College (CPSC). From outside of the region, UNESCO-UNEVOC and InWent are also very active in promoting the frameworks in Southeast Asia. This paper will highlight some of the opportunities and challenges of initiating RQF in the region, the efforts that have been exerted to provide a picture of the current development and propose viable agendas to push through or expedite the implementation RQFs in Southeast Asia. The proposed agendas were based on the recommendations from previous regional meetings, such as the Collaborative International Conference between InWent, SEAMEO VOTECH and UNESCO-UNEVOC on Corporate HRD and Skills Development for Employment: Scope and Strategies in Bali, Indonesia from 24 to 26 November 2008, Harnessing Qualifications Framework Towards Quality Assurance in TVET in Manila, Philippines, 1-2 December 2009 and the 5<sup>th</sup> World Teachers Day Conference on Education for the World of Work in Bangkok, Thailand, 26-28 August 2010. The proposed initiative will cover various sub-topics including the formation of taskforce and strategies to achieve the objectives.*

**Keywords:** Regional qualification frameworks, Southeast Asia, current status, challenges, and opportunities.

## **SOFTWARE PERFORMANCE ASSESSMENT USING GOAL-QUESTION-METRIC APPROACH TO IMPROVE INTERACTIVE ICT USAGE**

**Dr. Tariq Mahmood**

Deputy Educational Adviser  
Ministry of Education, Islamabad Pakistan

Former Faculty Consultant, Colombo Plan Staff College (CPSC) for Technician Education, Manila, Philippines

### **Abstract**

*The usage of Information and Communication Technology in general as well as in Technical Vocational Education and Training is increasing all over the world. Most of the international, regional and national organisations and institutions have established e-forums, blogs and web-based interactive teaching and learning systems for teaching, communication, research and networking. The UNESCO-UNEVOC e-forum, Commonwealth of Learning Open and Distance Learning System, Colombo Plan Staff College for Technician Education Web-Based Teaching and Learning System, SEAMEO-VOCTECH EduNet, and Virtual Universities are few examples to mention. As a result of greater use of ICT in the educational arena, methods to assess the performance and impact of software programs used within the organizational set-up have become important and necessary. Performance of any software program is based on the measurement of the software quality characteristics to ascertain that it is meeting or exceeding the needs of customers/stakeholders in terms of its functionality, usability, efficiency, reliability, availability, maintainability, portability etc. These software quality attributes defined under ISO 9126 provide an overall good framework for assessing the performance of the software. This paper presents a model for Software Performance Assessment of an operational software system based on the Goal-Question-Metric approach. This model is especially useful for undertaking performance assessment of small and medium-sized software systems developed in-house whose performance need to be assessed for quality characteristics namely; functionality, usability, efficiency and effectiveness, reliability, availability and maintainability in different user contexts. The proposed SPA model has been applied on Colombo Plan Staff College Web Based Teaching Learning System Software with good results and can be adapted for performance assessment of similar interactive software developed and being used by other training organizations/institutions.*

**Keywords:** Software Performance Assessment, Goal-Question-Metrics Approach, ISO 9126, Web-Based Teaching and Learning

## **UNDERSTANDING STUDENTS' ATTITUDES TOWARD E-LEARNING: EVIDENCE FROM BRUNEIAN VOCATIONAL AND TECHNICAL EDUCATION**

**Haji Afzaal H. Seyal**

**Serina Mohd Ali**

**Haji Awang Yussof Hj Awang Mohamad**

**Haji Mohd Noah Abdul Rahman**

Department of Computing and Information Systems

Faculty of Business and Information Technology

Institut Teknologi Brunei

Brunei Darussalam

### **Abstract**

*The study investigates the 220 students' of technical and vocational institution to assess their attitudes toward e-learning. The study was undertaken in one of the technical institutions in Brunei Darussalam. The study uses the survey methodology and is based upon the questionnaire that was distributed randomly to the students to assess their attitudes towards e-learning and to find out any demographical factors that are significant towards the students' use of e-learning. The result shows that majority of the students have a positive attitudes towards the e-learning with a mean of 3.67. The factor analysis data has suggested two-factor solution on the nine attitudinal items out of the twenty-item scale that was initially used to assess the students' attitude. The result of regression analysis further indicates that none of the demographical factors are significant predictor of the students' attitude towards e-learning. However, ANOVA test has found some difference among the students' attitudes based on the age. Finally, some conclusions are drawn and recommendations are made for the relevant authorities.*

**Keywords:** e-learning, students of VTET, attitude, Brunei Darussalam

## **COMPETENCIES OF FEMALE LECTURERS IN HANDLING MECHANICAL WORKSHOP IN MALAYSIAN POLYTECHNICS**

**Ahmad Othman**

City University College of Science and Technology Malaysia  
Kuala Lumpur, Malaysia

**Irdayanti Mat Nashir**

Universiti Tun Hussein Onn Malaysia  
Johor, Malaysia

### **Abstract**

*Lecturers are not only required to possess knowledge, but they also must have the skills to deliver knowledge using different teaching methods so that the delivery of knowledge will be more easily planned and delivered. If one possesses great knowledge, this will not guarantee him or her to be an effective deliverer, particularly in engineering programme that involves classroom delivery and workshop practices. Engineering subjects can not avoid the use of machinery and equipment. As more and more women are engaged as a lecturer in the mechanical field particularly in polytechnics that traditionally employs male staff, therefore this study was conducted to identify the competencies of female lecturers in polytechnics during their session of mechanical workshops module, and to identify whether there are differences in competencies between male and female lecturers in handling machines during the workshop sessions. This study implemented the survey method. The population of this study comprised 225 male and female lecturers of mechanical departments from three politechnics, of which 171 had responded giving a response rate of 76 per cent. Since this study is not a replication of previous studies, the questionnaire was developed through literature review. The questionnaire was pre-tested on 15 respondents giving the overall alpha of 0.812, thus meeting Cronbach's recommendation of  $> 0.6$  as the acceptable reliability level. The final questionnaire had a total of 48 items measuring seven constructs as follows: (i) general tasks during workshop practice, (ii) the relevance of technical knowledge, (iii) knowledge in interpreting engineering drawings, (iv) knowledge in new technologies, (v) manual skills, (vi) skills in machine operation, and (vii) skills in maintaining and improving machining tool. Based on the analysis, there was no significant difference between male and female lecturers in terms of knowledge and skills in handling mechanical workshops.*

**Keywords:** Competency, mechanical workshop practice, female lecturer

## **TEACHING, LEARNING AND ASSESSMENT IN TVET: THE CASE FOR AN ECOLOGY OF ASSESSMENT**

**David D. Curtis**

School of Education, Flinders University of South Australia  
Adelaide, Australia

### **Abstract**

*This paper argues that assessment can play a central role in teaching and learning and that selecting an appropriate mix of assessment strategies can satisfy multiple goals of key stakeholders in TVET. These goals include promoting learning, certifying learning and program evaluation. These objectives must be understood in broad context delineated by the structures of education systems and of labour markets which, in turn, reside within national policy objectives. Forms of assessment must be consistent with the goals of learning and with a broad range of valued learning outcomes. Examples of assessment practices, and the research evidence for them, are discussed. Many forms of assessment are available, and a key task is to match these forms with goals for assessment and with desired learning outcomes. This matching needs to occur within courses and at a systems level in order to achieve the diversity of assessment goals. Implications for practitioners and for policy at regional, national and local levels are identified.*

**Keywords:** Assessment, teaching learning, vocational and technical education and training.

## **THE ISO 9000 QUALITY MANAGEMENT SYSTEM IN EDUCATION: A SYSTEMATIC REVIEW**

**Sang Hoon Bae**

Sungkyunkwan University  
South Korea

### **Abstract**

*Using a systematic review, the study reported here examined the ISO 9000 quality management system (ISO 9000) in education. The application of ISO 9000 standards to public schools was found to be intimately related to the current standards-based education reform movement and the widespread shift towards educational consumerism and managerialism. Literature suggests that while ISO 9000 supports a business-oriented culture and develops more systematic and reliable school operations, components of the system, such as bureaucratization, high implementation and maintenance costs, and the burden of paper work may negatively impact the attitudes of the staff, creating a sense of exclusion and frustration. The implication of this finding is that, in order for ISO 9000 to be considered as a school reform initiative beyond its proven factory-improvement role, it is imperative to resolve possible conflicts between the rigid procedural standardization principles of ISO 9000 and the long-established cultural values of education, such as those of diversity and creativity. It is also necessary to help the staff understand and be prepared to apply ISO 9000 standards, which were initially created for manufacturing companies.*

**Keywords:** Quality management system, ISO 9000 standards, Education reform, South Korea, U.S.A.

## ABOUT THE AUTHORS

**Abdullah Ibrahim, PhD** – an Associate Professor and Senior Lecturer at the Universiti Malaysia Pahang, Pahang, Malaysia. E-mail: [abi@ump.edu.my](mailto:abi@ump.edu.my)

**Punang Amaripuja** – currently works for Yogyakarta Muhammadiyah University, Indonesia. He is a former Information and Public Relations Manager, and Management Specialist of SEAMEO VOCTECH Regional Centre.  
E-mail: [p\\_amaripuja@yahoo.com](mailto:p_amaripuja@yahoo.com)

**Paryono, PhD** – the Deputy Director for Professional Affairs, and Research Manager cum Research Specialist of SEAMEO VOCTECH. He is seconded from the State University of Malang, Indonesia.  
E-mail: [Paryono@voctech.org](mailto:Paryono@voctech.org) or [pparyono@gmail.com](mailto:pparyono@gmail.com)

**Tariq Mahmood, PhD** – the Deputy Educational Adviser at the Ministry of Education, Islamabad, Pakistan. E-mail: [tariq\\_moe@yahoo.com](mailto:tariq_moe@yahoo.com)

**Haji Afzaal H. Seyal, PhD, Serina Mohd Ali, Haji Awang Yussof Haji Awang Mohamad & Haji Mohd Noah Abdul Rahman** – Lecturers at the Department of Computing and Information Systems, Faculty of Business and Information Technology, Institut Teknologi Brunei, Brunei Darussalam.  
E-mail: [afzaal.seyal@itb.edu.bn](mailto:afzaal.seyal@itb.edu.bn); [serina.ali@itb.edu.bn](mailto:serina.ali@itb.edu.bn)

**Ahmad Othman, PhD** – a Professor at the City University College of Science and Technology Malaysia, Kuala Lumpur, Malaysia. **Irdyanti Mat Nashir**, a graduate of the Faculty of Technical Education, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia. E-mail: [ahmad@city.edu.my](mailto:ahmad@city.edu.my)

**David D Curtis, PhD** – an Associate Professor of Educational Research at the Faculty School of Education, Flinders University, Adelaide, South Australia, Australia. E-mail: [david.curtis@flinders.edu.au](mailto:david.curtis@flinders.edu.au)

**Sang Hoon Bae, PhD** – a Professor/Lecturer at Sungkyunkwan University, South Korea. E-mail: [sbae@skku.edu](mailto:sbae@skku.edu)