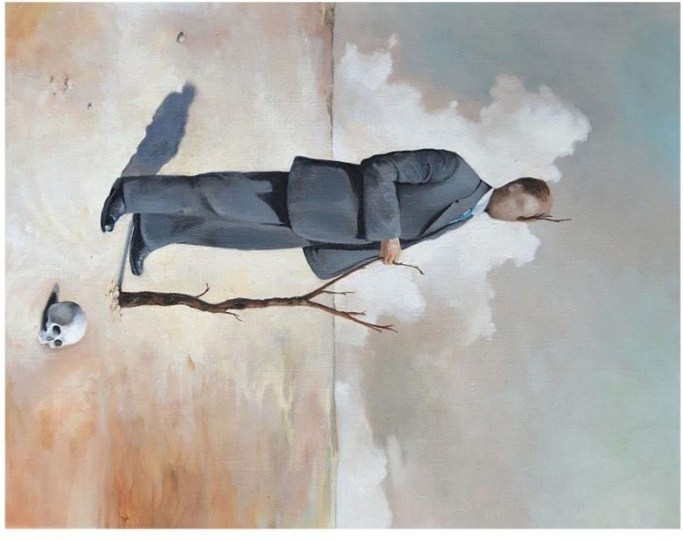
opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología



Año 35, diciembre 2019 Nº 24
Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45

Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

Opción, Año 35, Regular No.24 (2019): 11-21
ISSN 1012-1587/ISSNe: 2477-9385

4th Industrial Revolution and TVET: The Relevance of Entrepreneurship Education for Development

Muhammad Salman Shabbir[1]
[1]Department of Management, College of Commerce and Business Administration, Dhofar University, Sultanate of Oman
mshabbir@du.edu.om

***Mohd Anuar Arshad**[2]
[2]School of Management, Universiti Sains Malaysia
anuar_arshad@usm.my

Arshad Mahmood[3]
[3]School of Management, Universiti Sains Malaysia
arshad@usm.my

Mohammed Ali Bait Ali Sulaiman[4]
[4]Department of Business Studies, Salalah College of Technology, Salalah, Sultanate of Oman
msulaiman@du.edu.om

Abstract

The scope of the study is to highlight the challenges for graduates' students in the 4th industrial revolution via comparative qualitative research methods. As a result, the Technical and Vocational Education and Training (TVET) institutions need to adjust the implementation method of their education and training based on science and technology by offering demand-driven courses, especially in closing the competency gap with the main players of the fourth industrial revolution industry. In conclusion, the TVET institutions need to adjust the implementation method of their education and training based on science and technology by offering demand-driven courses.

Recibido: 10-11-2018 •Aceptado: 10-03-2019

Keywords: Entrepreneurship, Education, TVET, Industrial Revolution.

IV Revolución industrial y EFTP: la relevancia de la educación empresarial para el desarrollo

Resumen

El alcance del estudio es destacar los desafíos para los estudiantes graduados en la 4ta revolución industrial a través de métodos comparativos de investigación cualitativa. Como resultado, las instituciones de Educación y Formación Técnica y Profesional (EFTP) deben ajustar el método de implementación de su educación y formación basada en la ciencia y la tecnología ofreciendo cursos basados en la demanda, especialmente para cerrar la brecha de competencias con los principales actores de industria de la cuarta revolución industrial. En conclusión, las instituciones de EFTP necesitan ajustar el método de implementación de su educación y capacitación basada en la ciencia y la tecnología ofreciendo cursos basados en la demanda.

Palabras clave: emprendimiento, educación, EFTP, revolución industrial.

1. INTRODUCTION

In the age of 4th industrial revolution, technical and vocational education and training (TVET) plays an important role to equip the youth of today for jobs in the future. At the same time, the 4th Industrial Revolution demands 21st-century skills associated with entrepreneurship. The Human Resources and Economic Affairs

Ministers of Malaysia are currently conducting a study to bring together all training activities in a single agency and a single ministry. Vocational education and training should be an integral part of the education system, where education should promote productive and competitive workforce. This is certainly a wise and timely step to effectively prepare the country's economy for the Industrial Revolution 4.0 through an effective education system. The combination of automated assembly lines, internet of things and artificial intelligence requires highly skilled ICT professionals. It will also reduce our dependence on workers, especially migrant workers while improving the competitiveness and earning potential of our employees (BUSIAN & SCHRÖDER, 2015).

Although the drop-out rate fell by up to 75 percent from 2000 to 2013, the youth unemployment rate (15 to 24 years old) is still high compared to other age groups. Even if they are gainfully employed, the question of whether they have sufficient skills, their income, and their self-esteem.

2. METHODOLOGY

The sub-competences of the competence concept of the 21st century are also part of the competence model for VET, which is applied at all learning locations of the dual VET system in Germany: at the workplace, in the training center and in the vocational school. This vocational training-specific competence model, which in its

theoretical basis dates back to Chomsky, was introduced as a result of a similar debate in the wake of the Third Industrial Revolution. In the mid-1990s, it was translated into professional curricula and developed a sustainable change in TVET provision towards a task-oriented and project-oriented learning organization. Competences consist of knowledge, ability and the ability and willingness to act independently and adequately according to this comprehensive model (Hussain, Fangwei, Siddiqi, Ali, & Shabbir, 2018). It is worth noting that the learning outcomes for all levels of the NQF include autonomous thinking, judgments, decision making, and action. This concerns holistic professional tasks whose complexity increases with each level. The overarching goal is to work towards a person who is able to act proactively and appropriately in the workplace, in society, and in the family.

The German Permanent Conference of Ministers of Education of the Federal States identifies three dimensions of competence: professional competence, (fachkompetenz) which identifies the individual in relation to his profession, social competence, (sozialkompetenz) that relates the individual to his profession social environment and self-competence, (selbstkompetenz) which relates to the individual in relation to himself and his own Qualities sets. In Germany, apprentices are exposed to a real industrial work situation through vocational training from the age of 15 in upper secondary education. Apprentices protected under the Youth Employment Act work 70 percent in the real economy with paid wages and 30 percent in formal education. Almost all German apprentices in vocational

education and training would be released from their original industry after completing their training (SCHRÖDER, 2019 & Shabbir, Abbas, Aman, Ali, 2019).

In Singapore start, TVET already in lower secondary education, and TVET students could eventually achieve higher education in an education system that advocates the learning process as a lifelong affair. Vocational training was even a controversial topic in Singapore, beginning with upper secondary education (KEMENTERIAN, 2015 & Akhtar, Arshad, Mahmood, & Ahmed, 2018).

Professional qualifications in South Korea are considered equivalent to academic qualifications. Its marketability is heavily dependent on labor market requirements, with South Korea number 1 in terms of the highest industrial robotic density since 2010, with 631 robotic arms per 10,000 employees, reflecting its leading role in Industry 4.0 (Usak, Kubiatko, Shabbir, Dudnik, Jermsittiparsert, & Rajabion, 2019).

According to Bank Negara's 2017 Economic Development Report, Malaysia has an industrial robot density of just 34 per 10,000 employees, below the Asian average of 63 per 10,000 employees, and our industrial robot density is only five percent of that in South Korea.

The study of IR 4.0 and its impact on the world of work is a prerequisite for innovation in VET and technical education. An international exchange could help to avoid redundant research. Nonetheless, action research approaches at the local level need to be strengthened to adapt TVET provision to local needs and conditions in cooperation with all relevant stakeholders. It is important to work with

scientists and experts who are focused on developing solutions and are able to work together on a practical level (KEMENTERIAN, 2018 & Mahmood, Arshad, Ahmed, Akhtar, Khan, 2018).

3. RESULT

The Earth Summit Conference (UNCED) in Rio de Janeiro from June 3 to 4, 1992, published Agenda 21, which in Chapter 36 outlined four key incentives for engaging in ESD work: (1) Improving basic education; 2) reorientation of existing education for sustainable development, (3) promotion of public understanding, awareness-raising and (4) education. In addition to strengthening knowledge of ESD and school-level practice, TVET practitioners can help foster understanding and public awareness of SD.

There are some practices in the region to raise awareness among students and the public about sustainable development. Examples of best practices include a youth awareness camp in Singapore that organizes ASEAN environmental debates between universities, provides μEnviro Library Services in Malaysia, and exchanges environmental information through the Green Forum via the Internet.

These initiatives are crucial to raising public awareness about SD. The initiative has not only improved the cognitive domain but has also touched on the participants' affectivity, attitudes and behavior. Vocational training should play a more active role in reaching out to

the community by using the technologies and media available at school and by partnering with other institutions.

Tun Dr. Mahathir Mohamad Prime Minister of Malaysia present in World Chinese Economic Forum, 2018 that We are going into the fourth industrial revolution. This is something that requires a complete change of attitude and a complete change in terms of our knowledge. We are living in the knowledge edge, and on this edge, we need to have as much knowledge as we can, in order to be able to cope with new ideas about how life is going to be, about how business is to be carried out.

The Malaysian Eleventh Plan's economic agenda is expected to create 1.5 million new jobs by 2020, targeting labor productivity and reducing reliance on low-skilled foreign labor. Both are the result of the continuous change from labor-intensive to knowledge-intensive and innovation-intensive activities -based on economic activities. For 60% of newly created jobs TVET-related knowledge is required (Asad, Shabbir, Salman, Haider, & Ahmad, 2018). In that regard, TVET is a key factor in Malaysia's ability to generate skilled talent on a large scale. Taken together, these priorities will provide the world-class talent base that Malaysia needs on the final leg of its journey to becoming an advanced nation.

Today, the government of Malaysia continuously formulates, promotes and coordinates TVET strategies and programs which are in line with Malaysia’s economic, technological, agricultural and societal needs. In the 10th Malaysia Plan 2010-2015, TVET has been chosen as a key component to achieving the country’s goal as a high-income

nation by the year 2020. Educators have complained that Malaysian graduates are not getting the wages and job opportunities they deserve. This requires an open attitude of educators and relevant ministries and vocational training institutions in close cooperation with private industrialists, chambers of commerce and guilds that are constantly up to date with industrial development and market requirements.

The Malaysian government has announced TVET 4.0 framework for 2018 to 2025. TVET 4.0 framework is built upon six (6) thrusts and supported by 11 strategies in order to achieve six (6) expected outcomes in positioning the dynamic and competitive Malaysian TVET education system globally. According to HRD Malaysia 200,000 TVET students enrolled per annum in different public and private institutes in Malaysia. To promote vocational education and training, Malaysian government must revise our perception and policy towards education. For some, this is not a privilege to make a profit, but a birth rate that allows all Malaysians to compete regardless of gender, race, religion, and creed - an increasingly challenging global economy.

4. ACKNOWLEDGMENTS

The authors acknowledge the support of RCMO, Universiti Sains Malaysia and Sumitomo foundation Japan in conducting this research.

5. CONCLUSION

The TVET institutions need to adjust the implementation method of their education and training based on science and technology by offering demand-driven courses, especially in closing the competency gap with the main players of the 4.0 IR. The fourth industrial revolution (4IR) will have an impact on the TVET Delivery system and service in Malaysia. The developed TVET 4.0 Framework aims for it Ensuring TVET Providers at Polytechnics, Community Colleges and Vocational colleges are able to maximize the potential of human resources and Contribution to increasing the demand for skilled workers when driving motor vehicles, the economy and competitiveness of the country. The delivery of education and training that meets the needs of the industry, including digital skills the enrichment allows TVET graduates to remain relevant and meet the needs of the country demand for 21st-century workers in the 4IR era.

REFERENCES

Akhtar, S., Arshad, M. A., Mahmood, A., & Ahmed, A. (2018). "Gaining recognition of Islamic spiritual intelligence for organisational sustainability". **International Journal of Ethics and Systems**. 34(1), 70-77.

Asad, M., Shabbir, M., Salman, R., Haider, S., & Ahmad, I. (2018). "Do entrepreneurial orientation and size of enterprise influence the

performance of micro and small enterprises? A study on mediating role of innovation". **Management Science Letters**, 8(10), 1015-1026.

BUSIAN, A., & SCHRÖDER, T. (2015). "Vocational teacher education at technical university of Dortmund, Germany; recommendations for interoperability of regional standards and local operation in the ASEAN-region". **TVET @ Asia**. Vol. 5, pp. 1–16. Malaysia.

Hussain, S., Fangwei, Z., Siddiqi, A., Ali, Z., & Shabbir, M. (2018). "Structural equation model for evaluating factors affecting quality of social infrastructure projects". **Sustainability**, 10(5), 1415.

KEMENTERIAN, P. (2015). "Pelan Pembangunan Pendidikan Malaysia 2015- 2025". **Pendidikan Tinggi, PPPM (PT). Putrajaya**. Malaysia.

KEMENTERIAN, P. (2018). "Industry 4WRD". **National Policy on Industry 4.0**. Kuala Lumpur. Malaysia.

Mahmood, A., Arshad, M. A., Ahmed, A., Akhtar, S., & Khan, S. (2018). "Spiritual intelligence research within human resource development: a thematic review". **Management Research Review**. 41(8), 987-1006.

SCHRÖDER, T. (2019). "A regional approach for the development of TVET systems in the light of the 4th industrial revolution: the regional association of vocational and technical education in Asia". **International Journal of Training Research**. Vol. 17, Nº 1: 83-95. Malaysia.

Shabbir, M. S., Abbas, M., Aman, Q., & Ali, R. (2019). "Estrategias de reducción de la pobreza. Explorando el vínculo entre pobreza y corrupción de países menos desarrollados". **Dilemas Contemporáneos: Educación, Política y Valores**, 6(2).

Usak, M., Kubiatko, M., Shabbir, M. S., Viktorovna Dudnik, O., Jermsittiparsert, K., & Rajabion, L. (2019). "Health care service delivery based on the Internet of things: A systematic and comprehensive study". **International Journal of Communication Systems**, 4179.

DEL ZULIA

opción

Revista de Ciencias Humanas y Sociales
Año 35, N° 24, (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

www.luz.edu.ve
www.serbi.luz.edu.ve
produccioncientifica.luz.edu.ve