



Implementation of Green Skills through the co-curriculum activities among students Technical and Vocational Education Training (TVET) towards development of Green Industry

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ABSTRACT

The concept paper discusses the implementation of green skills through co-curricular activities among students of Technical and Vocational Education Training (TVET) in line with a more sustainable industrial development towards sustainable social, economic and environmental. Implementation of green skills is assessed by its importance in education and training through co-curriculum activities as a proactive step towards a more green industrial practices benefit not only to the economy but also to support social and environmental sustainability. According to the literature, there are problems that arise due to the lack of industry awareness of the importance of the adoption of green technologies that will ultimately affect the environment. Accordingly, this article also stated that generic green skills needed by green industries as an effective method to ensure that no conflict or consistency in the implementation of green skills in TVET through co-curriculum activities towards development of green industries.

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1. Introduction

Industry is a major catalyst to economic growth and job creation as well as providing incentives for graduates to apply for jobs appropriate to their respective fields. Through Budget highlights report 2017, certified TVET education most appropriate to provide human capital ready to enter the job market continues to semi-skilled (Daily News Online, 2016). News statement also commented on the quality of TVET graduates not only acquire technical skills and soft even need to be equipped with a generic green skills in order to develop green practices in the workplace. This argument is also supported by CEDEFOP (2010) by stating that generic green skills needed almost every job to understand and appreciate the issues and needs green economic growth.

Until now it was found that the level of public awareness of green technology has not yet reached a satisfactory level. The proof is still a lot of factories that emit black smoke harmful, fuel consumption of motor vehicles so alarming, the more nature is destroyed, the rivers are dirty and the release of carbon into the air a lot (Anny, 2010). Furthermore, such problems did not only affect the environment but also have a negative impact on the socio and economic development. Quoting respect Climate Resilient Development through the paper strategy of 11th Malaysia Plan (2011), the cost impact on the environment, infrastructure and welfare usually borne by the government and the people who live in and around the affected areas.

As a statement regarding the issue of cooperation in the Intelligent Collaboration (2011) Ministry of Energy, Green Technology and Water, the ministry has conducted an analysis of the syllabus and curriculum related to green technology in pre-school, primary, and secondary schools.

At the level of National Education the government's efforts to provide workers with knowledge and skills that are balanced on the industry, manifested through the National Education Philosophy. The essence of the philosophy is to produce balanced individuals physically, emotionally, spiritually and intellectually. In this context, the role of co-curriculum activities to complement the curriculum played a role. This is because through the curriculum alone is difficult for an educational institution to produce individuals who are balanced perfectly (Esa et al., 2004).

By the way, this paper to argue that the green skill should be a part of the generic and employability skills, then these 'enriched' employability skill could help to succeed addressing the problems involving the environment by the implementation of green skill through the activities co-curriculum among of student in TVET towards development green industry.

2. Why green skills need to be implemented through co-curriculum?

In TVET empowerment curriculum in the education system should be given due emphasis. Co-curricular activities can form and educate students and citizens as well as generate a knowledgeable, competent and holistic importance of an active lifestyle and healthy (Soft Skills Development Module, 2006). Co-curricular activities is a complement to the needs and requirements of the curriculum where it provides a range of opportunities for students to add, measure and practice the skills, knowledge and values that have been learned (Warman *et al.*, 2017). IPT empowerment curriculum in the education system needs to be given due emphasis. The move is in line with the policy of the Ministry of Higher Education to adopt a co-curricular student achievement in high school.

Implementation of green TVET skills aimed at achieving sustainable development by providing a useful framework for identifying strategies, the green agenda and realizes the potential results and dividends to support society and a green economy (Majumdar, 2010).

3. The Importance of Green skills in TVET

Green skills are the skills needed for self-adjustment, service and innovation for climate change and the requirements and regulations related to the environment. CEDEFOP (2012) defines green skills as knowledge, skills, values and attitudes necessary for life, build and support sustainable communities. Green skills need exists in every human society as the basis of work according to their areas of expertise within an organization. In addition, skills in green skills for sustainability ranging from technical skills, knowledge, values and attitudes necessary as energy that can develop and support the sustainability of the social, economic and work in business, industry and society (Treaty skills Green, 2010). According Buntat & Othman (2012) the skill of green also known as Soft Skills "green" (Green Soft Skill) is to complement the work of the "green" (Green Jobs) and Career "green" (Green Building), the skills in green skills such as reliability, initiative and interpersonal skills that fit inside each one of us.

Green technology and generic green skills are interdependent and complement each other. There is no denying that green technology has become a cliché in the process of sustainable development. According to Ramlee & Siti Shuhada (2014), green technology is a concept emerging with the main goal to achieve sustainable development by reducing the environmental risks and ecological scarcities, pollution and carbon emissions and improves energy and resource efficiency, and prevents the loss of biodiversity. Something to keep in mind, that the basic requirements for the realization of green technology, is the existence of employees and prospective employees with generic green skills. In accordance with globalization and to meet the needs of industries that require skilled workers, TVET transformed in terms of its delivery to enhance educational attractions as the route of choice.). TVET are key strategies to ensure the world of work that contributes to social cohesion and promoting environmentally sustainable development. TVET plays an important role not only in developing human and social capital, but also served to promote the needs of skills, knowledge and expertise needed to create towards a more sustainable society and a greener economy (UNESCO-UNEVOC, 2012).

The transition to a green economy and a sustainable society requires the involvement of all stakeholders such as policy makers, employers and employees, educational institutions and individuals to make the right choices. The shift to a low carbon technologies and more economical not only require new regulations, investment and an institutional framework, but TVET is also responsible for a more systematic involvement in response to changes in employment and skills development leading to green (CEDEFOP, 2012). Green transition will bring opportunities for new jobs, but at the same time will change the existing employment. In order to avoid the high social costs in achieving the employment potential of green jobs, TVET must anticipate and respond to changing skills needed involving a green job (CEDEFOP, 2012). TVET needs to prepare graduates who are responsible and capable of acting efficiently, creatively and be a driving force for sustainability in the workplace and society.

Investing in TVET and developing the necessary initiative skills for green transformation can increase environmental awareness, efficiency, innovation and entrepreneurship.

Therefore, investment in TVET and skills development can open up new markets for environmental goods and services, promote innovation and green plants, and put the world towards sustainable development. The important role of TVET institutions is to provide knowledge to individuals in the skills and competencies that will enable them to take the initiative in social change. Social and economic trends based on the needs of the new development pattern in which the cultural development of the economic, environmental and social sustainability is a basic feature (UNESCO-UNEVOC, 2012). The emphasis of the role of TVET in developing generic green skills to achieve change directly leads to environmental sustainability. Therefore, TVET can be an effective platform to promote generic green skills.

4. The importance of Green Skills through Education towards the Green Industrial Sector

Green industry is an industry business strategy for achieving Green Economy and Green Growth in the manufacturing sector and services related to the productive sector. The green industry is to ensure the safety of natural resources in order to reduce pressure on resources scarce as water, materials and fuels. In addition, it also contributes to mitigation and adaptation to climate change by reducing Green House Gas (GHG) emissions from energy and non-energy sources (UNIDO, 2012). At the company level, it is necessary to ensure that environmental management and chemical industry as well as safety going well. However, out there, to achieve Green Industry is more than just a question of environmental sustainability. It opens more additional opportunities for development, where it is used as drivers of competitiveness and sustainable business as well as companies changes the resource productivity and environmental performance. Although the green industry is a catalyst for technological innovation, but it's not only a paradigm for the development of industry, but also offers the benefits of "triple bottom-line" serving as a clear strategy with established routes to achieve sustainable development.

Green industry exists based on proven methods, strategies and tools. The aim is to ensure economic growth stems from increased use of natural resources (decoupling resource) and severe environmental impacts (effects of decoupling) (UNIDO, 2012). It provides two-way approach to industry that is robust and fits well with the context of the worsening environmental pollution, climate change and resource constraints:

- a) The Green Industry aims to 'greening of industries' to achieve a continuous reduction in the use of natural resources and generation of waste and pollution in business everywhere including through proven approach to Resource Efficient and cleaner Production (RECP)
- b) Second, the existence of 'green industries', Green Industry supply realize quality environmental goods and services effective and according to industry, including, for example, to renewable energy, waste recycling and resource recovery, and environmental advice service

A concern about the environment and the movement has been carried out since the 1970s in the United States. Malaysia is actually the earliest countries in the world to take seriously the environment by enacting the Environment Quality Act in 1974.

As a result, the Malaysian government is working to implement the roadmap of Green Technology to guide Malaysia to a low carbon economy (Countries Green Technology Policies, 2009). Implementation of Green Technology showed that Malaysia began to realize the importance of education and training as a driver for business development of human capital with knowledge innovation and highly-skilled technical and professional towards high productivity growth. Furthermore, spectacular growth development in Malaysia now should follow the roadmap based on Green Technology as a proactive step towards the adoption of Green Industry to social sustainability and a greener environment.

5. Conclusion

Economic issues seem to be the main focus, especially in the current climate of global economic crisis, and work is the aspect of our lives. Co-curriculum activities in TVET play an important role in educating and developing green skills employees of the future. Experts on education should not forget the role of the people in all these concepts. Implementation of green skill through the co-curriculum activities should focus on students and green development should not only be the subject of theory. Students need to see in practice what it means to work in a sustainable way. TVET Co-curriculum activities also need to know that they are responsible for themselves and others. They should consider themselves to be part of the social system and the environment that they need to be considered in the future as well as part of the school community and the workplace. Awareness of environmental sustainability and green practices in TVET co-curriculum activities is the key to successful industry and increase employment. Consolidation of knowledge, technical skills, generic skills and attitudes towards green environment can act as a catalyst to continue to live in a conducive environment and contribute to a developed country that is not only focused on the development of infrastructure, but also its people. Trained workers with green skills have a greater chance to be used in the future and are a valuable asset that must be taken seriously by any country.

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