

## A TVE CURRICULUM FRAMEWORK FOR SUSTAINABILITY LITERACY

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### **DEDICATION**

I dedicate this work

To the Almighty God, the giver of life, wisdom and everything good, whose grace and mercy saw me through this research journey.

To my parents

Mr. & Mrs Chinedu N. George for your prayers, support and encouragement.



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### ABSTRACT

Existing curriculum frameworks for sustainability literacy emphasize the importance of curriculum reorientation but do not take cognisance of the essential Education for Sustainable Development (ESD) components that are needed for such curricular reorientation. To develop sustainability literate citizens and workers, ESD must become an integral part of the learning experiences provided in TVE teacher education programs. Therefore, this study sought to develop a curriculum framework for sustainability literacy. The study was carried out in three phases using a triangulation design. Phase one explored the extent to which ESD is reflected in four TVE teacher training programs in Malaysia using Qualitative Document Analysis (QDA) approach. The study in phase two explored the perspectives of 15 ESD experts about the important curriculum components required for sustainability literacy in TVE using a modified Delphi method. In phase three a survey of 116 TVE educators was carried out to validate the identified curriculum framework components in terms of their utility value and feasibility for implementation in TVE. Findings from the QDA revealed that ESD was essentially minimal, as only minute depictions of the concept were reflected across the TVE programs. Four curriculum components for sustainability literacy in TVE were identified from the modified Delphi. These identified framework components reflect the sustainability knowledge, skills and attributes required to develop sustainability competent vocational teachers. Findings from phase three reveals that TVE educators consider all the identified framework components and dimensions important for inclusion in the existing TVE curriculum. These components provide opportunities to develop vocational teachers of the future, who possess the requisite skills to facilitate teaching and learning on sustainability issues and concepts. The framework also proposes using a range of active learning pedagogical approaches to develop pre-service teacher's competencies on sustainability literacy.



### ABSTRAK

Kerangka kerja kurikulum yang sedia ada bagi literasi kemampanan menekankan pentingnya penyesuaian semula kurikulum tetapi tidak mengambil kira komponen Pendidikan untuk Pembangunan Mampan (PPM) yang diperlukan untuk penyesuaian semula kurikulum. Untuk membangunkan warga dan pekerja celik kelestarian, PPM mestilah menjadi sebahagian daripada pembelajaran dalam program pendidikan guru PTV. Oleh itu, kajian ini bertujuan untuk membangunkan kerangka kerja kurikulum bagi literasi kemampanan. Kajian ini dijalankan dalam tiga fasa menggunakan rekabentuk triangulasi. Fasa pertama adalah meneroka sejauh mana PPM terlihat dalam empat program latihan guru PTV di Malaysia dengan menggunakan Analisis Dokumentasi Kualitatif (QDA). Kajian di fasa dua mendapatkan perspektif 15 pakar PPM mengenai komponen kurikulum yang diperlukan untuk literasi kemampanan dalam PTV dengan menggunakan kaedah Delphi yang diubah suai. Dalam fasa tiga, soal selidik telah dilaksanakan kepada 116 pendidik PTV untuk mengesahkan komponen kurikulum yang dikenalpasti dari segi utiliti dan kebolehlaksanaannya. Hasil daripada QDA menunjukkan bahawa PPM pada dasarnya adalah minimum, kerana hanya sedikit sahaja konsep PPM digambarkan dalam program PTV. Empat komponen kurikulum bagi literasi kelestarian dalam PTV telah dikenalpasti. Komponen ini mencerminkan pengetahuan tentang kelestarian, kemahiran dan atribut yang diperlukan untuk membangunkan guru vokasional yang kompeten. Penemuan dari fasa tiga mendedahkan bahawa pendidik TVE menganggap semua komponen dan dimensi rangka kerja yang dikenal pasti penting untuk dimasukkan dalam kurikulum TVE sedia ada. Komponen ini menyediakan peluang untuk membangunkan guru vokasional masa depan, yang memiliki kemahiran yang diperlukan untuk memudahkan pengajaran dan pembelajaran mengenai isu-isu kemampanan dan konsep. rangka kerja ini juga mencadangkan pelbagai pendekatan pedagogi pembelajaran aktif untuk membangunkan kompetensi guru pra-perkhidmatan mengenai literasi kemampanan.



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# LIST OF ABBREVIATIONS

CAQDAS	Computer Assisted Qualitative Data Analysis
	Software
DESD	Decade of Education for Sustainable
	Development
EFS	Education for Sustainability
ESD	Education for Sustainable Development
ESF	Education for a Sustainable Future
ILO	International Labor Organization
IMF	International Monetary Fund
IQR	Interquartile Range
ITE	Institutes of Teacher Education
MED	Median
MTU	Malaysian Technical Universities
SD F R PUSTAKA	Sustainable Development
SDG	Sustainable Development Goals
TATI	Terengganu Advanced Technical Institute
TEI	Teacher Education Institutions
TTC	Teacher Training Colleges
TVE	Technical and Vocational Education
TVET	Technical and Vocational Education and
	Training
UN	United Nations
UNCED	United Nations Conference on Environment and
	Development
UNESCO	United Nations Educational, Scientific and
	Cultural Organization



WCED	World Commission on Environment and
	Development
WHO	World Health Organization
WWF	World Wide Forum



### **CHAPTER 1**

### INTRODUCTION

#### 1.1 Introduction

The world recognizes the need for ensuring the survival and continuity of the earth and its resources. To achieve this goal, some researchers have opined that people need to come to the understanding that unsustainable practices and ways of living, impact the ecosystem negatively (Armstrong, 2011; Birdsall, 2014; Burmeister and Eilks, 2013; Majumdar, 2009; Reid and Petocz, 2006; United Nations Educational Scientific and Cultural Organization, 2005). Thereby, disrupting earth's lifecycles and posing a threat to the environment, the economy, the health and survival of local communities. The results of these negative impact have contributed to continuous and rapid environmental degradation, natural disasters, social injustices, and economic consequences.

It, therefore, became apparent during the early 1970s, that the rate at which development and resource exploitation were occurring was exceeding the carrying capacity of the ecosystem. Subsequently, that such patterns of development and practices would eventually lead to the total depletion of earth's resources, causing continuous harm to the ecosystem (Brundtland, 1987; Carson, 2002; Meadows *et al.*, 1972; Sleurs, 2008).

Therefore, as factual evidence became more apparent about the severe harm human activities and development outside earth's carrying capacity was having on the ecosystem, world organizations and institutions began to realize that development needed to be carried out within the limits of the ecosystem and in a sustainable fashion.



The realization that earth's resources were finite gave rise to the call for a paradigm shift and a call for changes in the way humans related to nature. According to Tverberg (2016), because the world's resources are finite, it was only crucial that efforts and strategies were implemented to guide human action and inculcate the right values and attitudes about living sustainably and developing within the carrying capacity of the earth.

Hence, the Sustainable Development (SD) agenda was initiated in 1987 by the United Nations (UN) at the World Commission on Environment and Development (WCED) (Brundtland, 1987). The purpose of initiating the SD agenda was to improve the quality of life of people and natural systems without compromising the capacity of future generations to do the same. SD also served the purpose of creating a level of awareness necessary for transitioning the world to becoming more sustainable and developing within citizens the consciousness of sustainable living (Majumdar, 2009, 2011). Sustainable Development (SD) was hence conceptualized as "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987; United Nations Educational Scientific and Cultural Organization, 2005).



To achieve Sustainable Development, 17 Sustainable Development Goals (SDGs) were formulated by the United Nations in 2015. The aim of the SDGs is to secure a sustainable, peaceful, prosperous and equitable life on earth for everyone, now and in the future (Rieckmann, 2017). These goals are considered crucial for the survival of humanity. In view of achieving sustainable development, Goal 4.7 of the SDG seeks to;

"ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development by 2030 (United Nations Educational Scientific and Cultural Organisation, 2014)"

To attain SDG 4.7, it was apparent that education was the most viable tool for creating this level of needed awareness, as well as developing the knowledge and capacities needed to transition societies and the world at large for Sustainable Development. Hence, Education for Sustainable Development (ESD) became the new

platform for developing sustainability conscious individuals and citizenry. In the literature, Education for Sustainable Development (ESD) has been synonymously referred to as Sustainability Education (SE), Education for Sustainability (EfS) and Education for a Sustainable Future (ESF). However, the most commonly used term recorded in the literature remains Education for Sustainable Development. Hence, Education for Sustainable Development (ESD) is used more in this thesis and interchangeably where necessary.

Irrespective of the various depictions of ESD, ESD focuses on the task of educating people to become aware of the implications and consequence of living unsustainable lifestyles and engaging in unsustainable practices both at home and in their workplaces. The goal of ESD is to educate people about the culture of living sustainably by inculcating the requisite knowledge, skills, and values needed to do so within people.

The Cloud Institute for Sustainable Education (2016) defines Education for Sustainable Development as a transformative learning process that equips students, teachers, and school systems with new knowledge and ways of thinking needed to achieve economic prosperity and responsible citizenship while restoring the health of the living systems upon which lives depends on. ESD empowers learners to make informed decisions, and take responsible actions for environmental integrity, economic viability and a just society for both present and future generations while respecting cultural diversity (United Nations Educational Scientific and Cultural Organisation, 2014). In order words, ESD aims at developing the competencies that enable individuals to reflect on their own actions, taking into consideration their current and future social, cultural, economic and environmental impacts from a local and global perspective.

It is thus evident that ESD has within its tenets, the primary goal of developing sustainable conscious citizenry to safeguard the future of the planet and improve living conditions for all. This has critical implications for teachers, as teachers who have the required level of understanding of both the conceptual and theoretical aspects of sustainability and its pedagogies, are required to teach across all levels of education.

To this end, the United Nations Educational Scientific and Cultural Organization (2005) declared ESD in teacher education the "priority of priorities." This declaration was made to help improve the effectiveness of teaching and learning sustainability concepts and issues within schools and also to draw to the attention of



teacher training institutions, the necessity of preparing teachers to become knowledgeable, confident and well-motivated to undertake teaching and learning tasks with regards to Sustainable Development. Consequently, ESD continues to remain a global priority because the world continues to experience an array of issues that result from unsustainable practices and ways of living.

Malaysia strives to contribute to Sustainable Development both locally and globally by redefining its education system. Hence the purpose of education in Malaysia as defined in the Malaysian Blueprint 2013-2025, "is to enable the Malaysian society to have a command of the knowledge, skills and values necessary in a world that is highly competitive and globalized, arising from the impact of rapid development in science, technology and information". To achieve this goal of developing a human capital with the capabilities for the sustainable advancement of the society and nation, Malaysia is guided by a National education philosophy:

"Education in Malaysia is an ongoing process towards further effort in developing the potential of individuals in a holistic and integrated manner; so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving a high level of personal well-being as well as being able to contribute to the betterment of the society and the nation at large".

Furthermore, Malaysia's goal and commitment to sustainable development can be seen in a declaration by the former Prime Minister of Malaysia YAB Dato' Sri Haji Mohd Najib bin Tun Haji Abdul Razak in his address at the Commonwealth Business Council in December 2009, where he stressed that it was crucial for Malaysia to nurture a sustainability competent human capital if the nation was to resolve its sustainability challenges. Developing a sustainability human capital that is capable of responding and remedying the nation's sustainability challenges is a task that requires the national education system to be reassessed including the training and retraining of Technical and Vocational teachers due to the role of TVET as a major supplier of skilled human capital for nations. Hence, realigning TVET for sustainable development by integrating ESD into all aspects of the TVE teacher training curriculum is an indispensable task that must be carried out.

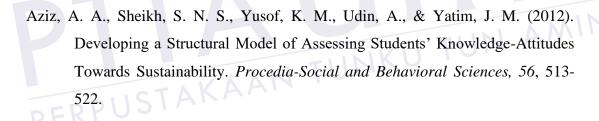


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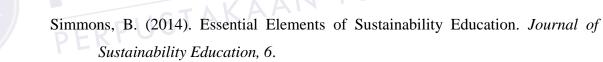
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