Proceeding Paper

Indonesian Vocational Educators' Cognition and Behavior towards Sustainable Development Goals (SDGs): A Qualitative Study [†]

Radna Andi Wibowo * and Wei-Te Liu

Graduate School of Technological and Vocational Education, National Yunlin University of Science and Technology, Yunlin 64002, Taiwan

* Correspondence: andy_ostborn@hotmail.com; Tel.: +886-902447650

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Abstract: Achieving sustainable development goals (SDGs) changes many aspects of environmental, socio-cultural, and economic dimensions. Therefore, industry–government–university synergy is a mandatory action to accomplish the 2030 agenda, and, undebatably, vocational education also has a prominent role. This study's purpose is to investigate the cognition and behavior of lecturers toward SDGs in daily life, leading to a potential contribution to student awareness of global issues. Lecturers who have solid interaction with their students were selected as part of Indonesia's Tri Dharma of higher education. A qualitative study with in-depth semi-structured interviews was conducted with a total of six lecturers from three different universities, and the next step, data analysis, was coded by MAXQDA 2020. The outcomes indicate that all lecturers have a general understanding of sustainable development goals. The fourth item (Quality Education) is the most mentioned for cognition and behavior, followed by Responsible Consumption and Production in the second position. Each person has a priority item for applying SDGs to their life as a consequence of their experience, point of view, and interest. The student is the main prospect to make a better world if we look at big picture.

Keywords: sustainable development goals; cognition; behavior

1. Introduction

In the early 21st century, humanity faces many severe global crises, including intensifying ecological overshoots and climate change, widespread deprivation and failure to provide human essentials, and raising inequality and social discrimination [1–3]. Separately, these circumstances have the possibility of sparking social unrest and simultaneously posing a threat to democracy and peace. They are also intricately interconnected, and these interconnections likely exacerbate the associated threats. Therefore, these cruel issues must be comprehended and addressed comprehensively as befit their systemic nature.

The humanitarian and social issues are, to a considerable extent, caused by unequal access to resources like materials and energy, as well as opportunities to fulfill necessities and desires. Thus, in order to successfully deal with these grave dangers, we will need to rethink the ways in which we build and consume [4,5]. The 2030 Agenda for Sustainable Development Goals (SDGs) reflects the need for extreme transformations in consumption and production via its dedication to making "essential transitions in the way that our societies create and consume interests" and by devoting one of its seventeen SDGs to providing endurable consumption and production.

A good start could begin with the education environment one of the pillars to success to encourage reaching the target 2030 is. The triple helix, government– industry–university, should collaborate to ensure their missions and visions intersect with the goals to be achieved [6–9]. Scholars, businesses/industries, and government realize many aspects still

need more effort, for instance, energy renewal, particularly in rural areas. The Indonesian government and other nations claim that renewable energy has become one of the favored topics related to SDGs. Innovation can appear without society, and triple helix actors are sufficient provisions for innovation creation. However, the complexity and dynamism of social life in the 21st century have increased the importance of society's involvement in innovation, especially in societies that are end-users of innovative products. Consequently, the transition from triple helix to quadruple helix is based on the extent to which society is involved in the innovation process, as opposed to triple helix actors alone [10].

In addition to collaboration with government and business/industry, each higher education institution in Indonesia has community service as part of Tri Dharma; conducted by lecturers along with students and expected to embrace all stratum in society, mainly in rural communities unreachable by the government [11]. It is a mutual relationship that could improve students' real-world learning in the university. This situation automatically influences awareness of global issues in larger scopes [12]. The students perform as volunteers in actual cases, assuming the valuable experience will enrich their knowledge. This community service involving students is designed to transform education for the realization of Superior Human Resources [13].

According to the rankings of the British magazine, *THE* (*Times Higher Education*), 28 Indonesian higher education institutions were assessed in terms of the United Nations' Sustainable Development Goals (SDGs). Hence, this study aims to investigate the cognition and behavior of technical and vocational educators in three public universities in Indonesia according to UN projects (SDGs).

1.1. Educator's Cognition on SDGs

An educator's knowledge, attitudes, beliefs, and practices comprise their cognition [14]. However, the majority of cognitive research on education has neglected educators' cognitive processes and interactive information processing methods. Additionally, Schulman (1986) [15] has criticized the limited range of teaching activities through which educators' cognition has been studied. The developing picture of the educator as a constructivist who regularly constructs, embellishes, and tests their understanding of the world suggests that the majority of cognitive study on teaching has disregarded educators' cognitive processes and techniques of dynamically processing information.

As educators build knowledge, they will be affected by the group of persons they engage with, according to the social cognitive approach [16]. Consequently, the links between teachers' practical ideas of teaching, interactive thought, and classroom activity guide current research on teachers' cognition. In addition, by assuming the role of study informants, teachers have become full collaborators in contemporary ethnographic investigations on the thought process of educators.

Researchers have emphasized the essence of education as a crucial element of SDGs to develop an individual's capabilities to address topics associated with sustainable development. In order to achieve pleasing teaching developments, educators' cognition towards SDGs, besides their course structure, skills, and pedagogy, must be taken into account [17]. Biasutti et al. (2018) [18] stated that, when reorienting the curriculum in education for sustainable development (ESD), a holistic framework and interdisciplinary procedure should be incorporated, with sustainability compositions aligning students' learning objectives and subject content.

Understanding the importance of cognition for educators in accordance with SDGs items could help examine the relevance of course content to the implementation of SDGs themselves [19,20]. Educators tend to include one or more items in teaching material to establish their priority, thus, making the knowledge delivery process to students more straightforward.

1.2. Educators' Behavior and SDGs

Epstein (1990) [21] claims, based on a congruent, more general psychological approach, that human activity is mediated by the so-called experiential body–mind system, which processes information relatively rapidly. He claims that cognitive, emotional, motivational, and behavioral aspects are involved in this system. It indicates that if an educator reacts without much contemplation, his or her reaction is based on subconsciously triggered pictures, sentiments, conceptions, values, wants, behavioral tendencies, etc., and frequently on mixtures of these elements.

Environmental sensitivity, a key variable in environmental awareness and propensity to take responsible environmental action, has been the focus of a growing corpus of qualitative research linking sensitivity with specific types of major life experiences [22]. Global awareness, including environmental sensitivity, experienced by an educator is necessary to influence their students. In the same way that there may be a recognized successful teacher who contributes to increased student accomplishment or attitudes, there may be such a thing as "pupil effectiveness," in which learners may assist their educators in improving their teaching behavior [23].

The education sector can raise students' awareness of Agenda 2030 by, firstly, emphasizing the significance of sustainability in a variety of contexts; secondly, supporting them in their pursuit of SDGs through teaching, research, project-based learning, and also collaborative learning; thirdly, stimulating SDGs' interest and motivation through games and group learning activities; and, finally, enhancing their SDGs self-efficacy and fostering their environmentally sustainable attitudes and behaviors [24].

1.3. Technical and Vocational Education (TVE) as a Proper Instrument for National Sustainable Development

According to Kehinde and Adewuyi (2015) [25], technical and vocational education has been an integral part of many national development policies due to its impact on the development of human resources, competitiveness, and economic growth, and it continues to be one of the most important factors in a nation's growth. Similarly, according to Goel and Vijay (2011) [26], technical and vocational education contributes significantly to the economic progress of developing nations through the development and production of human resources that are responsive to the collective demands of industry, community, and global society.

Technical and vocational education (TVE) is a form of education that emphasizes the development of employability skills. According to Malley and Keating (2000) [27], a country's industrial growth will be proportionally stronger if its industrial growth policy is implemented more effectively. According to Wardiman (1998) [28], the level of community well-being will grow as more of these educational facilities are established in local communities. Evidently, greater emphasis should be placed on improving vocational education in a country. Everyone concerned must comprehend the nature of this instruction.

Numerous nations have struggled to adopt this instruction because their citizens lack an understanding of its concept or structure. Stakeholders in Indonesia hold divergent opinions. The absence of an organizational structure, a learning environment driven by theory, and ineffective planning all contribute to the implementation failure of the program [29]. In contrast, the purpose of practical higher education has had a moderately favorable effect. Its learning program is intended to be utilized exclusively for academic purposes.

2. Methodology

2.1. Research Subject

Times Higher Education (*THE*), a British publication covering news and topics relating to higher education and one of the most famous rating publications for institutions worldwide, has published universities' UN project (SDGs) targets. A total of 28 higher education institutions in Indonesia are listed, and the researcher has sent emails to 10

technical and vocational education in higher education institutions. Unfortunately, only three education institutions confirmed to participate in an interview. Each Dean/Director recommended two lecturers in their department; thus, a total of six participants were selected and adjusted by three dimensions in SDGs. Table 1 indicates the three selected higher education institutions' SDGs ranking by Times Higher Education (THE). Table 2 shows the participants' information.

Table 1. Indonesian universities SDGs Ranking (five best scores by rank).

No.	University Name (Hidden)	Province	Overall Best Scores by Rank
1	Univ A	West Java	92.4
2	Univ B	The Special Region of Yogyakarta	89.2
3	Univ C	East Java	72.0–76.7

Source: Times Higher Education (THE).

Table 2. Information about participants.

Participant and Institution	Gender	Profession	SDGs Dimension
A1 (Univ A)	Male	Lecturer in Hospital Administration	Socio-Cultural Dimension
A2 (Univ A)	Female	Lecturer in Accounting Costs	Economic Dimension
B3 (Univ B)	Female	Lecturer in Applied English Language	Socio-Cultural Dimension
B4 (Univ B)	Male	Lecturer in Rapid Prototyping/ Engineering Design	Environmental Dimension
C5 (Univ C)	Male	Lecturer in Industrial Mechanical Engineering	Environmental Dimension
C6 (Univ C)	Male	Lecturer in Infrastructure Engineering	Environmental Dimension

2.2. Procedure and Analysis

Before the interview process, the researcher sent emails to four expert judgments for the purpose of interview question validation. Table 3 shows four experts' information.

Table 3. List of Expert Judgment Profiles.

Name	Institution	Position	Expert Field
Expert 1	SF univ (Canada)	Professor	Organizational Behavior and Executive Education
Expert 2	FUM (Iran)	Assistant Professor	Educational Administration
Expert 3	NWU (South Africa)	Professor	Multimodal Learning and Multilingualism in Education
Expert 4	DCU (Ireland)	Professor	Educational Evaluation

Kvale et al. (2009) [30] stated that interviewing can be regarded as a sensible qualitative technique for studies that aim to map the attitudes and perceptions of the subject studies. As an outcome, semi-structured interviews were conducted to gather observed data for this investigation. In addition, interviews with educators were completed and analyzed to discover the significance, understanding, and teaching approaches for sustainability that are missing from the TVE curricula and their influence on learners.

The interview process took around four weeks due to the participants' work duties. First, all participants' interviews were conducted via Zoom for about 40–50 min in Bahasa Indonesia. Next, the first author translated the data into an English version. After completing the translation, researchers analyzed data with MAXQDA software. According to researchers' findings, the usage of Computer-Assisted Qualitative Data Analysis Software (CAQDAS) has been increasing and is now widespread [31]. The use of CAQDAS not only facilitated narrative analysis while dealing with a huge dataset and several data sources but also helped our interaction with researcher reflexivity, hence, legitimizing this narrative methodology's rigor [32]

3. Results and Discussion

Education for Sustainable Development (ESD) has evolved into a crucial idea for achieving global sustainability. ESD strives to empower individuals to think and behave in a sustainable, forward-looking way. To this end, ESD should not only provide learners with information, but also encourage and enhance the development of sustainable competencies to meet the social, environmental, and economic concerns of the 21st century. Education is inextricably related to human development and is a crucial component in tackling issues such as alleviating poverty, enhancing health, promoting sustainable livelihoods, and preserving the environment [33].

Figure 1 shows the outcome of the interview analysis conducted with a total of six participants and found keywords from their main ideas related to SDGs globally. Basically, their knowledge regarding SDGs is quite adequate. The government successfully promotes SDGs in the education sector, as proven by all universities, including technical and vocational higher education institutions, having visions and missions to support the 2030 Agenda.
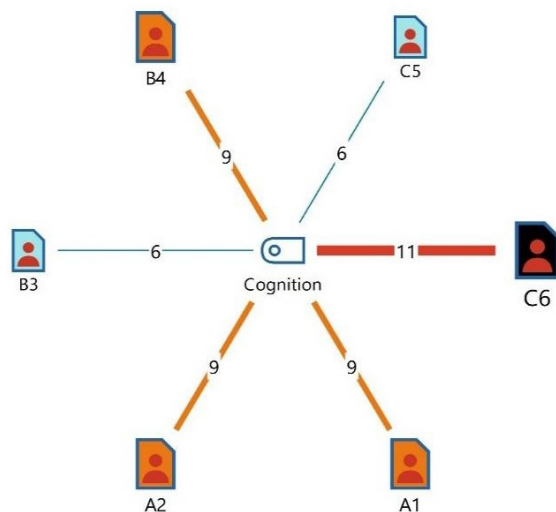

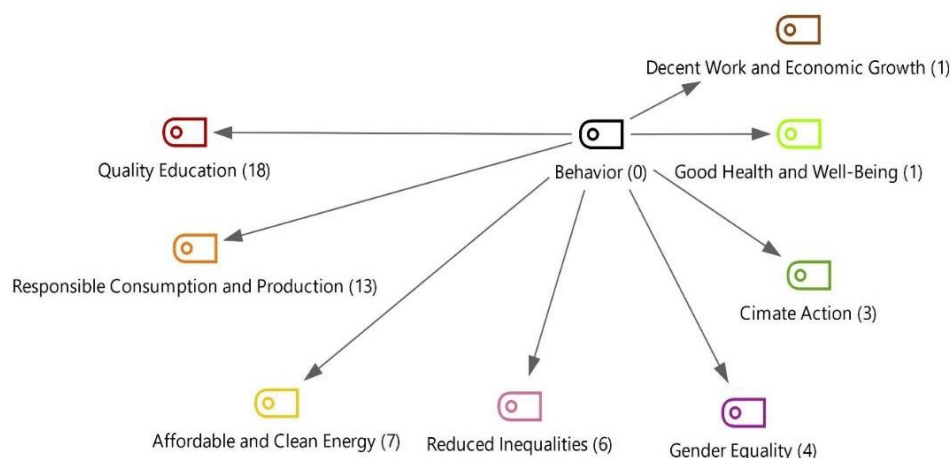**Figure 1.** Code Distribution Model on Educators' Cognition of SDGs.

Participant C6 had the most, with a total of 11 mentions, followed by participants A1, A2, and B4, with 9 mentions each. Nevertheless, most of the participants were pessimists concerning the 2030 target set by the UN in Indonesia. The inconsistency among decision-makers in government, education, industry, and society (horizontal affinity) is the main problem. Many factors are considered to hinder the goals, for instance, differences in the interests of each stakeholder with respect to the sub-sector (Vertical Affinity). The statements by participant C6:

> *".... Our government still focused on fossil fuel, making the transition to the progress of re- newable energy stagnant. As a result, SDGs are only jargon."*

"Need self of belonging to apply SDGs in our life, such as saving energy when in the workplace...."

Developing and third world countries, including Indonesia, still count on fossil fuels, We need to solve the fossil fuel addiction issue [34], and it would take a long time to promote the usage of green and clean energy. The government and people must be in consensus regarding issues stemming from limited fossil fuel issues will happen in the future. Participant C6 also stated that the self-responsibility must be a part of our daily lives, and will play a crucial function in linking individuals to society. Through this process, we could investigate the relationship between social transformation and the self [35].

Cognition is closely related to behavior [36]; if educators have less cognition about SDGs, they consequently encounter difficulty during the course, thus being unable to motivate students [37]. Educators' rational behavior toward several items in SDGs, will carry over to their students. Their behavior is crucial for influencing students; hence, each student will be constantly aware of the fundamental issues that will be faced. Figure 2 demonstrates that for eight items in SDGs, the fourth item is called Quality Education (with a total of 18 times mentioned); placed Responsible Consumption and Production is placed in the second position (13 times mentioned); followed by the third position for Affordable and Clean Energy.

Figure 2. Code Distribution Model on Educators' Behavior in SDGs.

SDGs of the United Nations are intended to organize nations worldwide to end all kinds of poverty, combat inequities, and combat climate change while leaving no one behind. Higher education institutions play a crucial role in equipping individuals with the skills necessary to achieve these objectives [38]. As academic staff in higher education institutions, all participants are obligated to improve their quality in teaching, research, and community service. Their contribution to society involves students' activities as part of promoting SDGs, which has not happened before, leading to a new direction in the education system. Every university, through the Dean, gives instructions to invite students to conduct community service and research activity (although not mandatory).

Besides Quality Education, Responsible Consumption and Production are the favorite items to promote. This was stated by Participants A1 and B3:

"I always encourage my student to differentiate medical trash from the others, cause it would be dangerous, this is basic but vital" -Participant A1

"Pandemic brings positive change in students' habits, now they have to submit assignments online, not using paper anymore......I tried to reduce meat from the farm because I know that roughly 60% of all greenhouse gas emissions come from agricultural agriculture" -Participant B3

There have been enormous changes after the pandemic hit, and most daily activities must be conducted with limited contact; therefore, online learning is commonly used in all levels of school and higher education. Nevertheless, for some students, this is unfortunate; not all people in Indonesia have good finances. In addition, the unstable internet connection will hurt students in rural areas, which indicates that a big leap in the education system seems like two sides of a coin. GJJ Biesta (2015) [39] argued that one of the factors placing education at risk is due to positioning students as objects to be developed and disciplined, rather than as subjects of action and responsibility.

4. Conclusions

Technical and vocational education institutions, as a part of universities, have their own roles in implementing SDGs for all academic staff, including students. Educators have different methods to motivate and influence students through their cognition and behavior as tools in distributing the UN projects to students. Hopefully, the next generation will not only pay attention to their achievements but also be capable of solving global issues in economic, environmental, and socio-cultural dimensions. There are a total of eight SDGs items noted, with three items frequently cited by participants: Quality Education (SDGs number 4), Responsible Consumption and Production (SDGs number 12), and Affordable and Clean Energy (SDGs number 7th) in the third place. Surely we will obtain more items in future research with a more significant number of participants, even though only several or even one could be transferred to their students.

The powerful triple helix relationship suggested moving forward in the process in order to complete the project from the United Nations. Industry, companies, and entrepreneurs might interact with higher education institutions as a means of achieving mutually beneficial outcomes. Regardless, it would be more successful if the government assisted or acted as a facilitator for emergent engagement between these groups. On the other hand, the community has to be given the authority to grow the economy while safeguarding its socio-cultural practices and natural surroundings.

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