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THE DEVELOPMENT VOCATIONAL WELL-BEING TAXONOMY FOR SOCIAL AND ECONOMIC SUSTAINABILITY OF THE NATION: A REVIEW

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ABSTRACT---*The purpose of this study is to develop Vocational Well-Being Taxonomy for the social and economic sustainability of the nation. Well-being is the value of an individual's happiness and contentment, and it also refers to the physical, emotional, spiritual, and cultural comforts that can be achieved when the needs are met. It is closely related to psychological capacity and human capital skills. The concept of well-being is closely related to human capital that can be translated into individual skills, as highlighted in TVET. TVET agenda is also highlighted as one of the strategies in achieving Shared Prosperity Vision 2030. The purpose of Shared Prosperity Vision 2030 is for Malaysia to make life quality as a developed nation focused on the well-being of the people through various innovation strategies and transformation. However, Malaysia still critically lags in terms of the number of skilled workers, accounting for only 20% as compared to OECD countries such as Germany (60%), Singapore (51%), and Finland (43%). The main problem with the education system in Malaysia is that it focuses too much on the academic stream so that the vocational stream is considered second class. As the rate of unemployment among the academic stream begins to rise, there is awareness to enhance students' participation in the vocational stream to ensure the well-being of the people in terms of getting a job. In academic education, Bloom's taxonomy was created to classify educational goals, objectives, and outcomes. But Bloom's Taxonomy does not meet the criteria for assessing "well-being" through vocational skills in order to get a job in highly-skilled fields. The well-being of the people through full-employment may not be achieved without the strategy of increasing skilled workers through TVET. As such, it is critical to determine the important domains for vocational well-being that could be developed as a taxonomy for the social and economic sustainability of the nation. This initial study will employ a thorough review of relevant literature and theories.*

Keywords*-- Vocational Well-Being Taxonomy, TVET, sustainability index, vocational domain, social and economic sustainability*

I. INTRODUCTION

Taxonomy is important to human civilization. Recalling the history of human civilization, taxonomy has been used to classify flora and fauna for decades. In the Western scientific taxonomy, the Greek philosopher Aristotle (384-322 BC) is said to be the first philosopher to classify living things, and some of them are still used today,

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such as vertebrate and invertebrate animals, called bloody and non-bloody animals (33, 26). Theophrastus (370-285 BC) was an Aristotle and Plato student. He has written the classification of plants known as De Historia Plantarum, which contains 480 species (32, 12). Also, one of the early authors was Caesalpino (1519-1603) in Italy, referred to as the "first taxonomist," De Plantis wrote, which included a classification of 1500 species based on the common growth habits and seeds of Theophrastus (47). A Swiss botanist, De Candolle (1813) coined the term taxonomy in Geneva which defined taxonomy as the study of the law and the fundamental principles of the classification system (47), a field of science that includes description, introduction, and classification (50).

Etymological taxonomy comes from Greek: "taxa" means group or unit, and "nomos" means the law or regulation used to place a living thing in a particular taxonomy (42). Generally, there are hierarchical structures with rules that clearly define the taxonomic components and how they are organized (3). In education, taxonomy has been created to categorize educational goals and outcomes. According to Bloom (1956), education taxonomy encompasses three domains comprising cognitive domains, including intellectual abilities and skills, affective domains related to feelings, attitudes, values, and emotions, and psychomotor domains related to manipulation or motor skills (64). Each of these domains can be divided into several categories and sub-categories or hierarchies (levels) from simple behavior to most complex behavior. The main idea of taxonomy in education is to classify educational objectives in such a way that they can be organized sequentially; the basic level must be mastered before the next level (24).Taxonomy is also important for assessment. Taxonomy is often used in the design of test questions for the curriculum or syllabus. In formulating quality questions, scholars of measurement and evaluation, such as Bloom (1956) and Sanders (1966), have introduced a taxonomy of questions as a framework to help educators formulate questions that fit their learning objectives. The taxonomy questionnaire refers to the conceptual framework for producing and developing multi-level cognitive questions, ranging from low to high levels that challenge students' thinking skills. However, much of the educational taxonomy focuses on cognitive domains such as Bloom's Taxonomy (1956). The lack of a well-established vocational well-being taxonomy framework makes it difficult for vocational teachers in need of vocational well-being taxonomy to develop and evaluate the objectives and outcomes of vocational education (38).

Vocational well-being taxonomy, in theory, is based on psychomotor theory. Some psychomotor experts have attempted to classify human movements, including Harrow (1972) (19). The psychomotor taxonomy presented by Harrow (1972) is based on the theory of movement comprising six categories: (a) reflexive motion, (b) fundamental motion, (c) observing ability, (d) physical ability, (e) skill movement, and (f) non-discursive communication skills (57, 22). Besides, psychomotor skills are also an important component of improving the competence of the individual. Competence is the knowledge, skill, and ability that one must possess to develop cognitive, affective, and psychomotor actions successfully. All of these aspects are key components of mutual need in assessing the level of competence (34, 36). However, in this study, Vocational Well-Being Taxonomy focuses more on the psychomotor domain. To develop Vocational Well-Being Taxonomy, a brief description of the historical context of philosophic differences and the purpose of academic and vocational education is needed.

There are several issues raised in the development of Vocational Well-Being Taxonomy based on several aspects of the psychomotor domain. Among the issues that concern the researcher is the weakness of Bloom's taxonomy in the classification of vocational competencies. Bloom and his colleagues were among the first groups responsible for identifying the classification of educational objectives. However, the group failed to develop the

psychomotor domain that Simpson later expanded in 1967 with Harrow in 1972 (66). The main weakness of Bloom's Taxonomy is its lack of emphasis on the psychomotor domain, which is the main field of vocational education. This is because the vocational field promotes the acquisition of the skills, knowledge, and attitudes necessary for a professional career (59).

Based on some of the disadvantages of Bloom's taxonomy, several related taxonomies have been developed by some researchers (8). Vocational subjects stress psychomotor domains, while academic subjects emphasise cognitive domains. However, both domains remain affective domains. Hauenstein (1998) (22) developed a taxonomy related to assimilation, adaptation, performance, and aspiration at the learning level (63). Harrow (1976) presented a taxonomy for the psychomotor domain, stressing that most educators find that students do not attain the skill level of their intended objectives, but encourage students to learn advanced skills or more complex movements.

Although the concept of objectives and teaching outcomes in Bloom's Taxonomy emphasizes the cognitive domain, other educational psychologists, such as Ebel and Frisbie (1991) (13) and Gagne (1985) (16), have also proposed ways to set teaching objectives in the affective and psychomotor domains to assist teachers in the design and implementation of teaching purposes in the three main fields: cognitive, affective and psychomotor (13). However, most teaching models focus on cognitive rather than affective or psychomotor domains (52). These three domains are important for understanding student thinking (1, 2, 35, 58) and are inseparable (2, 58). One of the most important aspects of vocational education is the orientation towards the world of work and the emphasis on the curriculum is on skills, which is why the psychomotor field is the most emphasized in vocational education, particularly concerning the development of physical or practical skills (41). As a result, there is a gap in the shaping of learning objectives and outcomes in the psychomotor field, so the development of Vocational Well-Being Taxonomy is critical.

As a result of the highlights of the study, it can be concluded that studies related to the development of Vocational Well-Being Taxonomy are very limited. To date, there is no single comprehensive classification of vocational fields. This makes it challenging to develop vocational taxonomy because there is very little vocational well-being taxonomy literature. According to the literature review, there are also some groupings, but to date, there have been no comprehensive classifications or groupings in vocational fields, especially for learning and assessment purposes. It is, therefore, crucial that a comprehensive Vocational Well-Being Taxonomy is developed (39). In addition, the development of this Vocational Well-Being Taxonomy is expected to contribute to the development of the vocational curriculum as well as the psychomotor assessment. Hence, the focus of this study was to develop Vocational Well-Being Taxonomy as well as to identify the importance of taxonomy in vocational education.

II. LITERATURE REVIEW

II.1 Taxonomy

The word 'taxonomy' originated from Greek "tassein" which classify and "namos" which means laws. Originally, the word taxonomy is the vocabulary in the field of science (45). In the field of science, taxonomy is the classification system for living things such as flora and fauna. There was once when taxonomy was only

referred to the scientific classification of living organisms, but later, the word was used for the broader meaning. Almost all things, living objects, non-living objects, places, and events, can be classified according to the taxonomy. Every moving thing, still things, places, and events up till the thinking ability can be classified according to the levels of the taxonomy. Therefore, taxonomy is a systematic classification system (2, 66).

According to Gusnetty (2013) (18), taxonomy is an effort to arrange systematically certain fields according to fixed criteria. For example, the taxonomy for physics has grouped things according to liquids, solids, and gas. As for taxonomy in the botanical field, it has grouped plants according to certain criteria, for example, plants with one cell and plants with many cells. In the psychology and education field, taxonomy refers to the hierarchy of knowledge and thinking process, which help the teaching and learning process (17).

In the field of education, taxonomy aims at classifying knowledge and thinking needed in various fields of education and normally used to analyse education field. It relates to the objectives of education, which involve fields such as knowledge, attitude, and psychomotor. There are three main domains in education: (i) cognitive domain which involves the development of students' thinking, (ii) affective domain which involves the development of students' attitude and values and (iii) psychomotor domain which involves the development of students' physical skills (5). To further understand taxonomy, a brief history of taxonomy will be explained to show the contribution of some scholars towards the development of taxonomy in various fields.

II.2 History of Taxonomy

In the western scientific taxonomy, the Greek philosopher, Aristotle (384-322 SM) is said to be the first philosopher who classified living things, and in fact, some of them are still used by people up till today, such as vertebrates and invertebrates, blooded animals and non-blooded animals (26, 33). Other than this, another Greek figure, Theoprates, had also introduced the knowledge of taxonomy in 370-285 BC. Theoprates (370-285 SM) was the student to Aristotle (53).

Other than these, one of the early authors was Caesalpino (1519-1603) who was in Italy, is also referred to as "the first taxonomist" and had written De Plantis which consists of 1500 species classified according to the habits of growth with fruits and seeds based on the theory of Theophrastus (47). In 1813, the Swiss botanist Augustin Pyramus De Candolle (1778-1841) had created neologism "taxonomy" from Greek and published the first book entitled Elementary Theory of Botany (48). Generally, taxonomy is a practice and classification of science for certain things or concepts, including the principles of basic classification. Classification of taxonomy is the main method used to assess the biological diversity of all groups of an organism (27, 45).

In 1956, the taxonomy of education was developed by a famous educator, Benjamin Bloom. He has specially developed the education taxonomy aimed to build learning objectives from his model of taxonomy called Bloom's Taxonomy through his work Taxonomy of Educational Objectives (6). Education taxonomy mainly focuses on preparing the classification in the education system. Thus this classification is students-centered and oriented on behaviours which involved two main domains in classifying the learning objectives, which are cognitive domain and affective domain, and then developed to the psychomotor domain. Other than that, every classification of cognitive domain and affective domain are divided into a few categories which involved systematic and consecutive arrangement of the level of knowledge with the changes of students' behaviours (29, 49, 63). In the

taxonomy, the concepts and principles need to be followed to strengthen the development of taxonomy, especially in the field of education.

II.3 Bloom's Taxonomy

The history of Bloom's Taxonomy started in the early 1950s in the American Psychological Association Conference, where Bloom and the education experts suggest a new taxonomy in education. According to Bloom (1956), knowledge is the lowest level of thinking skills (thinking behaviours). There are other levels that are higher to be achieved so that the learning process can produce students who are competent in their fields. In 1956, Bloom, Englehart, Furst, Hill, and Krathwohl successfully introduced the thinking conceptual framework called Bloom's Taxonomy. Therefore Bloom's Taxonomy is a hierarchical structure that identifies cognitive skills from the lowest level to the highest level. In order to reach a higher level, the lower levels should be mastered first (24). Teaching objectives must be referred to when conducting measurement and evaluation. Therefore the Bloom's Taxonomy has contributed a lot to the measurement of the teaching objectives and students' learning from the aspects of cognitive. Hence, Bloom's Taxonomy involves a lot of the cognitive domain for the purpose of education. The cognitive domain was the result of Bloom's idea in 1956.

Weaknesses of Bloom's Taxonomy

The levels in Bloom's Taxonomy are used nearly half decades as the basis for education purposes, preparations of tests and curriculum all over the world. This framework enables teachers to understand, arrange, and implement educational aims. At the end of the 1990s, a group of cognitive psychologists led by Anderson and Sosniak (1994) had revised Bloom's Taxonomy so that it is more suitable to cater to the 21st century. This group has produced a new version of Bloom's Taxonomy, which has broader coverage from various factors and gives some effects on teachers' teaching and learning process. The revised taxonomy improves some confusion that exists in the original taxonomy.

The revised Bloom's Taxonomy involves the changes from nouns (in the original Bloom's Taxonomy) to verbs (the revised taxonomy). The changes are done so that they are suitable to the learning objectives. The learning objectives show how students are doing something (verbs) with something (noun). Different from the 1956 version, the revised taxonomy differentiates 'knowing what,' the contents from his own mind, and 'knowing how,' how the procedures are used to solve problems (Anderson et al., 2001). There are some important changes made by Anderson, especially in the dimension of knowledge in the cognitive process. Knowledge is arranged in different structures which involve four categories: knowledge about facts, knowledge about concepts, procedural knowledge, and metacognitive knowledge. Although the structure of knowledge is different, Anderson's third category of knowledge has already existed in Bloom's Taxonomy. Anderson redefined in new pronunciations and added the metacognitive knowledge into four sections. Metacognitive is the knowledge of how the cognitive process takes place, how individuals are aware of the thinking process, and also gives an understanding of how teaching can effectively be conducted (25).

The taxonomy was revised due to some weaknesses in the original Bloom's Taxonomy. The original taxonomy has two sections: the cognitive domain and the affective domain. However, the creator of both versions of the taxonomy is not interested in the psychomotor domain because they witnessed that the role of the domain

lacked in secondary schools and tertiary levels (5). Thus the weakness of Bloom's Taxonomy is due to the fact that it did not give any emphasis on the domain of psychomotor, which is the main domain in vocational education. This is important because the vocational field encourages the mastery of skills, knowledge, and attitudes needed for a professional career (59). However, most teaching models give more emphasis on the cognitive domain and not the affective and psychomotor domains (52). All these three domains are important to understand students (1, 2, 35, 55) and inseparable (2, 55). Finally, Simpson completed the two domains by adding the psychomotor domain (50). Thus the researcher feels that there must be one new taxonomy in the field of vocational, which included psychomotor.

Other than that, Bloom's taxonomy did not supply any criteria to evaluate activities (14). The taxonomy model generally less measures in critical thinking skills as well as solving problems. Therefore the empirical study which involved models was not convincing (30). The category or the levels of Bloom's Taxonomy (knowledge, understanding, applications, analysis, synthesis, and evaluation) were not supported by any empirical researchers. The only difference which was supported by the researchers was the difference between knowledge of declarative/conceptual (remembering, understanding and knowledge) and the procedural knowledge, which is the application or task fulfilment (54).

One of the criteria which is important in vocational education is the orientation towards the outside world of the working environment and the emphasis on the curriculum in skills. Therefore the psychomotor domain is important to be emphasized in vocational education, especially with the development of physical skills or practical (41). Thus, there is room for improvement to develop objectives and learning outcomes in the psychomotor domain. Therefore the development of Vocational Well-being Taxonomy is critical.

II.4 Vocational Education

Vocational education is an education that prepares students for the work field (46). The development of vocational education started in ancient Egypt in 2000 BC. The Apprentice program organized includes learning the basic skills in writing and reading literature. The initial effort is to include classroom learning of basic skills and workplace. Victor Della Vos initiated systematic thinking in curriculum development in technology and vocational education. Della was the director of the 'Imperial Technical School of Moscow' in 1876 in Philadelphia Centennial Exposition,' has introduced a new approach in engineering education, and at that time, Della had become technical and vocational education in Amerika Syarikat" (Lannie, 1971).

The word *voca* originated from a Latin word, which means to call, summons, and invitation in certain ways of life (20). Due to this, the group which is involved in the vocational field, specifically those educators and students in vocational schools, can assume this is a calling for work. Vocational education is complemented to prepare individuals to become workers for various careers. The system of vocational education is an educational institution to prepare individuals to further in the next level of education.

Principles of Vocational Education

There are a number of principles on vocational education. According to Miller (1985) (37), there are three main components in the principles of vocational education: people, program, and process. The aspects of students

are: open vocational education for all, individuals who have specific skills developed through vocational education, (c) students are part of vocational education, and (d) work ethics embedded through vocational education.

According to Miller (1985), aspects of the program are (a) the vocational curriculum is based on the needs of the working world, (b) types of jobs are the basis for the development of vocational education curriculum, (c) innovation is part of the vocational education, and (d) through vocational education, and students are prepared for the working world. On the other hand, the basic principles, according to Miller (1985), are (a) the involvement of the society determines the vocational education program, (b) articulation and coordination in vocational education, and (c) continuous evaluation.

According to Pavlova (2008) (43), education and vocational training are to prepare students to work. Therefore, education and vocational training are an education in developing skills, competencies, understanding, behaviours, attitudes, work practices, and appreciation of jobs needed by the world. Clarke and Winch (2007) (10) stated that integration between education and jobs (4). Vocational education needs full participation from industries, including the community involved in vocational education.

According to Labaree (1997) (31), vocational education is developed with the aim to safeguard the importance of the economy for a certain country. Certain countries that want to be advanced must continuously prepare the workforce to develop the economic sector. In other words, the main objective of forming vocational schools is to develop a school curriculum that is responsive to workforce needs in the labour market, especially for skilled and semi-skilled areas.

Objectives of Vocational Education

Vocational education supports changes for improvement in order to proactively make adjustments with the changes and are able to adopt a long-term strategy. Vocational education. Almost all countries in the world have conducted reformation of vocational education so that it is relevant to the needs and demand for changes (23). Vocational education is needed with the aim of developing knowledge and skills, which will help workers to be more flexible and sensitive towards the needs of the job market, especially facing the needs of jobs, especially in facing a global economic crisis.

According to Ramlee (2017), the objective of vocational education is to produce students who are exposed to the field of vocational education at the upper secondary level. The courses offered to enable students to gain basic vocational knowledge and skills to qualify them as skilled and semi-skilled workers in industries. The syllabus for vocational schools is different from the ordinary school syllabus. Vocational education focuses more on practical learning based on courses enrolled. The objective of vocational education is also determined to prepare vocational students with the expertise in technics or technology (the domain of specific competency) related to jobs, including other job competencies (21). Therefore the development of curriculum in the field of vocational should be referred to as the objective of vocational education itself.

Curriculum for Vocational Education

Curriculum and learning are two terms that are related to each other in curriculum development and planning. The curriculum includes all students' experiences at schools, while learning involves the strategies used to deliver various learning experiences of lecturers/instructors and students. Therefore, in learning, the process of learning

and teaching takes place. According to Oliva (1992) (40), the curriculum can be referred to as what and learning can be referred to as how. Curriculum, which relates to plan or program, is called planning, whereas learning which relates to implementation is called methodology. Zaitun Sidin (2000) [67] stated that the curriculum is referred to as courses that are offered in a certain program. Curriculum normally consists of a number of components: (i) philosophy of the course, (ii) learning outcome, (iii) contents which include knowledge, skills, and values, (iv) teaching and learning activities, (v) evaluation activities.

The basic concept of vocational education developed aligned with theories and education practices, which are differently suitable to the stream or education theories followed. According to Finch and Crunkilton (1999) (15), there is two focus in the curriculum: students themselves and also the curriculum must be able to provide a learning experience that is not only related to schools but also outside schools. This focus is aligned to Oliva's opinion (1992) that curriculum is the planning or program which is related to experience internalized by students under schools' supervision.

Dewey (1916), a scholar, always hold on tightly to the philosophy or the concept of democracy in education, which is keen on giving opportunities to all students who want to opt for academics and vocational. Dewey mentioned that vocational education is for all students. Therefore, the curriculum of vocational education has the main focus on students' performance in mastering their achievement of skills related to the jobs. The curriculum of vocational education is a curriculum that focuses on hands-on activities that are hands-on and equipped with the latest skills in vocational.

According to Tessaring (2009) (55), the development of curriculum needs skills to search for suitable competency qualifications for the future means for students to relate to the vocational education itself. Curriculum, especially vocational curriculum, has different learning objectives (Bloom et al., 1956; 2, 35). Therefore, teaching and learning activities, as well as evaluations, need to focus on the efforts to achieve the learning objectives (21).

Observing the reality happening in the vocational education system, the evaluation conducted by instructors focuses more on cognitive. This might result due to the lack of instructors who understand affective and psychomotor evaluation (62). Therefore, it is important to identify references to develop a vocational evaluation, which covers all domains in the Vocational Well-Being Taxonomy.

II.5 Relevant Theories

Several theories are suggested as the basis of the taxonomy. Generally, the Vocational Well-Being Taxonomy involves the cognitive domain and psychomotor domain. The other relevant theories are (i) cognitivism theory, (ii) behaviourism theory, and (iii) psychomotor theory.

Cognitivism Theory

This theory claims that learning is a thinking process. The changes in behaviour or learning reflect internal changes. Human beings do receive not only information but also process the information received, which makes individuals as thinkers who can build and achieve something based on their abilities (61, Jean Piaget,1936). Humans always ask about many things and always explore the environment based on what they know and learn as a result of social and psychological interaction. Bruner (1964) (7), through his study, stated that cognitive development through three stages: enactive (activities to understand the nature), icon (understand objects through

images and verbal visualization), and symbolism (have abstract ideas which are influenced by language and logic). Knowledge skills and values learned will understand the thinking, and also make other learning easier. Cognitive involves the process of understanding, concept-building, reasoning, evaluation, and problem-solving (Baharom et al., 2007).

Behaviourism Theory

Behaviourism theory is very suitable to be used in vocational education because the nature of learning focuses on practical training. All learnings implemented involve practical, and the behaviourism can be applied. This is because practical training will encourage learning experience under teachers' guidance. The vocational education criteria are suitable for the features of behaviourism theory. The Behaviourism Learning theory looks at learning as the changes in behaviours. The Behaviourism Learning theory focuses on a study on behavioural forming based on the relationship between observed stimulus and response. The Behaviourism Learning theory is opposite to the cognitive theory, which claims that the learning process is the mental process that is not observed clearly.

This learning theory focuses much on the learning outcomes, which refers to the existence of observed behavioural changes, measured, and evaluated concretely. The learning outcomes are obtained from the process of responding to the learning environment, internally and externally. The changes in behaviours will be acquired automatically when somethings are conducted repeatedly (44, 66). Other than this, Thorndike (1874-1949) (56), who developed S-R Theory at the Stimulus-Response theory (theory of operant conditioning), had proven that unconditioned stimulus would result in an unconditioned response. For example, a hungry cat will learn to open its cage (unconditioned response) to get food outside the cage (unconditioned response). Therefore, Thorndike believed that there is a neutral connection built between stimulus and response when responses are positive; learning will happen if the connection is able to build the intended behaviours (28, 51).

Skinner (1904-1990) had also suggested the Contiguity of Feedback/Reinforcement Theory in which behaviours are formed through positive or negative affirmation. For example, if a student is given rewards/compliment (positive affirmation) when he or she has successfully done something, such as completed homework, or on the other hand a student is punished (negative affirmation) is he or she has not successfully done something, such as do, not complete homework. Therefore this theory only explains the formation of behaviours through the rote-learning process but does not explain the learning process and thinking process. The theory of behaviour has demonstrated three suitable criteria for the theory: philosophy, experiment, and engineering application. Engineering application is very broad and gained from the lab work conducted and cooperated with theory (60),

Psychomotor Theory

The modern psychomotor theory started in the Psychology Experimental era in the early 19th century. Hermann von Helmholtz (1821 - 1894) is assumed as the father of modern nerve conduction. By combining the nerve system into the perceptions and behavioural reaction, Helmholtz had an invaluable contribution to the study of psychomotor ability. Helmholtz believed that all perceptions and reactions towards stimulus are directed by the nerve system, which is then controlled by the natural speed of physiology nerve flow (9).

Nevertheless, according to literature, the first theorist who formed the term 'psychomotor' is Carl Wernicke (1848-1905). According to his study, Wernicke showed how human's function could be explained by psych sensory input, psychomotor output, as well as human conscious and unconscious (intrapsychic). Wernicke used reflex arc or impulse movement (information) during psychological reflex action, as suggested by John Dewey in 1896 (11), to explain how human interaction with their environment and interpreted senses information integrated (Weckowicz, 2010).

Based on the relevant theories, the main domains are identified to develop Vocational Well-Being Taxonomy. Literature has illustrated that taxonomy is developed to focus on the specific objectives in terms of knowledge and skills obtained by students to fulfill the needs of the course but from different perspectives. Due to this, a thorough study that involves theory and model in vocational and educational taxonomy is needed to produce relevant domains.

III. CONCLUSION

Generally, previous studies revealed various types of taxonomy from previous years. The Greek philosopher Aristotle (384-322 BC) was said to be the first philosopher who classified living things, and some are still used till today, such as vertebrates and invertebrates, which are called blooded and non-blooded animals. The effort of classifying learning activities in the form of behaviours is also known as taxonomy. In educational taxonomy, there are three types of domains: cognitive, affective, and psychomotor. Vocational education has its philosophy framework and history or basis. The vocational philosophy framework is related to the general understanding of values, concepts, basic trust, and vocational education aim. Vocational education principles are formed based on pragmatism philosophy, which will balance essentialist philosophy as well as allow new ideas to be considered in practical works. Several theories were relevant in developing the Vocational Well-Being Taxonomy. For example, cognitive theory, behaviourism theory, psychomotor theory, visualization theory, problem-solving theory, and inventive theory. A group of behaviourists (behaviours) has the opinion that the taxonomy suggested by Bloom and friends is very cognitive-based. Further discussions that are relevant to the Vocational Well-Being Taxonomy produced from the consensus and agreement among panels that are knowledge domain, skills, motor skills, visualization, problem-solving, and inventive.

REFERENCES

1. Anderson, L.W., & Sosniak, L. A. (Eds.). (1994). Bloom's taxonomy: A forty-year retrospective. Ninety-third yearbook of the National Society for the Study of Education, Pt.2.Chicago, IL. University of Chicago Press.
2. Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy of educational objectives: New York: Longman.
3. Bailey, K. D. (1994). Typologies and taxonomies: An introduction to classification techniques (No. 102). Sage.
4. Billett, S. (2011). Vocational education purposes, traditions, and prospects. Queensland: Springer Science Business Media B.V.

5. Bloom, B. (1956). Taxonomy of educational objectives. Book 1: Cognitive domain. London: Longman Group Ltd.
6. Bloom, B., Engelhart, M., Furst, E., Hill, W., & Krathwohl, D. (1956). Taxonomy of education objectives the classification of educational goals: Handbook 1, cognitive domain. New York: David McKay Company, Inc.
7. Bruner, J. S. (1964). The course of cognitive growth. American Psychologist. 19, 1－15.
8. Carbonell, L. (2004). Instructional development timeline: Learning theory. Retrieved from http://www.educationau.edu.au//archives/cp/.
9. Cahan, D. (Ed.). (1993). Hermann von Helmholtz and the foundations of nineteenth-century science (p. 569). Berkeley: University of California Press.
10. Clarke, L., & C. Winch. (2007). Vocational education: International approaches, developments, and systems. London: Routledge.
11. Dewey, J. (1916). Nationalizing education. Journal of Education, 84(16), 425-428.
12. Eamonn, M. (2012). Taxonomy in biology and visualization. https: //isa-tab.sourceforange.net/docs/publications/Taxonomy.pdf, Jan 2015.
13. Ebel, R. L., & Frisbie, D. A. (1991). Essentials of educational measurement. (5th ed.). Englewood Cliffs, New Jersey: Prentice-Hall Inc.
14. Ennis, Robert H. (1985). Critical thinking and the curriculum. National Forum, 65:1. Winter, 28 – 1.
15. Finch, C. R., & Crunkilton, J. R. (1999). Curriculum development in vocational and technical education, planning, content, and implementation. United State of America: Allyn & Bacon. A Viacom Company.
16. Gagné, R. J. (1985). A taxonomic revision of the Asian rice gall midge, Orseolia oryzae (Wood-Mason), and its relatives (Diptera: Cecidomyiidae). Entomography, 3, 127-162.
17. Gorunescu, F. (2011). Data Mining: Concepts, models, and techniques (Vol. 12). Springer Science & Business Media.
18. Gusnetty Jayasinga. (2013). Taksonomi dalam pembelajaran. Program PascaSarjana Pendidikan IPS. Fakultas Keguruan & Ilmu Pendidikan. Universitas Lampung.
19. Harrow, A. J. (1972). A taxonomy of the psychomotor domain: A guide for developing behavioral objectives. New York: Longman.
20. Hansen, D. T. (1994). Teaching and the sense of vocation. Educational Theory, 44(3), 259-275. DOI:10.1111/j.1741-5446.1994.00259.x
21. Haolader, F. A., Ali, M. R., & Foysol, K. M. (2015). The taxonomy for learning, teaching, and assessing: Current practices at polytechnics in Bangladesh and its effects on developing students' competences. International Journal for Research in Vocational Education and Training(IJRVET) Vol. 2, No. 2: 99-118.
22. Hauenstein, A. D. (1998). A conceptual framework for educational objectives: A holistic approach to traditional taxonomies. Univ Pr of Amer.
23. Hiniker L.A., & Putnam, R.A. (2009). Partnering to meet the needs of a changing workplace; in Rupert Maclean, David Wilson, Chris Chinien; International Handbook of Education for the Changing World of Work, Bridging Academic and Vocational Learning: Germany: Springer Science Business Media.
24. Huitt, W. (2011). Bloom et al.'s taxonomy of the cognitive domain. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. Retrieved from http://www.edpsycinteractive.orang/topics/cogsys/bloom.html [pdf].

25. Irvine, J. (2017). A comparison of revised Bloom and Marzano's New Taxonomy of Learning. Research in Higher Education Journal, v33.
26. Janice Van Cleave (2010). History of classification. **What is taxonomy, and who introduced it?** VanCleave's Science Fun. Your Guide to Science Projects, Fun Experiments, and Science Research Jean Guichard. (2001). A Century of Career Education: Review and Perspectives. International. Journal. for Educational and Vocational Guidance 1:155–176.
27. Komarek, J., Kastovsky, J., Mares, J., and Johansen, J. R. (2014). Taxonomic classification of cyanoprokaryotes (cyanobacterial genera), using a polyphasic approach. Preslia 86, 295–335.
28. Koschmann, T. (2000). The physiological and the social in the psychologies of Dewey and Thorndike: The matter of habit. In B. Fishman & S. O'Connor-Divelbiss (Eds.). Fourth International Conference of the Learning Sciences, 314-319.
29. Krathwohl, D. R. (1964). Taxonomy of educational objectives: The classification of educational goals. Affective Domain.
30. Kunen, S., R. Cohen, and R. Solomon (1981). "A levels of processing analysis of bloom's taxonomy." Journal of Educational Psychology. 73, 202-211.
31. Labaree, D. P. (1997). Public goods, private goods: The American struggle over educational goals. American Educational Research Journal, 34 (1), 39-81.
32. Manktelow, M. (2010). History of taxonomy. Retrieved on Feb 20, 2014, from http://www.atbi.eu/summerschool/files/summerschool/Manktelow_Syllabus.pdf
33. Mayr, E. (1982). The growth of biological thought. Belknap P. of Harvard U.P, Cambridge (Mass.). Retrieved from http://www.explorelifeonearth.orang/cursos/Mayr(1982)GrowthofBiologicalThought.pdf.
34. Maidatulakmal Othman. (2012). Tahap kompetensi pelajar melaksanakan kerja amali berpandukan domain psikomotor Simpson. Tesis Ijazah Sarjana. Universiti Tun Hussein Onn, Johor.
35. Marzano, R., & Kendall, J. (2007). The new taxonomy of educational objectives (2nd ed.). Thousand Oaks, CA: Corwin Press.
36. McAshan, H. H. (1979). Competency-based education and behavioral objectives. Englewood Cliffs, New Jersey: Educational Technology Publications.
37. Miller, M. D. (1985). Principles and philosophy for vocational education. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.
38. Mohd Najid, N., Tze Kiong, T., Che' Rus, R., & Budiman, H. (2019). A Needs analysis on the development of problem based learning module for the microcontroller subject at Vocational College. Asian Journal of Assessment in Teaching and Learning, 9(2), 43-53.
39. Osman, N., & Kamis, A. (2019). Innovation leadership for sustainable organizational climate in institution of technical and vocational education and training (TVET) in Malaysia. Asian Journal of Assessment in Teaching and Learning, 9(1), 57-64.
40. Oliva, P. F. (1992). Developing the curriculum. Third Edition. New York, United States of America: Harper Collins Publishers.
41. Okwelle P. C. (2013). Appraisal of theoretical models of psychomotor skills and applications to technical vocational education and training (tvet) system in Nigeria. Journal of Research and Development, 1, (6), 25-35.

42. Partha & Kholia. (2010). Indian integrated plant taxonomic information system: A conceptual framework. DESIDOC Journal of Library & Information Technology, 30(3), 35-42.
43. Pavlova, M. (2008). Technology and vocational education for sustainable development: Empowering individuals for the future (Vol. 10). Springer Science & Business Media.
44. Prosser, C. A., & Quigley, T. H. (1949). Vocational education: in a democracy. American Technical Society.
45. Purcell, A. (2018). Basic Biology: An introduction. Basic Biology Limited. New Zealand ISBN Agency, National Library of New Zealand.
46. Ramlee Mustapha. (2017). Skills Training and Vocational Education in Malaysia. In: Samuel M., Tee M., Symaco L. (eds) Education in Malaysia. Education in the Asia-Pacific Region: Issues, Concerns, and Prospects, vol 39. Springer, Singapore
47. Rao M. M., & Reddy, S.M. (2007). Plant Taxonomy: Systems of classification. In Reddy S. M. et al. (eds.) University Botany - 3, New Age International, 7-32, ISBN 978-81-224-1547-6.
48. Rouhan, G., & Gaudeul, M. (2014). Plant taxonomy: a historical perspective, current challenges, and perspectives. In Molecular Plant Taxonomy (pp. 1-37). Humana Press, Totowa, NJ.
49. Sanders, N. M. (1966). Classroom questions: What kinds?. Harpercollins College Div.
50. Simpson, M. G. (2010). "Chapter 1 plant systematics: An overview". Plant Systematics (2nd ed.). Academic Press. ISBN 978-0-12-374380-0.
51. Skinner, B. F. (1956). A case history in scientific method. American Psychologist, 11, 221–233.
52. Sperber, M. (2005). 'How undergraduate education became college lite and a personal apology.' In Thomas C. Reeves. (2006). How do you know they are learning?: The importance of alignment in higher education. Int. J. Learning Technology, 2(4), 294-309.
53. Stevens, P. F. (2013). History of taxonomy, Published Online: 29 Jan (2013). Wiley Online Library. Missouri Botanical Gardens, St Louis, Missouri, USA.
54. Seyyed Mohammad Ali Soozandehfar & Mohammad Reza Adeli. (2016). A critical appraisal of Bloom's Taxonomy. American Research Journal of English and Literature (ARJEL), Volume 2, pp:1-9.
55. Tessaring, M. (2009). Anticipation of skill requirements: European activities and approaches; In Rupert Maclean, David Wilson, & Chris Chinien; International Handbook of Education for the Changing World of Work, Bridging Academic and Vocational Learning. Germany: Springer Science Business Media
56. Thorndike, E.L. (1943). Man and his works. Cambridge, MA: Harvard University Press.
57. Tomei, Lawrence A. (2005). Taxonomy for the technology domain. Hershey, PA: Idea Group Publishers, Inc.
58. Toni. G. (2012). A quantitative content analysis of the common core state standards compared to Missouri's grade-level expectations using the revised Bloom's Taxonomy framework. Unpublished Doctoral dissertation, Education Faculty of Lindenwood University.
59. UNESCO (2011). Technical and vocational education and training. http://www.unesco.orang/new/en/education/themes/education-building-bl. Retrieved on 10/7/2015.
60. Vargas, E. A. (2017). B. F. Skinner's theory of behavior, European Journal of Behavior Analysis, 18:1, 2-38, DOI: 10.1080/15021149.2015.1065640.
61. Wadsworth, B. J. (2004). Piaget's theory of cognitive and affective development: Foundations of constructivism. Upper Saddle River, NJ: Allyn & Bacon.

62. Wagiran, Retnowati, E., & Azman, M. N. A. (2020). When Vocational Teachers Improve Their TPACK Competencies Through Lesson Study. International Journal of Psychosocial Rehabilitation, 24 (4) 1475-7192.
63. Walter D. Pierce., & Charles E. Gray. (2013). Teaching in the three domains of learning; The taxonomies simplified for educational objectives, activities, and outcomes. United States: University Press of America.
64. Wayne. D. R. (2014). Affective Domain Applications In Standards-Based Education. Unpublished Doctoral Dissertation, Liberty University.
65. Weckowicz, T. E. (2010). A history of great ideas in abnormal psychology. Mahwah, NJ: Elsevier Publishers. Retrieved from http://books.google.com.my/books/about/A_History_of_Great_Ideas_in_Abnormal_Psy.html.
66. Winkel, F. W. (1987). Politie en voorkoming misdrijven: Effecten en neveneffecten van voorlichting (Doctoral dissertation, Mens en Recht).
67. Zaitun Sidin. (2000). "Pembangunan dan perkembangan kurikulum di universiti teknologi Malaysia". Prosiding Universiti Teknologi Malaysia: 143-162.
68. Zhou, M. & Brown, D. (2015). Educational learning theories: 2nd edition. Education Open Textbooks. 1.
69. Jurabaevich, S. N. (2019). Fundamentals of economic diagnostics and modeling in assessing socio-economic development. Test Engineering and Management, 81(11-12), 1607-1618. Retrieved from www.scopus.com
70. Lee, J. (2019). Study of migration and mobility in the age of disruption with socio-economic changes. Test Engineering and Management, 81(5-6), 1-4. Retrieved from www.scopus.com
71. Ramesh Babu, S., Chandrasekar, K., & Senthil Kumaran, N. (2019). Exploring the women preferences in tourism and plotting ways for economic growth in india. International Journal of Advanced Science and Technology, 28(19), 928-936. Retrieved from www.scopus.com