CULTIVATING TEACHERS’ CREATIVITY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

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ABSTRACT

Background and Purpose: Education for Sustainable Development (ESD) is a mechanism to educate people and make awareness toward sustainable development aims to develop competencies that enable and empower individuals to reflect on their actions. Although efforts to cultivate ESD have been implemented, government initiatives are still inadequate as the ESD issues, perspectives and skills integrate into various curriculum component that most research pursues are not apparent in the curriculum.

Methodology: This quantitative research design aims to identify the relationship between the components of creativity on the pedagogical practice of ESD among teachers. There are three components of creativity which are domain skills, creative thinking skills and motivation. As for ESD, there are three pedagogical practices, namely holistic ideas, routines and structures besides professional knowledge creation. This study has carried out a survey design and uses quantitative approach by distributing questionnaire to the respondents randomly, comprising of 98 teachers from TVET institutions in Johor, for data collection. The data derived from questionnaires is analyzed with the aid of the Statistical Packages for Social Science (SPSS) version 21. Descriptive statistics were used to identify the level of creativity components and ESD pedagogical practices among teachers in the TVET institution. The Spearman correlation has been used to evaluate the inferential statistical analysis by determining the relationship between the creativity components with ESD pedagogical practice among teachers in the TVET institution.
**Findings:** Based on the results, it showed that the teachers in the TVET institution had high level of creativity components and ESD pedagogical practices. The results of the Spearman correlation analysis showed a significant relationship between creativity component to the pedagogical practice of ESD with a value of \( r = 0.724 \) and \( \text{sig} = 0.000 \) (\( p < 0.05 \)). The analysis reveals a strong relationship between creative components and ESD pedagogical practice. This suggested that the teachers' level of creativity influences pedagogical practice of ESD since having creativity affects teachers' awareness and concern for the environment for sustainable development as well as achieving the country's educational goals.

**Contributions:** The results found a definite significant difference between the components of creativity on pedagogical practice for ESD among teachers in this TVET institution. Thus, the results of the study prove that the creativity component can influence pedagogical practice for ESD.

**Keywords:** Teachers, creativity, pedagogical practices, Education for Sustainable Development (ESD), Technical and Vocational Education and Training (TVET).


**1.0 INTRODUCTION**

According to UNESCO (2017), Education for Sustainable Development (ESD) is an integral part of national education policy. In 2012, 33% of reporting countries conveyed that ESD was compulsory in the curriculum, indicating the importance and visibility of ESD in national education policy. ESD is an inter-disciplinary learning method covering social, economic and environmental aspects in the formal and informal curriculum. The program funded by the Manitoba government requires the involvement of schools, teachers, students, parents and the community, researchers from various disciplines, besides the public to be involved in sustainable development activities. Other than that, ESD is commonly understood as education that encourages knowledge, skills, values and attitudes to enable a more sustainable and just society for all (Leicht, Heiss, & Byun, 2018). ESD aims to develop competencies that enable and empower individuals to reflect on their actions. ESD should be understood as an integral part of quality education and lifelong learning (Rieckmann, 2018).

Throughout history, the pursuit of a well-balanced life has been debated and become primary in the global conference’s dialogues. Peace, freedom, development and environment
were the initial preferences to set as the key themes of life (Wolff et al., 2017). While many nations worldwide have recognized the need for education to achieve sustainability, only a little progress has been made on this day. It is because few major issues have limited the advance of ESD. One of the issues is the lack of awareness of the importance of ESD within an educational institution. It is crucial to develop awareness among practitioner education because some are unaware of the critical linkages between education and sustainable development (Jasmi & Kamis, 2019). According to Kandangama (2018), the barrier to cultivating ESD among teachers and students is that educational institutions do not cultivate ESD as a crucial element in teaching and learning.

ESD was first formally implemented in the school system in Malaysia in 2001 through the Sustainable Environmental Award Program (SLAAS) in line with the goals of the National Environmental Policy and the international movement UN-DECADE (2005-2014) (Mahat & Idrus, 2017). Through the SLAAS Program, exposure to ESD and the activities that can contribute towards it can deliver by teachers in a planned program. Besides, it is clear that embedding ESD values within primary and secondary education curriculum yields positive results on the students both in the short and the long term as it: enhances their behavior towards their environment and their community, helps them acquire more citizenship values, and make them equipped with more sustained mindsets and skillsets (Zguir, Dubis, & Koç, 2021). Furthermore, Ab Majid & Ismail (2018) also state that teachers in Malaysia have good knowledge of information and communications technology (ICT) and are very good at teaching creativity and there is a moderate positive linear relationship for fostering creativity behaviour with 21st century classroom management.

Creativity can also enhance ICT teachers who consider integrating it in their teaching as expensive and less helpful, especially in an environment that lacks the resources needed to support digitization. Creativity in teaching involves using innovative pedagogical approaches, strategies and methods in teaching and collaborative skills. Previous studies have not shown any results regarding a set of structured interview questions conducted on Technical and Vocational Education and Training (TVET) program teachers selected to obtain perceptions of creativity and sustainability in TVET programs. According to Mahat et al. (2016) knowledge in implementing sustainability activities helps individuals gain various experiences and basic understanding to ensure environmental sustainability. By increasing the level of knowledge about the environment, it can form a positive attitude towards the environment (Qian, Yu, & Gao, 2021).
However, a large number of teachers view participation in community-based activities as a waste of time which can lead to poor performance by students and schools in general (Wanjala & Osendo, 2019). Creativity is often paid lip service, but in reality, most schools are currently experiencing a creativity gap with significantly more creative activity occurring outside of school. Numerous psychologists argue that creativity is not just an enrichment or add on in the classroom. It is a definable, measurable, set of psychological skills that enhance learning and will be necessary in the 21st century workforce (Short & Keller-Bell, 2021). The concept of creativity in education is constructed based on the sociocultural context in which creativity is actually practiced (So & Hu, 2019). In solving the shortcomings and constraints in implementing ESD, other alternatives can be nurtured through TVET teachers' creativity. Samsudin, Hassan, and Hasan (2014) stated that the application of sustainable development elements in the education and technology system is a very important matter. Due to the changing in industrial world, TVET institutions need to understand the in-depth concept of the theory and practice of sustainable development in the 21st century (Chinedu, Wan Mohamed, & Ogbonnia, 2018).

TVET providers should provide a curriculum that focuses on technical and vocational skills and needs to be balanced with sustainability values. Therefore, teachers' competence in deliberate the ESD element is very important in order to stretch awareness among their students (Chinedu et al., 2018). Various initiatives have been implemented to drive Malaysia towards becoming a high-income and developed economy in the future (Mokshein, 2019). Thus, the goal still remains through the availability of highly skilled human capital as high-income economies’ efforts. In this context, TVET providers play an important role in providing the skilled workforce needed for National Economic Transformation. The Malaysia Ministry of Education (MOE) recognizes the importance of TVET programs and curriculum in achieving its goals and aspirations to become a developed country forthcoming (Azizan, Pangil, & Zin, 2021). Consequently, teachers in TVET programs should have high skills and creativity to produce sustainable graduates.

However, the awareness of ESD concepts among teachers were still low and there were difficulties in including ESD programs into timetable besides obstacles in carrying out ESD programs due to lack of funds (Martin, Suryadi, & Juandi, 2019). In addition, the lack of teachers’ creativity during teaching and learning also become an impediment to cultivate ESD (Ilovan et al., 2019). There were several factors that can drive TVET teachers’ creativity if they eventually apply it to foster ESD pedagogical practices. Besides, some studies shows that the development of significant teacher creativity that can be a reference for TVET teachers. Ab
Halim et al. (2020) states that TVET institutions can further encourage the widespread use of Augmented Reality (AR) as their study showed that the level of knowledge of lecturers for AR technology is high. AR can provide additional information in learning to students that been displayed as a multimedia element and one of a new technology in Malaysian education (Bistaman, Idrus, & Abd Rashid, 2018). Thus, AR technology can help develop creativity in learning. Other than that, Torrance Tests of Creative Thinking version is a valid and reliable data collection instrument for research on creativity, innovation or higher thinking skills involving TVET respondents whose mother tongue is Malay (Madar, Chew, & Hamid, 2019).

There were also problems that been experienced by TVET institutions through the implementation of ESD. Roofe and Ferguson (2018) explains the outcomes is important for everyone to ensure harmony between people and planet and to secure an excellent future for generations to come. Also, based on the analysis, it is felt that the curriculum is less aligned between the components (objectives, content, learning experience, assessment, teaching strategies) that reflect ESD content, and there is a need to integrate more such content in the curriculum to ensure that TVET and ESD provide related benefits. Therefore, in seems that ESD in the TVET program needs to overcome the gap or missing link (Pavlova & Chen, 2019).

In dealing with ESD problems from the government, some researchers say there is a significant development in ESD. Experts have recommended that ESD need to be effective and it purpose intended to serve should be thoroughly integrate into the curriculum and practice of the institution (Chinedu et al., 2018). The level of attitude of Malaysian Teacher Education Institute (IPGM) administrators is at a high level as a whole towards the implementation of ESD. These findings clearly have positive implications and the program should be implemented in the future (Ellappan, Mahat, & Nayan, 2018). Besides, the integration of knowledge system and skills should be transparent without committing a dichotomy of knowledge unconsciously (Rekan, Kasim, & Yusoff, 2019).

TVET teachers will be responsible for training employees and developing their skills and abilities to work as needed to improve community well-being and community development. Teachers with good creativity can translate ESD into the methods and approaches used to orient ESD elements in the TVET curriculum involving students, lecturers, administration, and policymakers (Albareda-Tiana, Vidal-Raméntol, & Fernández-Morilla, 2019). Thus, this study's purpose to identify the level of creativity component, the pedagogical practice of ESD and the relationship between creativity components and the pedagogical practice of ESD among teachers in TVET institution at Johor, Malaysia. Furthermore, this research tends to
study the significant difference between teacher creativity components in the pedagogical practice of ESD through the following hypothesis:

Hₐ: There is a statistically significant linear relationship (correlation) between the creativity components with ESD pedagogical practice among teachers in the TVET institution.

H₀: There is no statistically significant linear relationship (correlation) between the creativity components with ESD pedagogical practice among teachers in the TVET institution.

The extent of ESD pedagogical practice among Technological in TVET academics is an educational mission to find a balance between human well-being and economic development with cultural traditions and respect against natural resources and the environment.

2.0 LITERATURE REVIEW

2.1 Amabile Creativity Model

![Diagram of Amabile Creativity Model](image)

Figure 1: Amabile creativity model (Amabile, 1988)

The Amabile approach stems from a clear and explicit theoretical creativity model as in figure 1. Creativity has many meanings for different people. Additional, creativity is closely related to individual ideas, feelings, thoughts, experiences and need without natural impulse, no significant productive mind issue. The first component of creativity in the Amabile Model adapted in this study is the domain of skills. Domains have a startup that use to get the effect of a functional instance that occurs. Domain specific knowledge is most likely emphasized by most conservatory educators in most centralized institutions, with little effort to prepare domain
general learning. It is a form of education and training designed to meet the economic needs of young and adults’ people who want to learn job skills and work to improve their standard of living.

The second component of creativity in the Amabile Model adapted in this study is creative thinking skills. This whole creative thinking about the appropriateness of differences helps students see how thinking is critical. Creative and higher-level thinking skills developed the goals of the FSP program through systematic problem-solving methods (Cramond & Fairweather, 2013). Integrating ESD into TVET programs based on teacher creativity is vital to acquiring information, including experiences promoting business growth and allowing characters to change their everyday experiences. The third component of creativity in the Amabile Model adapted in this study does urge, namely motivation. Motivational research aims to describe those parts of behavior into words about how they are. One of the collections from primary motivation modules regulating government operations, including control-related behaviors is considered to have theoretical and empirical reasons. A person's urge to achieve any particular purpose affects individual circumstances, including situational parts, everyday actions and consequences.

Figure 2: Interpretation of the Scherp model (Mogren et al., 2019)

Mogren and Gericke (2019) explain the Scherp Model in Figure 2 were based on the analysis of school organization in rectangular dimensions such as the school broad ESD approach. Since the Sustainable Development Goals (SDGs) came into force, UNESCO and other international organizations recommend empowering youths to implement the SDGs in the educational
process (Albareda-Tiana et al., 2018). The first pedagogical practice of ESD in the Scherp Model adapted in this study is a holistic idea. A holistic example is health care that focuses on the health of the whole body and mind and not just the body parts. Mogren and Gericke (2019) also stated that ESD manifests in each school's vision and holistic idea to prevent its neglect. Brentano and Husserl's phenomenological perspectives influenced the holistic idea and descriptive psychology of the process favoured by early Gestalt theorists because of 'immediately given' spatiality in the union consciousness (Smith, 2020).

The second pedagogical practice for ESD in the Scherp Model adapted in this study is routines and structures. In achieving this success, teachers need to practice creative routines and structures in their teaching and be exposed to various techniques, activities, strategies, approaches, skills and actions to ensure that students follow learning development. The third pedagogical practice for ESD in the Scherp Model adapted in this study is professional knowledge creation. The suggestion is to train teachers with research skills and be research practitioners, create opportunities to enhance knowledge among teachers, build academic networks that will enhance the validating and auditing teachers’ tacit and implicit knowledge, create a mentorship program to sharing experience and knowledge that will enhancing teacher knowledge creation, and enhance and support teachers’ collaboration efforts as part of internal reflections.

Figure 3: Conceptual Framework for the study
The conceptual framework in figure 3 shows the analysis tool with some variations and contexts. This study gives an impression that the respondents were a teacher in TVET institution at Johor, Malaysia. The Amabile model carries the concept of creativity used in the organizational domain (Jessurun, Anthonio, & Weggeman, 2020) and creativity requires greater attention and creativity in the digital era TVET sector (Douse & Uys, 2019). This model has components of domain skills, creative thinking skills and motivation. the Scherp Model to help researchers produce research instruments. This model is to measure the emphasis on the transformation process used to assess the type of ESD implementation that occurs (Mogren & Gericke, 2019). According to Mathie (2019), this model been determined through holistic ideas, routines, structures and professional knowledge creation. After determining the level of the two variables in this study, the researcher will finally determine the relationship of creativity component to the pedagogical practice of ESD among those teachers.

3.0 RESEARCH METHODOLOGY

According to Sekaran and Bougie (2016), research design is an action plan for collecting, measuring and analyzing data based on research questions. In addition, research design also includes several rational decision choices and should be presented so that it is easy to understand. A study plan implies some decisive structure toward progress that helps bridge research questions and implement or execute research. In achieving the objectives state, researcher need to obtain results and information on the relationship of teacher creativity component with the pedagogical practice for ESD teachers in one of the TVET institution at Johor.

A quantitative approach have been used in this study to obtain conclusive and definitive evidence in statistical analysis to identify the levels of the most dominant creativity components among teachers and the level in pedagogical practice for ESD among teachers as the dependent variable selected was the pedagogical practice of ESD teachers (Mohammad & Othman, 2018). A researcher can reduce errors with significant problems presented for discussion and several options for data analysis (Curtis, Comiskey, & Dempsey, 2016). This research was also carried out using survey design as an effective data collection method to accomplish the study objectives. In this research, the researcher choose random sampling because this sampling technique uses randomization technique that allows each individual in the populations to have an equal chance to be part of the selected sample (Stehman & Overton, 2020). Questionnaire is the main instrument for data collection in this study because it is the most appropriate tool to answer the research questions and meet research objectives, as it is generally easy to oversee
in the light of the fact that it was institutionalized (Ahmad et al., 2019) and also can be interpreted by all respondents in the same way.

3.1 Research Procedure
The first phase involves the initiation of the study with the selection of a topic and followed by a problem statement. The problem statement includes identifying the research problem, providing the research objectives and the research questions. Next, a systematic review of the literature conducts to obtain literature sources relevant to the study conducted as reference sources. The second phase involves identifying the problem areas and then preparing and refining the questionnaire queries before conducting the instrument's validity and the pilot study. The instrument's validity requires consideration from three experts in the field of the study before been proceed as a pilot study. A pilot study conducts to determine the reliability and improvement so that it is suitable to carry out the actual study. Finally, the third phase involves data collection process by applying prescribed study design. Assessment will be made through graphical representations, tables and test results to determine whether the hypotheses proposed in the study been accepted or rejected.

3.2 Research Instrument
A questionnaire has been used as an instrument in this study because it can save so much time to obtain research information. The questionnaire in this study has been modifying through Mogren and Gericke (2019) and Amabile (1988) study that contains the measurement on Teacher Creativity Contribution Level in ESD (C-ESD). The questionnaires have been compiled and distributed as an instrument of this study, including the whole aspects contained in the conceptual framework. This study has two (2) sections: part 1 is on the components of creativity among teachers and part 2 is pedagogical practice of ESD among teachers. Respondents will evaluate the question statement on a 5-point scale from the lowest point, which strongly disagrees (1) to the highest point strongly agree (5).
Table 1: Contents of the questionnaire instrument

<table>
<thead>
<tr>
<th>Section</th>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument of Teacher Creativity Contribution Level in ESD (C-ESD)</td>
<td>1. Components of creativity among Teachers</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>2. Pedagogical practice of ESD among Teachers</td>
<td>15</td>
</tr>
</tbody>
</table>

Descriptive statistics were used to analysis the data collection from Part (1) until Part (2) by finding mean, standard deviation, frequency and percentage through forming tables and graph. The data from both Part (1) and (2) on components of creativity and pedagogical practice of ESD among teachers were analyzed using frequencies and percentages. The data of the initial five-point Likert scale from both Part (1) and (2) were analyzed to determine whether the teachers’ creativity and pedagogical practice of ESD are at low, medium or high. The mean of data set was used as it was most accurate values to represent the data set. The mean score interpretations as shown in 2.

Tables 2: Mean score interpretation

<table>
<thead>
<tr>
<th>Interpretation Range</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1.00-2.33</td>
</tr>
<tr>
<td>Moderate</td>
<td>2.34-3.67</td>
</tr>
<tr>
<td>High</td>
<td>3.68 -5.00</td>
</tr>
</tbody>
</table>

The inferential statistic is used to study the comparison, relationship and effect of the variables. The Spearman correlation has been used to evaluate the inferential statistical analysis to address the third research question in determining whether there is any relationship between creativity within teachers with their pedagogical practice of ESD. The Spearman’s correlation analysis is performed on this data set because it may therefore be more appropriate for data with large outliers that hide meaningful relationships between series or for series that are not normally distributed.
Table 3: The interpretation of correlation coefficient value

<table>
<thead>
<tr>
<th>Correlation coefficient value, r</th>
<th>Strength of linear relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8</td>
<td>Very strong</td>
</tr>
<tr>
<td>0.5 &lt; r &lt; 0.8</td>
<td>Moderately strong</td>
</tr>
<tr>
<td>0.3 &lt; r &lt; 0.5</td>
<td>Fair</td>
</tr>
<tr>
<td>&lt; 0.3</td>
<td>Poor</td>
</tr>
</tbody>
</table>

4.0 ANALYSIS AND DISCUSSION

A total of 98 questionnaires were distributed by the researchers using the online method through Google Form to respondents in one of the TVET institution at Johor. The questionnaires are divided into two sections: Part (1) is on the components of creativity among teachers and Part (2) is pedagogical practice of ESD among teachers. There are three components of creativity to identify creativity among teachers: domain skills, creative thinking skills and motivation and the pedagogical practice of ESD divides into holistic ideas, routine and structure and professional knowledge creation. The results of the analysis of the study are based on the objectives of the study and research questions focusing on the instrument of C-ESD.

Table 4 shows the results of descriptive analysis of the study for each item in the domain skills elements. The results of the study showed that the item "I make the best use of my allotted time" (M = 4.57, SD = 0.56) obtained the highest mean value from other items, followed by the item "I provide activities appropriate to the topic of instruction" (M = 4.52, SD = 0.50). While the item that obtained a moderate mean value was the item "I have my method of controlling students in the classroom" (M = 4.38, SD = 0.60), followed by the item "I have a high understanding of teaching" (M = 4.37, SD = 0.58). The item with the lowest mean value is the item "I can give direction and motivate others to work for a common purpose" (M = 4.19, SD = 0.60).
Next, table 5 shows the results of descriptive analysis of the study for each item in the elements of creative thinking skills respondents. The results of the analysis of the study showed that the item "I create a tender and accepting environment in the classroom" (M = 4.50, SD = 0.65) obtained the highest mean value from the other items, followed by the item "I included an element of humor in the teaching" (M = 4.37, SD = 0.66). Subsequent, the item that obtained a moderate mean value was the item "I accept problems with an open mind" (M = 4.35, SD = 0.86), followed by the item "I highlight creative potential with the use of Information and Communication Technology" (M = 4.34, SD = 0.66). The item with the lowest mean value was "I encourage autonomy to the students themselves" (M = 4.08, SD = 0.70).

Additionally, table 6 shows the results of descriptive analysis of the study for each item in the motivation element of the respondents. The results of the analysis of the study showed that the
item "I want to know how well I can work in my workplace" (M = 4.52, SD = 0.61) obtained the highest mean value from the other items, followed by the item “I am satisfied on the new experiences no matter what is the outcome” (M = 4.47, SD = 0.58). Then, the item that obtained a moderate mean value was the item "I am very motivated by the recognition on me from others" (M = 4.41, SD = 0.62), followed by the item "I am very motivated to teach with the salary been earn" (M = 4.38, SD = 0.73). The item with the lowest mean value is "I feel happy to overcome a completely new problem” (M = 4.22, SD = 0.65).

Table 6: Descriptive analysis of items in motivation

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel happy to overcome a completely new problem</td>
<td>98</td>
<td>4.22</td>
<td>0.65</td>
<td>Moderate high</td>
</tr>
<tr>
<td>2</td>
<td>I want to know how well I can work in my workplace</td>
<td>98</td>
<td>4.52</td>
<td>0.61</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>I am very motivated to teach with the salary been earn</td>
<td>98</td>
<td>4.38</td>
<td>0.73</td>
<td>Moderate high</td>
</tr>
<tr>
<td>4</td>
<td>I am very motivated by the recognition on me from others</td>
<td>98</td>
<td>4.41</td>
<td>0.62</td>
<td>Moderate high</td>
</tr>
<tr>
<td>5</td>
<td>I am satisfied on the new experiences no matter what is the outcome</td>
<td>98</td>
<td>4.47</td>
<td>0.58</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>

Resulting, Table 7 shows the descriptive analysis of creativity component among teachers. In measuring each creativity component in the C-ESD, the mean value is used to determine each element of the question and respondent evaluation towards agreeing shows a mean value exceeding the value of 3.5. The analysis results showed that the creativity for the skills domain component with a mean value (M = 4.41, SD = 0.45) is the highest of the other creativity components. This is followed by motivation component (M = 4.40, SD = 0.45), while creative thinking skills component showed the lowest creativity (M = 4.33, SD = 0.49).

Table 7: Descriptive analysis of creativity component among teachers (n=98)

<table>
<thead>
<tr>
<th>Element</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain skills</td>
<td>4.41</td>
<td>0.45</td>
<td>Moderate high</td>
</tr>
<tr>
<td>Creative thinking skills</td>
<td>4.33</td>
<td>0.49</td>
<td>Moderate high</td>
</tr>
<tr>
<td>Motivation</td>
<td>4.40</td>
<td>0.45</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>
In addition, table 8 shows the results of descriptive analysis of the study for each item in the holistic element of the respondents' ideas. The results of the analysis of the study showed that the item "My school’s holistic vision influenced my daily work as a teacher." obtained the highest mean value from the other items (M = 4.26, SD = 0.61), followed by the item "My school's holistic vision is usually used as a starting point when we plan our work." That is, the mean value is (M = 4.24, SD = 0.59). While the item that obtained a moderate mean value was the item "My pedagogical practice is consistent with my school's holistic vision." that is, the mean value is (M = 4.21, SD = 0.58), followed by the item "My school's holistic vision is accepted as a basis for evaluating our work." that is, the mean value is (M = 4.18, SD = 0.60). The item with the lowest mean value was the item "I work all day systematically to apply the holistic pedagogical ideas of our school." with a mean value (M = 4.16, SD = 0.57).

Table 8: Descriptive analysis of items in the holistic element of the idea

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My school’s holistic vision influenced my daily work as a teacher</td>
<td>98</td>
<td>4.26</td>
<td>0.61</td>
<td>Moderate high</td>
</tr>
<tr>
<td>2</td>
<td>My school’s holistic vision is accepted as a basis for evaluating our work.</td>
<td>98</td>
<td>4.18</td>
<td>0.60</td>
<td>Moderate high</td>
</tr>
<tr>
<td>3</td>
<td>My school’s holistic vision is usually used as a starting point when we plan our work</td>
<td>98</td>
<td>4.24</td>
<td>0.59</td>
<td>Moderate high</td>
</tr>
<tr>
<td>4</td>
<td>My pedagogical practice is consistent with my school’s holistic vision.</td>
<td>98</td>
<td>4.21</td>
<td>0.58</td>
<td>Moderate high</td>
</tr>
<tr>
<td>5</td>
<td>I work all day systematically to apply the holistic pedagogical ideas of our school</td>
<td>98</td>
<td>4.16</td>
<td>0.57</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>

Formerly, table 9 shows the results of descriptive analysis of the study for each item in the elements of routine and structure of the respondents. The results of the analysis of the study show that the item "In our school, routines and structures are adapted as we increase our knowledge of how we can best contribute to student progress." obtained the highest mean value from the other items (M = 4.40, SD = 0.53) followed by the item "In our school, routines and structures are tailored to enhance our knowledge of how we can best contribute to student progress." That is, the mean value is (M = 4.22, SD = 0.51). While the item that obtained a moderate mean value was the item "Our school routines and structures are designed to facilitate the implementation of our holistic vision." that is, the mean value is (M = 4.17, SD = 0.52).
Followed by the item "The existence of routines and structures facilitates the implementation of the idea of holistic school pedagogy." that is, the mean value was (M = 4.13, SD = 0.67). The item with the lowest mean value is the item "In our school, school leaders create organizational conditions that promote learning with staff based on pressing issues." with a mean value (M = 4.09, SD = 0.76).

Table 9: Descriptive analysis of items in routine and structure elements

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Our school routines and structures are designed to facilitate the implementation of our holistic vision</td>
<td>98</td>
<td>4.17</td>
<td>0.52</td>
<td>Moderate high</td>
</tr>
<tr>
<td>2</td>
<td>In our school, routines and structures are tailored to enhance our knowledge of how we can best contribute to student progress</td>
<td>98</td>
<td>4.22</td>
<td>0.51</td>
<td>Moderate high</td>
</tr>
<tr>
<td>3</td>
<td>In our school, school leaders create organizational conditions that promote learning with staff based on pressing issues</td>
<td>98</td>
<td>4.09</td>
<td>0.76</td>
<td>Moderate high</td>
</tr>
<tr>
<td>4</td>
<td>The existence of routines and structures facilitates the implementation of the idea of holistic school pedagogy</td>
<td>98</td>
<td>4.13</td>
<td>0.67</td>
<td>Moderate high</td>
</tr>
<tr>
<td>5</td>
<td>In our school, routines and structures are adapted as we increase our knowledge of how we can best contribute to student progress</td>
<td>98</td>
<td>4.40</td>
<td>0.53</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>

Moreover, table 10 shows the results of descriptive analysis of the study for each item in the professional knowledge creation element of the respondents. The results of the analysis of the study show that the item "I work in groups for long periods (term or school year) to learn more about any problem and others interested issue that occur" (M = 4.29, SD = 0.59) and "My school administration have promoted systematic effort in enhancing student development" (M = 4.29, SD = 0.59) obtained the highest mean value compared to other items. This is followed by the item that obtained a moderate mean value which is "I am focusing my teaching development efforts on more important areas" (M = 4.18, SD = 0.74) and "I am adoring discussion on other’s ideas on how to contribute in student development in our school" (M =
4.15, SD = 0.58). The item with the lowest mean value was on "I will question students to know the feedback on my teaching and learning process" (M = 4.09, SD = 0.68).

Table 10: Descriptive analysis of items in professional knowledge creation

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am focusing my teaching development efforts on more important areas</td>
<td>98</td>
<td>4.18</td>
<td>0.74</td>
<td>Moderate high</td>
</tr>
<tr>
<td>2</td>
<td>I work in groups for long periods (term or school year) to learn more about any problem and others interested issue that occur</td>
<td>98</td>
<td>4.29</td>
<td>0.59</td>
<td>Moderate high</td>
</tr>
<tr>
<td>3</td>
<td>I will question students to know the feedback on my teaching and learning process</td>
<td>98</td>
<td>4.09</td>
<td>0.68</td>
<td>Moderate high</td>
</tr>
<tr>
<td>4</td>
<td>I am adoring discussion on other’s ideas on how to contribute in student development in our school</td>
<td>98</td>
<td>4.15</td>
<td>0.58</td>
<td>Moderate high</td>
</tr>
<tr>
<td>5</td>
<td>My school administration have promote systematic effort in enhancing student development</td>
<td>98</td>
<td>4.29</td>
<td>0.59</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>

Table 11 shows the results of descriptive analysis of ESD pedagogical practice among teachers. In measuring each ESD pedagogical practice for the instrument of C-ESD, the mean value is used to determine the assessment for each element of the questionnaire and the respondent view towards agreeing have shown a mean value exceeding 3.5. Overall, the results showed that the ESD pedagogical practice for holistic ideas component (M = 4.21, SD = 0.48) is the highest of other ESD pedagogical practices. This is followed by routine and structure component (M = 4.204, SD = 0.40) while professional knowledge creation component (M = 4.200, SD = 0.4) showed the lowest ESD of pedagogical practice.

Table 11: Descriptive analysis of ESD pedagogical practice among teachers (n=98)

<table>
<thead>
<tr>
<th>Element</th>
<th>Mean</th>
<th>SD</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistic idea</td>
<td>4.21</td>
<td>0.48</td>
<td>Moderate high</td>
</tr>
<tr>
<td>Routine and structure</td>
<td>4.20</td>
<td>0.40</td>
<td>Moderate high</td>
</tr>
<tr>
<td>Professional knowledge creation</td>
<td>4.20</td>
<td>0.43</td>
<td>Moderate high</td>
</tr>
</tbody>
</table>
Finally, Table 12 shows the results of the analysis of relationship of creativity component to the pedagogical practice of ESD among those teachers in one of the TVET institution at Johor. Spearman correlation analysis showed a significant relationship between creativity component to the pedagogical practice of ESD with a value of $r = 0.724$ and $\text{sig} = 0.000$ ($p < 0.05$). The analysis shows that there is a high positive correlation between creativity components to the pedagogical practice of ESD. Therefore, the study results prove that the relationship between creativity components influences the pedagogical practice of ESD among teachers in this TVET institution. From the Spearman correlation analysis conducted on this research question, the researcher can conclude that the research hypothesis, $H_a$ is accepted, and the research hypothesis, $H_0$ is rejected.

Table 12: The relationship between creativity components to the pedagogical practice of ESD among teachers

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Educational Sustainable Development</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity</td>
<td>$r$</td>
<td>0.724</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>98</td>
</tr>
</tbody>
</table>

The first research question in this study was to identify the level of creativity component among teachers in this TVET institution, which consists of domain skills, creative thinking skills and motivation. The results obtained indicated that the component of creativity on domain skills component is at the highest level. Such influence will have implications for the formation of human capital aspired by the state. According to Fujii (2021), domain related skills include a knowledge of facts, technical skills and unique talents in a particular domain or into the domain being venture. In addition, according to Depaepe, Verschaffel, and Star (2020), the domains of teacher competence, namely knowledge, skills and attitudes and personalities of teachers, are seen to have a significant influence on creative teaching practices. Such influence will have implications for the formation of human capital aspired by the state. Beside, Sarabani (2021) state that teachers' effectiveness in learning by teachers is influenced by the level of creativity of teachers in imparting knowledge in the classroom. In order to attract students to learn the on the subjects studied, the use of multimedia as the latest technique in teaching and learning is essential. Therefore, teaching and learning today requires innovation and creativity in order to help raise student achievement (Fitria & Suminah, 2020).
Subsequent, the second research question in this study is to identify ESD pedagogical practices among teachers in this TVET institution which consists of pedagogical practices in holistic ideas routines and structures and professional knowledge creation. Respondent have shown a high level of ESD on pedagogical practice for Routine and structure, holistic idea and professional knowledge creation. According to Tristananda (2018), ESD is a broad teaching and learning process that encourages an interdisciplinary and holistic approach that promotes critical and creative thinking in the educational process. By adopting and integrating these elements holistically, ESD enables all individuals to acquire the knowledge, perspectives, values and skills needed to make relevant decisions to improve the quality of life now but still prioritize the needs of future generations (Nousheen et al., 2020) Therefore, training and workshops especially in TVET institution need to be propose in order to enhance the professional development of prospective teachers. Besides, further research also needed to increase the value and intention to integrate ESD as the practice of ESD processes has enables the creation of intelligent, sustainable, resource-efficient, personalised and adaptive learning environments (Cebrian, Palau, & Mogas, 2020).

To sum up, the third research question was to identify the relationship between the creativity components with ESD pedagogical practice among teachers in this TVET institution. The findings state that the relationship between creativity and ESD is high and this indicates that the creativity component can influence the pedagogical practice of ESD among teachers in this TVET institution better. Restrepo et al. (2017) has shown the importance of the link between theory and practice during critical reflection that enables us to understand the relationships between ESD competency characteristics and categories of pedagogical styles in professional development.

Therefore, the ESD vision link to reviving the system by placing their inspiration in the TVET curriculum through creativity that focusing on sustaining TVET programs. This thing shows that creativity and ESD can provide good benefits to TVET in line with the purpose of the study, which shows creativity has a significant relationship to ESD. Jauhariyah et al. (2021), state that to implement the level of creative problem solving optimally, it is necessary to have a role as a lecturer who facilitates the creation of physics education in building a physics curriculum based on ESD. Likewise, in order for learning activities to direct and foster self-organized learning, the observation of lecturer behaviour needs to foster physics education creativity in a creative problem-solving environment (Jauhariyah et al., 2019). Moreover, according to Andresen, Høgmo, and Sandås (2015), Norway, like other European countries, supports and agrees to implement ESD as outlined in the UNESCO Decade on ESD (2005-
2014) (DESD) as ESD enables every human being to acquire the knowledge, skills, attitudes and values needed to shape a sustainable future.

5.0 CONCLUSION
In conclusion, this study has been conducting to identify the relationship between creativity components consisting of domain skills, creative thinking skills and motivation on the pedagogical practice of ESD consisting of holistic ideas, routine & structure and professional knowledge creation among teachers in one of the TVET institution at Johor. The study conducted by the researcher have answered all the research questions that been identified as the researcher hopes that this study can contribute to the stakeholders in implementing and assisting TVET teachers in Malaysia in terms of creativity and innovation in TVET as the creativity component can influence the pedagogical practice of ESD among teachers have been proven. ESD is generally a process to develop students' concerns, abilities, attitudes and values. ESD must be integrated into learning activities to instill awareness and concern for the environment for sustainable development. Creativity is one of the potentials of students that the country's educational goals must develop. Students' creativity can be developed through learning activities that can improve students' creative thinking skills, such as the Project-Based Learning model. Creative thinking can be formulated as the ability to think based on available data or information and find many possible answers operationally; creativity can be formulated as the ability to think or give ideas smoothly, flexibly, and originally and elaborate ideas. Therefore, further and continuous research needs to implement to provide benefits and contributions to researchers who want to research the components of creativity and pedagogical practice in ESD involving TVET teachers in general.

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REFERENCES


