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Preschool Teachers' Perceptions on Classroom Practices to Sustain Environmental Education Development

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ABSTRACT

In light of an increasing global environmental crisis, children need to become individuals who are sustainably conscious and responsible towards the environment. However, past research has shown that most preschool children merely acquired knowledge of sustainability but lack practical applications in their daily lives. This research study aims to look into preschool teachers' perceptions of Education for Environmental Sustainable Development (ENV-ESD), the level of integration of sustainability practices in classrooms, and the relationship between the two variables stated above. The study adopted a quantitative research design through survey research by using questionnaires. A total of 64 preschool teachers took part in this study from several private preschools in Petaling Jaya, a city in the Petaling District, in the state of Selangor, Malaysia. Results were then analysed by using descriptive and inferential statistics. Findings from the study revealed that although preschool teachers have positive perceptions towards Education for Environmental Sustainable Development (ENV-ESD), there is still room for improvement to integrate sustainability practices into the classroom's daily routines as the relationship between the preschool teachers' perceptions of Education for Environmental Sustainable Development (ENV-ESD) and the level of integration of such practices in classrooms is weak.

Keywords: Education for environmental sustainable development; Sustainability practices; Perceptions; Preschool teachers; Early childhood education.

1. INTRODUCTION

An environment refers to all the living and non-living things that interact with each other to sustain life on this earth. In the world of 21st century we live in, rapid population growth, limited resources in the world and lack of environmental awareness threaten all living things (Stavreva et al., 2022). Through the years, the quality of the Earth's environment has deteriorated due to different types of human activity, which have resulted in several environmental disasters like pollution, global warming, climate change, depletion of the ozone layer, and many more. In addition, the Earth's natural resources are constantly being exploited without proper replacement which further leads to the imbalance of ecological systems and biodiversity. According to the Malaysian Department of Environment (2020), the country is suffering from air pollution due to industrialisation and fossil fuel combustion, land pollution due to problematic waste management, water pollution due to the discharge of chemicals into the ocean, and marine pollution due to single-use plastics found at the beach. These same environmental problems occur everywhere else in the

world and have become a serious global issue. During the 1972 United Nations Conference on the Human Environment, the concept of "sustainable development" was first introduced in the Stockholm Declaration (United Nations, 1972, p. 1). As defined by the World Commission on Environment and Development (1987, p. 43), sustainable development is an approach to changes to "meet the needs of the present without compromising the ability of future generations to meet their own needs".

Environmental Education (EE) was first introduced during the 1992 Rio de Janeiro Earth Summit organised by the United Nations. Agenda 21 in EE has been recognised as a crucial tool to promote sustainable consumption. According to Türkoğlu (2019), Environmental Education which is based on sustainability principles focuses on the coexistence and harmony between people and nature. It is thus a process that enables individuals to raise awareness of the problems faced by our environment, engage in solving these problems and take action for a better environment in future. However, in line with the changes in the world, EE has since evolved to become Education for Sustainable Development (ESD). Such educational reform is carried out to shift towards a more sustainable lifestyle in terms of its three pillars - environment, economy, and social and cultural for both present and future generations (UNESCO, 2002). Studies have been conducted henceforth by several researchers to evaluate Education for Environmental Sustainable Development (ENV-ESD). Researchers such as Joshi (2009), Moroye (2005), and Sterling (2003) have collectively found that education is the greatest agent of change to equip the current and future generations with knowledge and awareness of sustainability. Moreover, early childhood environmental education is envisioned as a unique form of environmental education that influences the emergence of various approaches and philosophical orientations (Ernst et al., 2019).

Since 2015, UNICEF introduced a global action known as the Sustainable Development Goals (SDGs) that act as a framework to ensure that no child is left behind by 2030. Following the lead by the United Nations (UN) body, the Malaysian Ministry of Education has begun to integrate EE into the National Preschool Curriculum Standard (NPCS) under the Humanity Strand KM5.0 "The Environment and I" (Ministry of Education, 2017). Out of the 17 SDGs laid down by the UN, 6 goals are closely related to the environment (UNICEF, 2020). The 6 goals are clean water and sanitation, affordable and clean energy, responsible consumption and production, climate action, life below water, and life on land. Malaysia has therefore renewed its commitments to implement SDGs to better meet the needs of children and reduce inequality. This is evident when Malaysia has included SDG in the latest version of the 12th Malaysia Plan.

Another SDG that is of paramount importance is quality education. This is related to Agenda 21 in the EE which stated:

> *"Children not only will inherit the responsibility of looking after the Earth, but in many developing countries they comprise nearly half the population. The specific interests of children need to be taken fully into account in the participatory process on environment and development in order to safeguard the future sustainability of any actions taken to improve the environment." (United Nations, 1992)*

In Malaysia, several researches have been conducted to study the effectiveness of Malaysia's education system and curriculum on EE. Mohmadisa and Mohamad Suhaily Yusri (2005) and Mohammad Zohir and Sharifah Norhaidah (2005) have found that EE has not been fully implemented. Another study conducted by Neo et al. (2016) found that although Malaysians are equipped with the knowledge of the need to take care of the environment, most of the citizens do not carry out the necessary actions. Other studies have also shown that there is a low awareness and commitment level to environmental issues in school communities (Aini et al., 2009; Arba'at et al., 2009; Fatimah et al., 2011; Mohammad Zohir, 2009; Nor Aznan et al., 2010). In yet another study by Hanifah et al. (2015) on five hundred (500) 6-year-old preschool children, the results revealed that although the level of knowledge of environmentally sustainable development of preschool children is high, the practical application of 3R (reduce, recycle, reuse) is merely at a moderate level. Preschool children are only equipped with environmentally sustainable development knowledge but lack practical application of sustainability practices. There is therefore no continuity and preservation of knowledge by the preschool children (Mahat, 2019).

Therefore, the question remains whether preschool teachers in Malaysia are equipped with positive perceptions to integrate sustainable practices in the early childhood education classroom. In this study, teachers from several private preschools in the city of Petaling Jaya were chosen as respondents. This is because the syllabus used in private preschools could be modified and does not completely comply with the National Preschool Curriculum Standard (NPCS), and with the elements of Environmental Education (EE) in it (Lily & Mohamed, 2013). The three research objectives formulated on Preschool Teachers' Perceptions of Classroom Practices to Sustain Environmental Education Development are:

i. To identify preschool teachers' perceptions towards Education for Environmental Sustainable Development (ENV-ESD).
ii. To determine preschool teachers' level of integration of environmental sustainability practices in classrooms.
iii. To examine the relationship between preschool teachers' perceptions of Education for Environmental Sustainable Development (ENV-ESD) and the level of integration of environmental sustainability practices in classrooms.

2. LITERATURE REVIEW

Education is the greatest agent of change to nurture children who are able to conserve and preserve the environment in a sustainable manner (European Panel of Sustainable Development, 2010). The aim of the efforts for environmental protection, developmental and improvement is to ensure that individuals live in a healthier and safer environment (Stavrevaet et al., 2022). According to Agut et al. (2014), early childhood education is the prior step toward practising a sustainable life. This is because children are already able to show the virtues of responsibility and care for others in their early years, in which their curiosity level towards the environment is accounted to be the highest (Ozdermer & Uzun, 2006). Studies have also shown that children develop their thinking and feeling toward the environment at this stage which follows suit with the passage of years (Palmer, 1999). When children are taught about the natural environment from young, social consciousness to protect the environment will be moulded, further leading to more positive and self-conscious attitudes and behaviours in their future (Erten, 2003).Children thus need to be nurtured with a sense of respect and care for the natural environment from a young age, or else there is a risk that they will not develop these attitudes in later life (Stapp, 1978; Tilbury, 1994). According to recent researches, environmental education could lead to a change in relationship between the nature and human, thus empowering social transformation to raise children who are environmentally conscious (Ragni et al., 2021; Ricoy & Sanchez-Martinez, 2022).

In relation to the importance of Education for Environmental Sustainable Development (ENV-ESD) in the early years, teachers thus play important roles in the classrooms. As quoted by Bergan et al. (2021), teachers are crucial to conduct authentic practices that are related to environmental, social and cultural sustainability. They bear a huge responsibility to act as both (i) transmitters of knowledge and (ii) co-constructors of behaviours to the children. The role of an educator as a knowledge transmitter rings with Vygotsky's Sociocultural Theory, which suggests that children learn and develop in their cognitive growth through social interaction with more knowledgeable peers and their cultures (Vygotsky, 1978). A positive learning environment offers a socially supported environment where the children are then able to apply their acquired knowledge based on what they have learned. Davidova and Kokina (2002) has proven that Vygoysky's theory is useful to handle issues related to sustainable development and environmental education. In order to achieve a socially supported environment, a teacher needs to firstly be equipped with a positive mindset, attitude and behaviour towards the environment so that children can interact positively with their peers on environmental issues (Summers, 2000). This thus comes down to the perceptions of preschool teachers on Education for Environmental Sustainable Development (ENV-ESD) because teachers' perceptions will influence their own attitude and behaviour towards the environment. As supported by Gan and Gal (2018) and Malandrakis (2018), how teachers perceive their own understanding of ESD aspects and their ability to integrate such practices are important. A teacher who shows interest will influence the children to prolong their interest and dive in deeper to the topic (Heggen and Lynngard, 2021).

However, knowledge alone does not easily lead to a change in behaviour (Kollmuss and Julian, 2013). It is the responsibility of the teachers to transform knowledge into actions by integrating environmental sustainability practices into the classrooms through the daily routines of children (Chauhan et al., 2012). Teachers and educators are the most effective deliverer of education to our young ones (Liu, 2009) and they should become the co-constructor of behaviour to nurture young children in becoming generations that can make the linkage between their knowledge and actions in daily lives. The Ecological System Theory upholds that the context that a child lives in will influence his or her behaviours and attitudes (Bronfenbrenner, 1986). As such, teachers should integrate environmental sustainability practices into the classrooms through the daily routines of children. Some examples of environmental sustainability practices that could be practiced in classrooms are requiring the students to bring their own handkerchiefs to school instead of using toilet papers to dry their hands, encouraging the use of recycled materials during arts and crafts session, setting up a "Recycling Corner'' in school, reducing the usage of air conditioner in classrooms and so on. This is done to ensure that children can make meaning and apply those environmental sustainability practices in their real lives as well.

Recent studies such as Butul (2021) and Meier and Sisk-Hilton (2017) have shown that although

teachers are having positive perceptions towards the natural environment, there will still be misconceptions. Some teachers were also not equipped to bring the full educational experience of learning in nature to the children in their classrooms which result in children could not develop a thorough understanding of sustainability (Butul, 2021; Meier & Sisk-Hilton, 2017). The linkage between teachers' perceptions and level of integration of sustainability practices thus comes into light, but the research gap as mentioned above will be further looked into and filled in in this paper.

3. METHODOLOGY

3.1 Research Method

This research study utilises a descriptive research design, which is a method using surveys or questionnaires to describe, compare and correlate information from a population of samples based on the quantitative data collected. The sample for this research study was taken by using the purposive sampling strategy which constituted a group of preschool teachers from several non-government (private) preschools in the area of Petaling Jaya, Selangor, Malaysia. A total of 64 preschool teachers took part in this study.

In Malaysia, there are numerous works of literature on Education for Environmental Sustainable Development (ENV-ESD). Most were conducted in preschools owned by the government. However, few studies were conducted in private preschools. In addition, there appears to be a gap in the curriculum used in private preschools as they could modify the National Preschool Curriculum Standard (NPCS) and miss out on Environmental Education.

3.2 Research Instrument

The instrument used to collect the data for this study is a set of questionnaires with 3 sections. Section A comprises six questions seeking background information and qualification of teachers. Section B comprises 16 questions that sought preschool teachers' perceptions of Education for Environmental Sustainable Development (ENV-ESD). Section C comprises 12 questions that sought preschool teachers' level of integration of environmental sustainability practices in the classrooms.

In Section B, the teachers were asked to indicate their perceptions towards Education for Environmental Sustainable Development (ENV-ESD) based on a 4-point Likert scale and multiple-choice questions. The items in this section were adapted and modified from three past studies conducted by Maidou et al. (2019), Cotton et al. (2007), and Park, et al. (2016). For questions 1–13, the teachers responded by selecting the answer that most reflected their personal beliefs with a scale ranging from 1= strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. For questions 14–16, the teachers had to select their answer(s) from a given set of choices regarding the following: (i) the teaching approaches that are most effective to deliver ENV-ESD, (ii) the most difficult aspect to implement ENV-ESD, and (iii) the most important necessary action to implement ENV-ESD.

In Section C, the teachers were asked to indicate their frequency of integrating environmental sustainability practices in the classrooms which will determine its level of integration based on a 5-point Likert scale. The items in this section were adapted and modified from research conducted by Raman and Abu Bakar (2019). The teachers responded by selecting the answer that most reflected their frequency of practices: 1= almost never, 2 = rarely (once per month), 3 = sometimes (once per week), 4 = regularly (2-4 times per week), and 5 = often (daily). The items in this section were further classified into four categories, namely (i) 3R practices, (ii) usage of eco-friendly products, (iii) usage of electricity and water and (iv) others.

The Cronbach's μ reliability coefficient for the Perceptions and Level of Integration scale was found to be reliable, with a Cronbach's μ value of 0.80. According to Deniz and Alsaffar (2013), Cronbach's μ that ranges from r = 0 to 1, with r = 0.70 or greater is considered as sufficiently reliable. On the other hand, content validity was measured to examine the validity of this study. The instrument of this study was reviewed and commented on by a panel of experienced lecturers from the Faculty of Education, Languages and Psychology of a local university, who are professionals in their field.

4. DATA ANALYSIS

The questionnaire was constructed in both softcopies by using Google Forms and hardcopy. Preschool teachers from preschool centres, which are located within Petaling Jaya, Selangor were first identified and contacted. Emails were sent out to invite these preschool teachers to take part in this research study and once they have given their consent, the survey questionnaires were sent out for them to complete.

Initially, the researcher sent out the questionnaires to one hundred (100) teachers. However, the questionnaire collected back was only 64. This is due to the incomplete responses from the respondents, in which the remaining 36 surveys need to be eliminated. The data collected were then analysed using Statistical Package for the Social Science (SPSS) version 22.0 for Windows software. Sections B and C of the research study were analysed and described by using descriptive statistics. Inferential statistics were also used through Pearson's Correlation test to determine the relationship between preschool teachers' perceptions of Education for

Environmental Sustainable Development (ENV-ESD) and the level of integration of environmental sustainability practices in classrooms.

5. RESULTS

5.1 Demographics of respondents

Table 1 shows the profile of teachers who took part in this study. Among the 64 respondents, there was a total of 63 female teachers, accounting for 98.40% of the respondents while there was only 1 male teacher (1.60%). Regarding the age group, 43 respondents (67.20%) were in the age group of 18-24 years old, 13 respondents (20.30%) were in the age group of 25-34 years old, 6 respondents (9.40%) were 35-49 years old, while 2 respondents (3.10%) were in the age group of 50-65 years old. There were no respondents aged 65 years old and above. On the other hand, 40 teachers (62.50%) were Bachelor's Degree holders, 15 teachers (23.40%) were Diploma holders, 5 teachers (7.80%) held an 'O' level (SPM) certificate and 2 teachers (3.10%) were qualified in Masters while 1 respondent (1.60%) had a Ph.D. In terms of years of experience, 54 respondents (84.40%) had 1–5 years of teaching experience, 6 respondents (9.40%) had 6-10 years of experience, 1 respondent (1.60%) recorded teaching experience of 11-15 years while 3 respondents (4.70%) had above 15 years of experience in Early Childhood classrooms. Furthermore, the majority of the 39 respondents (60.90%) were assistant teachers while 21 respondents (32.80%) were class teachers. Another 4 respondents (6.30%) considered themselves in the category of others which include principals and lecturers. Based on their background in Environmental Education (EE) during their formal studies, a total of 37 respondents (57.80%) answered yes while 27 respondents (42.20%) answered they had never received EE before.

5.2 Preschool Teachers' perceptions towards Education for Environmental Sustainable Development (ENV-ESD)

Table 2 shows the distribution of the total mean score and standard deviation of the preschool teachers' perceptions towards Education for Environmental Sustainable Development (ENV-ESD) in this survey. The midpoint score is calculated by having 13 (total numbers of questions from Q1-Q13) times 2.5 (lower limit on Likert scale of 1 plus upper limit on Likert scale of 4 divided by 2), which equals 32.50. With a total of 64 respondents who took part in this study, the mean score for the preschool teachers' perceptions is 44.94 with a standard deviation of 4.10. As the mean score (44.94) is higher than the midpoint score (32.50), this indicates that teachers have a more positive perception of Education for Environmental Sustainable Development (ENV-ESD).

Table 3 shows the ranking of frequency of the perceptions of preschool teachers towards Education for Environmental Sustainable Development (ENV-ESD) from

Table 1: Profile of teachers

Category	Sub category	Frequency	Percentage (%)
Gender	Female	63	98.40
	Male	1	1.60
Age	18–24 year-old	43	67.20
	25–34 year-old	13	20.30
	35–49 year-old	6	9.40
	50–64 year-old	2	3.10
	65 years old and above	0	0.0
Qualification	SPM	5	7.80
	STPM	0	0.00
	Certification	1	1.60
	Diploma	15	23.40
	Degree	40	62.50
	Masters	2	3.10
	PhD	1	1.60
Years of Experience	1–5 years	54	84.40
	6–10 years	6	9.40
	11–15 years	1	1.60
	Above 15 years	3	4.70
Position	Class teacher	21	32.80
	Assistant teacher	39	60.90
	Others	4	6.30
Background of EE during formal studies	Yes	37	57.80
	No	27	42.20

n=64 teachers

Table 2: Distribution of Mean and Standard Deviation of the Perceptions of preschool teachers on Education for Environmental Sustainable Development (ENV-ESD)

(n=64)	Mean (SD)	Midpoint score
Q1-13	44.94 (4.10)	32.50

Note: *Mean scores above the midpoint score indicate preschool teachers have a more positive perception of ENV-ESD*

Table 3: Ranking of frequency of the perceptions of preschool teachers on Education for Environmental Sustainable Development (ENV-ESD)

Dimensions	Questionnaire Item	Frequency
Q 14 : Effective teaching approaches for ENV-ESD	Outdoor education	52
	Multi-methods (e.g., discussions, books, role play, field trips)	46
	Critical thinking and problem-solving	40
	Recognizing and solving locally relevant issues	29
	Participation in decision-making	20
	Interdisciplinary and holistic	14
Q 15: The most difficult aspect to implement ENV-ESD	Lack of understanding of ENV-ESD	23
	Lack of knowledge of pedagogical content	16
	Parents' lack of interest in ENV-ESD	13
	Principal/director's lack of interest in ENV-ESD	10
	Lack of teaching and learning materials	2
Q 16: Most important necessary action to implement ENV-ESD	Applying ENV-ESD to the curriculum	19
	Expanding teacher training	15
	Developing teaching and learning materials	12
	Associating with families and local communities	10
	Cultivating the interest of the school	8

Note: *Question 14 is a multiple-choice question while Questions 15 and 16 are single-answer questions.*

the highest frequency to the lowest. In question 14, the top 3 most effective teaching approaches chosen were outdoor education, multi-methods, and critical thinking and problem-solving. A dominant group of 51 teachers chose outdoor education as the most effective teaching approach. This was then followed by the approach of multi-methods such as discussions, books, role plays, and field trips that were chosen by 46 teachers. Forty teachers deemed critical thinking and problem solving to be effective teaching pedagogy to deliver ENV-ESD, 29 teachers chose to recognise and solve locally relevant issues, while 20 teachers picked participation in decision-making. Only 14 teachers selected an interdisciplinary and holistic approach as an effective teaching approach.

In question 15, the highest chosen answer regarding the most difficult aspect to implement ENV-ESD was preschool teachers' lack of understanding of Education for Environmental Sustainable Development (ENV-ESD), which was selected by 23 teachers. Consequently, the second highest answer chosen was lack of knowledge of pedagogical content, as responded by 16 teachers. Next, 13 teachers selected a lack of interest in parents on Education of Environmentally Sustainable Development (ENV-ESD), while 10 teachers picked the answer of the principal/director's lack of interest. Surprisingly, two teachers deemed a lack of teaching and learning materials as a barrier to implementing ENV-ESD.

In question 16, a dominant group of 19 teachers chose to apply Education for Environmental Sustainable Development (ENV-ESD) in the curriculum as the most important necessary action to implement the topic. This was followed by 15 respondents who selected the answer of expanding teacher training. Twelve teachers supported developing teaching and learning materials while 10 teachers picked associating with families and local communities. The least chosen answer was cultivating the interest of the school which was chosen by eight teachers.

5.3 Preschool teachers' level of integration of environmental sustainability practices in classrooms

Tables 4 and 5 show the distribution of the mean score and standard deviation of the preschool teachers' level of integration of environmental sustainability practices in classrooms. The environmental sustainability practices are divided into four dimensions, and each dimension's mean score and midpoint score are calculated, as well as the overall score. A mean score which is higher than the midpoint score indicates that teachers have a higher level of integration of environmental sustainability practices. The midpoint score for dimensions P1–P3 is

Table 4: Distribution of Mean and Standard Deviation of the level of preschool teachers' integration of environmental sustainability practices in classrooms for each dimension

Each Dimension	Mean (SD)	Midpoint score
P1: 3Rs Practices (Reduce, Reuse, Recycle)	11.27 (2.70)	9
P2: Usage of eco-friendly products	11.33 (2.66)	9
P3: Usage of electricity and water	12.72 (1.94)	9
P4: Others	7.97 (1.54)	6

Note: *Mean scores above the midpoint score indicate preschool teachers have a higher level of integration of environmental sustainability practices in classrooms for each dimension.*

Table 5: Distribution of Mean and Standard Deviation of the level of preschool teachers' integration of environmental sustainability practices in classrooms

(n=64)	Mean (SD)	Midpoint score
SUMB	43.28 (6.40)	33.00

Note. Mean scores above the midpoint score indicate preschool teachers have a higher level of integration of environmental sustainability practices in classrooms.

calculated by using 3 (total numbers of questions in each dimension) times 3 (lower limit on Likert scale of 1 plus upper limit on Likert scale of 5 divided by 2) which equals 9. On the hand, the midpoint score for dimension P4 is calculated by using 2 (total numbers of questions) times 3 ((lower limit on Likert scale of 1 plus upper limit on Likert scale of 5 divided by 2) which equals 6. The total midpoint score is calculated by using 11 (total numbers of questions for all dimensions) times 3 which equals 33.

The first dimension of practice is known as the 3Rs (Reduce, Reuse and Recycle) which include using both sides of paper, reusing recycled materials during arts and crafts sessions, and practicing recycling with the children in class. The mean score for the first dimension is 11.27 with a standard deviation of 2.70. Hence, as the mean score of 11.27 is higher than the midpoint score of 9, it shows that preschool teachers have a high level of integrating environmental sustainability practices in terms of the 3Rs.

The second dimension of practice is known as the usage of eco-friendly products such as encouraging children to bring their own handkerchiefs and food and drink containers to school. This practice is meant to uphold the principle of "zero plastic bottle" and "zero polystyrene" in class. The mean score for the second dimension is 11.33 with a standard deviation of 2.66. Hence, as the mean score of 11.33 is higher than the midpoint score of 9, it shows that preschool teachers have a high level of integrating environmental sustainability practices in terms of the usage of eco-friendly products.

The third dimension of practice is known as the usage of electricity and water which include practices such as turning off electric switches when not in use, limiting the usage of air-conditioners, and reminding children to save water from the water taps. The mean score for the third dimension is 12.72 with a standard deviation of 1.94. Hence, as the mean score of 12.72 is higher than the midpoint score of 9, it shows that preschool teachers have a high level of integrating environmental sustainability practices in terms of the usage of electricity and water.

The last dimension of practice is labelled as others which include practices of ensuring the children only take the food portion that they can finish during meal times and encouraging children to participate in programmes related to environment sustainable development. The mean score for this dimension is 7.97 with a standard deviation of 1.54. Hence, as the mean score of 7.97 is higher than the midpoint score of 6, it shows that preschool teachers have a high level of integrating environmental sustainability practices in this area.

Therefore, it can be concluded that the preschool teachers who took part in this research study showed a fairly high level of integration of environmental sustainability practices in classrooms. This can be proven when the overall mean score of the preschool teachers' level of integrating environmental sustainability practices in the classroom (43.28) is higher than the midpoint score (33.00).

5.4 Relationship between preschool teachers' perceptions of ENV-ESD and the level of integration of environmental sustainability practices in classrooms

Table 6 shows the correlation coefficient between preschool teachers' perceptions of ENV-ESD and the level of integration of environmental sustainability practices as conducted in this survey. From the tabulated result, it was found that the correlation coefficient, Pearson's $r = .30$, was significant at $p < .05$. It also shows a positive correlation between the preschool teachers' perceptions and level of integration, indicating that preschool teachers who have a more positive perception lead to a

Table 6: Correlation between preschool teachers' perceptions of ENV-ESD and level of integration of environmental sustainability practices in classrooms

(n=64)		*Perception*	*Level of integration*
Perception	Pearson Correlation	1	0.297*
	Sig. (2-tailed)		0.017
Level of integration	Pearson Correlation	0.297*	1
	Sig. (2-tailed)	0.017	

** Correlation is significant at the 0.05 level (2-tailed).*

higher level of integration. However, the result (Pearson's, r = .30) was a weak correlation.

6. DISCUSSION AND IMPLICATIONS

Based on the findings from the research, it could be seen that preschool teachers are providing an overall more positive perception towards Education for Environmental Sustainable Development (ENV-ESD) as the mean score (44.94) is higher than the midpoint score of 32.50. Perceptions are personal constructs developed by people that enable them to make interaction and interpret the world around them (Green, 2004). According to Irwanto (2002) in this context, a positive perception of ENV-ESD means that preschool teachers will continue the effort to accept and support environmentally sustainable practices. Most teachers, therefore, believe that they have good knowledge of ESD, and are passionate advocates for ENV-ESD. In addition, these teachers also believe that universities should provide in-service training for teachers at any level to improve their ability to deliver ENV-ESD to younger children and should be included in the curriculum, with specific teaching approaches derived.

From Table 3, the top 3 most effective teaching approaches that are selected by preschool teachers are outdoor education, multi-methods, and critical thinking and problem-solving. The importance and effectiveness of outdoor education are emphasised as Chawla (1999) and Palmer (1995) had proven that it is a starting point to link a positive bond between individuals and environments. This will then lead up to more responsible behaviours towards the environment in the long run. Recently, the revised version of Malaysia's National Preschool Curriculum Standard (NPCS) has integrated outdoor activities to promote students with 21st-century skills (Ministry of Education, 2017).

However, preschool teachers reported that the most challenging barrier to implementing ENV-ESD is the lack of teachers' understanding of ENV-ESD. This could be due to the minimal training provided by educational institutions on Environmental Sustainable Development (ESD). The majority of teachers in this study requested to be exposed to more training and educational courses related to the topic so that they can have more knowledge and feel more confident in this topic. As supported by Davis (1998), professional organizations and educational institutions should work as advocates to promote Environmental Education (EE) as an essential element in both pre-service and continuous professional development for preschool teachers. Since Environmental Sustainable Development (ESD) is not taught as a stand-alone subject in Malaysia (Larsen & Azizi, 2000), it is urged that the Ministry of Education should lay down a standardised syllabus for ENV-ESD with clear guidelines and resources for teachers to teach the subject in the classroom. It is considered important to help children to acquire environmental awareness from early ages and thus, to foster the formation of environmentally literate adults (Marin et al., 2024).

The research findings also indicate that preschool teachers have a fairly high level of sustainability practices integrated into the classrooms. The majority of preschool teachers are already practicing sustainable usage of electricity and water since both amenities are regularly used in day-to-day living. The second most practiced sustainable practice by teachers is reported to be the usage of eco-friendly products. This is a positive sign that teachers are more aware and conscious of the products used in the classroom. When children are encouraged to bring their food containers and handkerchiefs to school every day, they will be influenced to do the same thing in their daily lives and outside of school as well, thus reducing the usage of single-use containers and tissue papers that will harm our mother Earth. This is to prepare children to becoming responsible and sustainability-oriented agents of change in their communities and society (Marin et al., 2024).

The third most sustainable practice is the use of 3R. The preschool teachers have already implemented them through reducing, reusing, and recycling. The level of integration is not as high as the previous two categories as some schools might not be equipped with recycling bins or even discourage the usage of recycled items. However, teachers who have the awareness should become advocates by voicing out to the management of the school or even become role models by implementing it in their classrooms first. Lastly, under 'others', preschool teachers are ensuring that the children do not waste food but take the portion of food that can be finished and

encourage the children to participate in environmental sustainable development programmes. Although it shows the lowest integration level among the 4 dimensions, it is still above the mean score which means teachers are showing a positive level to implement such changes in class.

From the analysis, there appears to be a weak positive correlation (r = 0.30, n = 64, p = 0.02) between teachers' perceptions of ENV-ESD and the level of integration of sustainability practices in classrooms. As supported by research studies, teachers' perceptions of ESD and the ability to integrate the practices are important (Gan & Gal, 2018; Malandrakis, 2018). The perceptions of teachers do influence the level of integration of practices, although the influence is weak. This indicates that although teachers in the study have strong perceptions towards ENV-ESD, there is still room for improvement for them to translate such perceptions into actions and truly integrate sustainability practices in classrooms. Despite having the knowledge, the reason for the lack of practical actions in daily classrooms by the teachers could be due to a lack of understanding of ENV-ESD. Without a meaningful understanding of the topic, it is unlikely that they will deliver the knowledge. As urged by Chauhan et al. (2012), an effective sustainable-orientated curriculum should also consist of turning environmental sustainability practices into daily habits.

7. CONCLUSION

Friedrich Froebel, the founder of early childhood education set up the first kindergarten, translated as the "Children's Garden" in the 19th century. He believes that young children and nature are in unity and should have a harmonious relationship. Thus, the garden becomes a crucial environmental element in the classroom design, shedding light on how children are deeply influenced by natural learning (Froebel, 1887). The early years of children are therefore deemed to be the golden years and an important first step to inculcate a sense of love and care towards the environment which further leads to a living of sustainable lifestyle (Agut et al., 2014). It was mentioned by the Swedish National Agency for Education (2018) that the curriculum should stress to lay the foundation for growing interest in environmentally sustainability development. Hence, it is crucial to have an effective environment education curriculum developed and integrated to the foundation of early childhood to raise awareness for the protection of the environment (Ozburak et al., 2018). However, while the environmental education is present in national curriculum, it was still insufficient as it is lack of teaching on environmental education in preschools (Otitoju et al., 2022).

The findings of this research study act as a database that sheds light on the current perceptions and level of sustainability practices that teachers hold on in the classrooms. Although preschool teachers have a positive perception towards Education for Environmental Sustainable Development (ENV-ESD) and a relatively high level of integration of sustainability practices in the classrooms, yet there is still room for improvement to transfer knowledge into action as the relationship between the two variables is weak. It is also urged that there is a need for government and educational institutions to provide in-service training related to ESD for preschool teachers and includes ENV-ESD in the school's curriculum so that it could be taught as a stand-alone subject in the classroom. Future research study should also try to capture more male teachers as respondent in order to obtain a more gender-balanced result.

"Sustainable Environmental Education" at early ages is important for creating environmental awareness (Ozburak et al., 2018). As quoted by a Native American proverb, "We do not inherit the Earth from our ancestors, we borrow it from our children". It is therefore the teachers' responsibility to instill both knowledge and actions on sustainable living in our young children's classroom routines which will also positively affect the children's daily life choices outside of school. The young ones are the future guardians of the Earth, and the seeds of conservation and preservation are to be sowed in their hearts and minds before it gets too late.

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