

IMPACT OF PRESCHOOL TEACHER PRACTICES AND PHYSICAL ENVIRONMENT OF THE PRESCHOOLS ON RECYCLING PRACTICES WITHIN PRESCHOOL CHILDREN: A CASE STUDY FROM SRI LANKA

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ABSTRACT

The present study explores the impact of preschool teacher practices and physical environment of the preschools on recycling practices within Sri Lankan preschool children; through observation of 41 preschools in Sri Lanka. Based on data environmental sensitivity in the preschool class room was divided into three categories. They are, (1) practices of the preschool children, (2) practices of preschool teachers and (3) observations made on the physical environment of the preschool class rooms/playgrounds. Results conveyed, that preschool classrooms were clean, clutter free and environmental friendly with a hygienic, child friendly play area for children to play. Results also conveyed that majority of the preschool teachers instructs the children to clean after an activity (97.6%), put left over food/other materials in the dustbin (82.9%). However, only one preschool teacher was reported to have picked up litter in the class/ playground (2.4%).

The predictor variables which seem have a significant impact on the preschool children's cleanliness/ recycling practices were the state of cleanliness in the preschool class ($p < .05$), having clean toilets/ washrooms ($p < .05$), and having separate bins to put separate types of waste ($p < .1$). The study offers suggestions/ recommendations for teacher trainers and policy makers pertaining to promoting recycling practices within preschool children.

Key Words: *Preschools, recycling practices, Sri Lanka, teachers*

INTRODUCTION

Issues pertaining to long-term sustainable futures for young children need to explore the links between early childhood and environmental education proposing ways to strengthen both aspects (Davis, 1998). Perceptions of the environment acquired during the early childhood serve as a base for children's cognitive, emotional and physical developments (Phenice & Griffiore, 2003). Therefore, educators and parents need to increase the frequency, nature, and quality of child-environment interactions during the early years (Davis, 1998; Wilson, 1994). Many young children have limited opportunities for these experiences due to time spent on other activities which keep them essentially isolated and alienated from the natural world. However, literature point out that when provided with opportunities such as being exposed to

natural settings (Paprotna, 1998), visiting animal centers or livestock farms young children develop positive outlook towards animals and natural environments (Kidd & Kidd, 1990).

Studies convey that if children do not develop a sense of respect and caring for the environment during their early years, they may be at risk of never developing such attitudes later in life (Stapp, 1978; Tilbury, 1994; Wilson, 1994). Therefore, the importance of early years as a critical factor in formation of positive attitudes pertaining to environment protection (Tilbury, 1994) has been accepted as a global truth (UNICEF, 2011; UNESCO, 1976). As Cohen (1984) pointed out if children developed negative attitudes toward the environment during their early years, such attitudes are likely to become deeply entrenched.

Moreover, literature conveys that children who respect the environment feel an emotional attachment to the natural world (Wilson, 1994; Gardner, 1999), and deeply understand the link between themselves and nature will become environmentally literate citizens. Hence, it would be agreed that the task of environmental education for children in early childhood should be to forge the bond between children and nature.

ENVIRONMENTAL EDUCATION IN EARLY CHILDHOOD

According to Belgrade charter (UNESCO, 1976) the ultimate goal of environmental education is the development of an environmentally literate citizenry. Keeping this as the foundation, goals for early childhood environmental educational programs have been developed. Therefore, in comparison to environmental education programs for formal schools which seemed to include a somewhat structured approach to environment protection (The North American Association for Environmental Education, 2010), environmental education for early childhood learners appears to be less about structures, organized knowledge and more about free discovery on each child's own terms (Wilson, 1994). Moreover, these goals seem to emphasize the environmental education as a holistic concept that contained the knowledge of the natural world as well as the emotions (Wilson, 1994; Harlan and Rivkin, 2008), personal perceptions, attitudes, and connections with nature (Pratt, 2009; Wilson, 1994) dispositions and skills (Wilson, 1994; Gardner, 1999), and developmentally appropriate practices (The North American Association for Environmental Education, 2010).

According to Davis (1998) environmental educational programs have also attempted to accomplish two goals: 1) provide children with direct experiences within their environment fostering positive feelings and attitudes about that environment and 2) provide practical outdoor hands-on experiences designed to help develop earth-wise attitudes. Chapman and Sharma, (2001) also points out objectives of the early childhood environmental education, which seem to exit in the moral-social continuum: (i) to foster the sense of responsibility for the state of the environment observed in all aspects of their personal and social behavior and (ii) to teach children practical skills in how to monitor the environment, protect it, improve it and foster nature.

Hence, early childhood environmental education programs in the past existed in affiliation with either early childhood educational settings or environmental education settings (Wilson, 1996). As a result they appear to focus on developmentally appropriate conservation concepts and seemed to have avoided explicit problem-oriented approaches (The North American Association for Environmental Education, 2010; Pratt, 2009). These early approaches seemed to have believed that young children do not have the coping skills to face the tragedies of environmental crises and problems and when faced with the loss of endangered species and environmental degradation, young children may respond with sadness, fear, and helplessness, which can lead to a defensive apathy (The North American Association for Environmental Education, 2010) and eco-phobia (Sobel, 1996).

Since, humanity is presented with many environmental challenges such as pollution, food shortage, and global warming; it is possible for even pre-schoolers to possess significant amounts of knowledge and sophisticated understanding about waste issues (Pratt, 2009; Palmer, Grodzinska-Jurczak, & Suggate, 2003). In fact, studies carried out in few decades ago convey that young children are aware of various environmental problems (e.g., pollution, litter, hazardous wastes) and can reliably distinguish environmental problems from one another (Cohen & Horm-Wingard, 1993; Miller, 1975) though constraints of comprehending the depth and gravity of the environmental problem may exist due limitations in their cognitive abilities inherent to their developmental age (Piaget, 1959; Ergazaki, Zogza, & Grekou, 2009). Hence, as Pratt (2009) point out; that educators are doing children and humanity an injustice if they try to shelter young children or 'bubble wrap' them to 'protect' them from such challenges.

In the context of environmental protection and education the importance of sustainability looms large. Sustainability can be described as the phenomena which meets the needs of the present without compromising the ability of the future generations to meet their own needs (Davis, 2010). Sustainable development includes three integrated pillars: social-cultural, economic and environmental, as well as simultaneous integration of these three acts (UNESCO, 2005; UNESCO, 2008). There is strong emerging consensus that sustainability should begin early in life (UNESCO, 2008). Therefore, it is extremely important to explore the ways that sustainability can be in cooperated into the early childhood educational settings (Prince, 2006), as an 'essential element of early childhood teaching' (Elliott, 2010).

Even though, early childhood educators have been recognized as having a powerful opportunity to play an active and significant role in assisting young children and families to understand sustainability issues (Elliott & Davis, 2004; Prince, 2006), concepts and practices; only few research studies (Davis, 2009; Elliot & Davis, 2009) and practical applications of this topic is reported (Davis, 2009). Therefore, as Elliot and Davis (2009) points out, in comparison to other educational sectors, the Early Childhood sector has been slow to engage in Education for sustainability (EfS). Hence, there is need to explore this concept in detail,

especially for countries like Sri Lanka where the inappropriate waste disposal has created major environmental pollution problems (e.g. excessive water pollution).

However, there is an emerging interest within early childhood education programs pertaining to projects such as recycling, water and energy conservation (Cutter-Mackenzie & Edwards, 2006; Pratt, 2009), which states that an effective early childhood environmental educational programs need to address concepts beyond the typical environmental realm and encompass a holistic approach (Pratt, 2009; Davis, 2010). Therefore in the context of Education for Sustainable Development, the importance of recycling looms large (UNESCO, 2009) and has been incorporated into the '3 pillars of education for sustainability development (UNESCO, 1992; Ozturk-Kahriman, Olgan, & Tuncer, 2012).

Early childhood education programs in Sri Lanka have inculcated environmental activities for the preschool children for decades (Children's Secretariat, 2013; UNICEF, 2011); in keeping with the environmental educational objectives of the UNESCO (1976; 1998). These programs also seemed to have mobilized preschool and school communities to take collective action by developing their own plans and strategies such as increased access to safe drinking water and basic sanitation facilities, improved rubbish disposal practices and protecting school environments (UNICEF, 2011). According to the UNICEF (2013) country report the Child-Friendly School (CFS) process have increased community understanding of the importance of creating conducive and eco-friendly environments for children. Along with other activities (e.g. increased access to safe drinking water and basic sanitation facilities) school have organised themselves to take collective action by developing their own plans and strategies to improve rubbish disposal practices and protect school environments. As part of the CFS process local communities have been motivated, to plant school gardens promoting greener, environmentally appealing learning environments.

In addition, the early childhood education division of the Central Environmental Authority in Sri Lanka have conducted training programs for preschool teachers, conducted pilot projects to initiate sustainability within the preschools, developed resources for preschool teachers and children (The Central Environmental Authority, 2013). However, only a handful of activities pertaining to recycling and waste management in schools and preschools have been carried out in the past.

In order to preserve the environment and create a greener Sri Lanka it is extremely important for Sri Lankan children to inculcate recycling into their daily habits. Although the benefits of recycling as an essential practice is widely discussed issue in Sri Lankan public as well as academic forums, recycling as a practice is not commonly carried out in the Sri Lankan schools or preschools. Only handful of schools and preschools seem to have adopted waste management and recycling practices (Pathirana, 2011). Though The Central Environmental Authority has taken initiatives to promote recycling and waste management as model

exploratory activities in few preschools in Colombo, the capital of Sri Lanka only few are being operationalized at present (Pathirana, 2011)

METHODOLOGY

Before conducting the present study a pilot study was carried out. The author conducted a field observation of 10 preschools in three districts in Sri Lanka. Based on these observations, she developed a structured questionnaire, which comprised of 15 items. Data collectors were individuals who had prior knowledge of child psychology and environment protection. They were trained by the author to observe the preschools using the structured questionnaire and record the findings.

Varied preschools (preschools in cities, towns, operated by government/non-government/private, varied socio-economic setting) in different districts in Sri Lanka were observed. Redundancy was reached after observing 41 preschools in 09 districts (out of 25) of Sri Lanka. The behavior of the preschool children, practices of the preschool teachers and physical environment of the preschools pertaining to environmental sensitivity was carried out using a semi structured observational scale. The average observation time was 03 hours. The observers were requested to observe the preschool using the observational scale from 9.00 am to 12 pm or within a typical day in the respective preschools. The average observation time was 2.9 hours.

RESULTS: HOW ENVIRONMENTAL FRIENDLY ARE OUR PRESCHOOLS?

Results of the present study convey that environmental sensitivity in the preschool class room can be divided into three categories. They are, (1) practices of the preschool children, (2) practices of preschool teachers and (3) observations made on the physical environment of the preschool class room

Table 01: Practices of the preschool children

Practices	YES		NO	
	f	%	f	%
1. Children put waste in the dust bin after a craft activity	37	90.2	04	9.8
2. Children pick up litter which are not their own	24	58.5	16	39 *
3. After eating children throw everything on the floor	03	7.3	38	92.7
4. After eating children put left overs in the dustbin/tiffins	39	95.1	02	4.9

Notes: N = 41; (*n = 01, not responded)

The table 01 conveys that the majority of the preschools had adopted environmental friendly practices and has accordingly trained and empowered children to practice them. According to

the observers, significant number children in the preschools have the habit of putting wastes papers and other waste materials in the waste paper basket (90.2%), picked up litter which are not their own to put them in the waste paper basket or elsewhere (58.5%), after eating put left over in the dust bin or put them in their Tiffin's (95.1%) and do not throw left over food on the floor (92.7%).

Table 02: Practices of the preschool teachers

Variable	f	%	B	SE (B)	β	t	p
1 After an activity teacher instructs the children to clean	40	97.6	.64	.91	.12	.7	.488
2 Teacher pick up litter in the class/ playground	01	2.4	.23	.78	.06	.29	.771
3 Teacher instructs children put left over food/other And other materials in the dustbin	34	82.9	.21	.46	.09	.46	.649
4 Teacher instructs the children to wash their hands	39	95.1	.46	.93	.12	.5	.622

Note I: N = 41 (* n = 01, not responded); Notes: R² = 0.00

Majority of the observers have also noted that preschool teachers instruct the children to clean the class room after a craft activity (97.6%), instruct the children to put the left-over food in the dust bin or in their own Tiffin boxes (82.9%) and instruct the children to wash their hands after eating (95.1%). On the contrary, according to the observers extremely fewer numbers of preschool teachers seem to be picking litter in the class room or in the playground (2.4%). Regression analysis conveyed that the model did not account ($R^2 = 0.00$) for the variance in the outcome variable (recycling/ cleanliness practices of the children).

Table 03: Observations made on the physical environment of the preschool class room

	f	%	B	SE (B)	β	t	p
1 Craft activities in the recycling materials displayed in the class	34	82.9	-.22	0.31	-0.1	-0.69	.497
2 Separate bins to put different types of waste	08	19.5	.55	.32	-.1	1.83	.077**
3 There is a dust bin in the class room	39	95.1	.03	.55	.01	.05	.960
4 Toffee/ chocolate wrappers &	02	4.9	-.16	.53	-.04	-.28	.768

	other waste material Strewn in the play ground								
5	Play G is not hygienic for small children to play	06	14.6	-.13	.17	-.11	-.79	.433	
6	The class cluttered and dirty	01	2.4	1.31	.37	.48	3.5	.001*	
7	There are toilets wash room for children & they are clean	39	95.1	-1.5	.55	-.38	-2.76	.009*	

Notes: $N = 41$; Adjusted $R^2 = 0.29$; $p < .01^*$; $p < .1^{**}$

On the whole, the observations revealed that preschool classrooms were clean, clutter free and environmental friendly. For instance, majority of the observers had listed that there is a dust bin in the classroom (95.1%), as opposed to ones (4.9%) who did not. Similarly, 82.9% of the observers had noted that the play area is hygienic and child friendly for children to play, while 97.6% have noted that the classrooms observed were clean and clutter free, and 95.1% had listed that toilets and wash rooms for children look neat and clean. However, Sri Lankan preschools do not seem to be paying much attention to the aspect of recycling or waste management, since less than one fifth of the observes had listed that there are separate dustbins in the class rooms to put different types of waste as opposed to the 80.5% who did not observe it. Hence, considering the importance of recycling future awareness creation programs in the context early child years need to address this.

Regression analysis conveyed that only 28% of the model accounted ($R^2 = 0.29$) for the variance in the outcome variable (recycling/ cleanliness practices of the children). The significant predictor variables which seem have a significant impact on the preschool children's cleanliness/ recycling practices were the state of cleanliness in the preschool class ($p < .05$), having clean toilets/ washrooms ($p < .05$), and having separate bins to put separate types of waste ($p < .1$).

DISCUSSION

Formation of environmental attitudes pertaining to environmental issues, beginning from early years has been identified as a important way of dealing with environmental problems of twenty first century (Biriukova, 2005; Nikolaeva, 2008). Therefore, investigating environmental protection practices can be considered as an important issue when attempting to inculcate it within young children.

The present study explored the impact of specific environmental protection practice within the early childhood educational context, namely the impact of preschool teachers' practices and the physical environment of the preschool on recycling practices of the Sri Lankan preschool children. The study comprised of observations carried out in 41 preschool in different parts of Sri Lanka with the assistance of trained observers and using a semi structured questionnaire.

The aim of this paper was to analyse quantitative outcome of the study. Results were analysed under three sub section, children's recycling and cleanliness habits, teacher practices pertaining to maintain a clean/ healthy preschool and promote recycling, and finally the physical environment of the preschool as a contributing factor in promoting clean/ healthy recycling practices within the pre-schoolers.

Results conveyed that the majority of children observed had a sense of cleanliness, preschool teachers focused on teaching/ training children to practice recycling through art/craft and instructing the children to maintain a clean environment within the preschool, and the physical environment of the classrooms/ play grounds of the preschools were clean and healthy.

Though observations conveyed that preschool teachers instructed children to clean the class after a craft activity and pick up the litter, very few preschool teachers is reported of having modelled cleanliness practices. Though the current initiative taken by the Sri Lankan preschool teachers need to be commended, modeling in general (Papaevripidou, Constantinou, & Zacharia, 2007) and teacher modelling ecological practices have found to be an extremely valuable teaching/learning tool (Manz, 2012; Chawla & Cushing, 2010; Acher, Arcà, & Sanmartí, 2007) Hence, there seemed to be a need to stress the importance of modeling as a powerful teaching/ learning techniques for preschool children by the environmental protection agencies as well as early childhood trainers. This is also confirmed by the regression analysis which conveys that the preschool teacher practices have not left an impact on the cleanliness/ recycling practices of the children. Therefore, the present study stresses the importance of exploring the rational of the teacher perceptions pertaining to the superiority of instruction over the modeling. If the absence of teacher modeling is due to the fact that preschool teachers expect children to pick up litter since they have trained them to do so, there is a need to create awareness within teachers on the superiority of modeling over teacher instructions. However, based on this finding it could be said that emphasizing the demonstration of modeling as an essential practice seem to be a factor which require to be addressed in the environmental protection/ awareness preschool teacher training programs.

Also, very few preschools observed had separate bins to put different types of waste though majority of the preschools had a dustbin. Again, this may curtail the preschool children in Sri Lanka the opportunity of learning to recycle different types of waste, which is considered extremely crucial proactive behaviour pertaining to environment protection in the 21st century. Further, absence of such practices may prevent them from formation of knowledge and attitude required to practice this skill as adults.

Further, it is also important to explore the influence of play grounds and external environments of the Sri Lankan preschools pertaining to recycling practices of the preschool children. Literature reveals that nature and type of play grounds creates a profound impact on the quality of play activities (Crain, 2001) and improving social skills of the pre-schoolers

(Davis, 1998). For example, when Fjortoft (2001) explored the issue of outdoor play in natural settings versus more structured playground environments, he found that the play of the “experimental children” evolved in creativity and other aspects, after one to two hours of playtime in a natural forested setting in their school for 10 months, in spite of the fact that during the initial ratings that the children in the control group outperformed the children in the experimental group in their motor skills. Fjortoft (2001) also found that the experimental groups to have more creative play activities, lower rates of illness and improved motor skills at the end of the 10-month session. Moreover, literature convey that outdoor natural settings can be applied to preschooler’s awareness of their environment by emphasizing the sharing of an environment with other natural species, caring for plants, protecting and preserving habitats and the management of waste production (Davis, 1998).

Previous studies which explored the preschool children’s attitudes pertaining to recycling conveys that they had limited knowledge about the issues (Ergazaki, Zogza, & Grekou, 2009; Grodzinska, Stepska, Nieszporek, & Bryda, 2006) due to the fact that only very few children had the practical exposure of re-using different types of resources and separated recyclable materials in order to throw to recycle bin (Ozturk-Kahriman, Olgan, & Tuncer, 2012)

Literature also points out that it is extremely important for young children to practically experience environmental issues (Pratt, 2009; Palmer, 1995). Therefore, the importance of educating Sri Lankan preschool children on Early Childhood Education for Sustainability (ECEfs) with special emphasis on recycling as a future practice looms large. Though adults may think that it is not age appropriate to teach pre-schoolers concepts of recycling studies convey that they are capable of comprehending such concepts (Palmer, 1995) and exposure to environmental programs with the emphasis on recycling and reusing may create positive attitudes within young children (Palmer, Grodzinska- Jurczak, & Suggate, 2003).

Furthermore, training should be continuous in order for Sri Lankan preschool teachers to follow international developments in the field. Issues pertaining to recycling by nature are open to a continuous global psychosocial dialogue which takes place at its meta-conceptual framework as well as within meta-educational practices (Ozturk-Kahriman et al, 2012; Cutter-Mackenzie, & Edwards, 2006). Therefore, Ministries and department responsible for environment protection/ awareness and education should create awareness/ train teacher trainers and preschool teachers, of the new trends in the field and request them to accordingly adjust their practices at pre/school. These trainings should emphasise the importance of imparting knowledge in a child friendly/ child sensitive ways (Edwards & Cutter-Mackenzie, 2011) and encourage the preschool teachers to model these practices. As the present study conveys that preschool teachers place more emphasis in providing instructions than modelling, importance of modelling should be specifically pronounced to the preschool teachers through the written instructions and trainings. In addition, environmental protection

agencies and teacher training institutions need to concentrate on developing resources such as demonstrational videos to convey the importance of modelling.

Moreover, the concerned agencies should also develop/ promote teachers/ parental awareness resource material kits, demonstration videos, puppets, toys, instructional manual for preschool teachers with the emphasis on providing effective, child friendly/ sensitive recycling programs within the ECE context. Further such agencies should also conduct research to explore preschool children's perceptions, attitudes, knowledge and awareness of recycling using quantitative and qualitative methods.

Further, it is also recommended that in line with the training programs the Central Environmental Authority and the Ministry of Environment should develop a system to monitor the ongoing implementation of environmental protection/ sensitive programs with special reference to recycling. The article recommends conducting random spot checks of preschool environmental programs, frequent visits to the preschools, observations of the teacher trainers and working with partner agencies such as Women's & Children's Secretariat, and Environmental Police Units of Sri Lanka in developing/providing and maintaining systematic evaluation to track and report on the number of adults and young children reached through the awareness programs of the Early Childhood Environment Educational unit of the Environmental Protection Authority, Sri Lanka.

In addition, pre and post evaluation of national and district level environmental protection programs on monthly and yearly basis can be carried out by the agencies concerned, and learn from strengths and limitations of implementing these programs. Based on the outcomes feedback should be provided to the teacher trainers in a comprehensible manner. These evaluation programs also need to assess how extensive is the application of recycling practices? How adequate and satisfactory is the level of the teachers' preparation for their role? How do teachers comprehend the basic concepts, principles and aims of recycling? And finally, in what ways do they attempt to apply it in practice?

Finally, this study was purely exploratory, its main aim being to acquaint with the research subject by distinguishing certain trends concerning the application of recycling at the early childhood educational level. It is evident that further research is needed in order to obtain a clearer and more valid picture of implementation of recycling in Sri Lankan preschools. However, it contributes to the dearth of literature focusing on the correlates of physical environment and preschool teacher/child practices on recycling in the Sri Lankan context. Since majority of the Sri Lankan children attend preschools (Children's Secretariat, 2013), there is a great potential to inculcate recycling practices within preschoolers.

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