

CHILDREN DEVELOPMENT AND WELL-BEING: A REVIEW OF ENVIRONMENTAL STRESSORS IN CHILDREN PHYSICAL ENVIRONMENT

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ABSTRACT

This paper reviews the quality and characteristics of the physical environment upon children's holistic development. Since children are primarily a large consumer of their physical environment, it is thus important to understand how the role of these physical structures and facilities influence their cognitive, emotional, social, physical development and behaviours. However, most of their needs are often ignored by relevant dominant groups, especially in planning and renewal processes of nature or built environments. Children's usage of their physical environment does not only confine to the home, school, home yard or playground, but also the neighbourhood at large that can undoubtedly sustain or deprive their development. Researchers from the disciplines of developmental psychology and environmental sciences have tried to examine the effects and impact of the physical environment on children's overall development. However, the studies present a major challenge due to scant empirical research that links the quality of the physical setting and human development. Research findings are however still conflicting in these areas and one needs to explore further to substantiate the previous findings. The theories proposed by Ulric Neisser (1980) and Jean Piaget (1971) stressed on the independent mobility for the development of cognitive representations in children as users of the physical environment. However, the theories failed to look at the role of the environment as a cyclic process. On the contrary, a theory proposed by J.J. Gibson (1977) offered a psychologically significant approach to estimate the qualities of different environmental properties. In this paper, the researchers will also focus on the risks factors pertaining to the environmental stressors such as outdoor children's play behaviour, school performance setting, mental health, traffic and road safety, social relations and physical health.

Keywords: Children; Well-Being; Physical Environment; Environmental Stressors; Development

INTRODUCTION

Children development encompassing several important domains such as physical, social, emotion, cognitive, and language/communication that much relates not only from predisposition genetic makeup, but also from the interaction with the immediate environment such as the physical setting at home, school, and in the community at large. The interactions between the individual child and his or her environment are mostly known either active genetic-environment or passive genetic-environment interactions (Kail & Cavanaugh, 2013; Santrock, 2007). Active genetic-environment denotes that individual children who possess certain genetic predisposition such as extrovert personality and high intellectual level would search for environment that best fit their genetic makeup, and on the contrary, the passive

genetic-environment interaction holds a child development and well-being on what others provide to them.

As the children grow up in their own environment, they have the best chances for better development, well-being, health and productive life-styles. Children's health is a determinant and indicator of economic and human development. An effective interaction of children's development both physically and cognitively with their physical environment can lead to the opportunities to perform independently at their corresponding developmental stages (Bronfenbrenner, 1979; Trancik & Evans, 1995; White, 1959). Thus, the ability of individual children to interact competently with the physical environment is an important beginning for children's holistic development (Maxwell, 2007).

The instability posed upon the sociocultural environment such as the home, school, home yard, playground and the neighbourhood would negatively influence children's development cognitively, socially, physically and psychologically (Pulkkinen, 1983; Pulkkinen & Saastamoinen, 1986). The role of physical environment has been a source of scholarly debate and research in environmental science in recent years. The general consensus is that children are prompt to be affected by their physical setting either at home, school and in their neighborhood at large.

However, not many studies have given attention to the role of the physical environment of child-environment relationships. As such the child's environment as defined in the social and cultural context that remains unrelated to his or her activities and experiences. These relationships are seen in a holistic manner affecting different domains of children's development.

The concept of health here means 'absence of disease' which encompasses the notion of 'well-being and competency' related to children's social and physical environment. Hence, it directs us to the attention that children are vulnerable to the threats and risks of environmental variables more than adults. How are they vulnerable? We can say that children's body constituencies (i.e. their physical structure) makes them less visible when crossing streets and by car drivers, hence making them prone to be victims of accidents. Similarly, their body weight and the developmental stage of their organs makes them adversely susceptible to health effects due to exposure of environmental contaminants (Evans, 2006), such as air pollution, water and food toxins, chemical toxins and pollution, to name a few.

Therefore, this paper is aimed to address the concerns of everyday lives and well-being of the majority of children growing up in an urban setting or even of those living close-by. Some very important questions are raised:

- i) How susceptible are children to the influences of environmental stressors upon their developmental needs?
- ii) Which domains are mostly affected by changes in the physical environment?
- iii) How are children adaptable to their physical environmental demands?

Jean Piaget (1971), J.J. Gibson (1977) and Ulric Neisser (1980) Theories

The theories proposed by Ulric Neisser (1980) and Jean Piaget (1971) stressed the independent mobility of children in their ability to make cognitive representations of their physical environment, especially on their abilities to perceive spaces, to construct mental representations, to function in physical settings and learning social rules and norms within

their social-physical surroundings. Even though the environment may seem to play a passive role but children are perceived as pro-active agents in their social-physical environment, hence perceived as interactional rather than transactional. However, these theories failed to look at the role of environment as a cyclic process.

On the contrary, according to Greeno (1994) a theory proposed by J.J. Gibson (1977) offered a psychologically significant approach to estimate the qualities of different environmental properties on children development and well-being. According to the interactionist perspective (Gibson, 1977) of perception and action, our behaviour-environment relations focused on the information available in the environment. This is very true in relation to the either active behaviour-environment or passive behaviour-environment. Thus, Gibson (1977) discarded the assumption of factoring external (physical) and internal (mental processes). Moreover, the interactionist perspective focuses on the interactional relationship between agent-situation that are discussed in conversational communication and ecological psychology research. Further, among the key concepts that been highlighted in the interactionist perspective on behaviour-environment and human development and well-being are *affordance* and *ability*. In Situation Theory, one's ability in activity depends on *attunements to constraints*, and affordances for an agent perceived directly. Furthermore, according to Chemero (2003) the Affordance Theory outlines the 'perceived' relationship between the abilities of animals (which is an individual child in this perspective) and features of the environment (which refers to the physical environment of one living). This means that the relationships between children behaviours especially the capability and capacity of certain behaviour-environment much determined the interaction. This interaction could be active or passive in which the interaction occurred (Kail & Cavanaugh, 2013). However, the above theories lacking of analytical and critical claims on either genetic-environment relationships ever exist, because an individual child would search the environment that suit his or her interests (genetic) and vice-versa (Kail & Cavanaugh, 2013).

Types of Physical Environment

The physical environment is perceived as a 'third teacher', following parents and teachers, as children learn from interactions with their physical environment. These physical places such as the home yard, street, school or playground provide ample opportunities and challenges for children to develop skills at all levels. Environmental settings (Maxwell, 2007) are crucial for developing appropriate skills levels of challenges and competencies in young children. If the physical environment is seen as an 'equal partner' in children's learning experiences and skills growth, then it is crucial for us to understand the quality and characteristics of the physical environment upon children's developmental stages. Research findings suggest that the physical environment is related to measures of competency, one of which is a self-perception measure. Younger children's competency especially, those of 3-year-olds' as opposed to 4-year-olds' are most affected by their classroom environments (Maxwell, 2007).

The physical environment is one of the factors contributing to the childhood obesity syndrome, hence one has to consider design changes in the physical structures and facilities in order to increase children's physical activity and reduce obesity in children. Research suggests any slight increment daily energy expenditure can prevent excess weight gain and reduce the obesity syndrome in children (Wang, Gortmaker, Sobol & Kuntz, 2006). At present children spend a lot of their time in relatively few and confined settings due to safety

issues and this contributes to children's deterioration of health and increases obesity. A number of time children spend outdoor and in other recreational outlets seem to significantly influence their levels of physical activity vital in their health profiles (Baranowski, Thompson & Durant, 1993; Garcia, Broda, Frenn, Coviak, Pender & Ronis, 1995; Klesges, Eck, Hanson, Haddock & Klesges, 1990; Sallis, Nader, Broyles, Berry, Elder & McKenzie, 1993; Stucky-Ropp & Dileo, 1993). Hence, the choices to determine their children's time spent outdoors and access to recreational facilities are influenced by how parents perceive the safety of these environments (Browning & Cagney, 2003). In this article, we will explain the following environmental factors such as play behaviour, school performance, mental health, safety, social relations, and physical health. Thus, the following discussion explained some major part of different types of physical environment that could affect children development and well-being (but not limited to):

a. Outdoor Children's Play behaviour

As children play outdoors, they will develop personal relationships with the environment in which they are in contact. The children personalise their physical environment in such a manner that the street becomes their home street, the yard becomes their backyard, and the village becomes their home. These relationships and sense of belongingness are gradually developed as children actively interact with their physical environment. Gibson's concept of affordances can be used to assess the children's environments from a functional point of view: i.e. what can the physical places of play offer the children? The classic study conducted by Barker and Wright (1951) documented all activities and areas which are considered as 'behaviour setting' at school and home. Thus, the rules to understand the specific behaviours of children in their play setting, must take into consideration the children's personal characteristics (Spencer & Woolley, 2000).

b. School Performance Setting

School performance is an important indicator of children's cognitive and social development as expressed in all activities taking place inside or outside the school, either in formal or informal settings. Higgins et al (2005) agree that the design of the school environment, internal and external, has profound effects on the activities and outcomes of teaching and learning in both a formal and non-formal context. The design of the school setting provides numerous opportunities for children's healthy development (Centers for Disease Control, 1997). Research show that a well-designed school yard in urban environments enables children to interact safely and increase their physical activities in a natural outdoor setting (Moore & Wong, 1997; Weinstein & Pinciotti, 1988). Weinstein and Pinciotti, (1988) noted that the transformation of an empty fenced-in blacktop schoolyard to a tire playground led to significant increase in active play. He found that children's engagement in organized games and active play had risen from 16% to approximately 40% of all observed behavior because children often make do with whatever resources available to them. Hence, we can surmise that a high-quality outdoor environment will certainly attract children outdoors and provide a broad range of opportunities for physical activity.

Recently, there has been some effort done to transform barren schoolyards into naturalized environments for children's play, exploration and discovery. A national

organization in the United Kingdom called Learning through Landscapes (LTL), pointed out that approximately 200-300 out of 30,000 British schools utilized their schoolyards to maximum potential (Lucas, 1995; Rivkin, 1997).

c. Mental Health

Environmental characteristics such as housing, crowding, noise, indoor air quality, and light can directly influence mental health. Besides, built environment can indirectly impact mental health by altering psychosocial processes. For example, higher residential density contributes to diminishing social supportive relationships, hence, increasing psychological distress among members of households (Evans, 2004). Researchers found out poor-quality housing appear to increase psychological distress and other mental health issues such as affecting one's ability to regulate social interaction (e.g., furniture configuration and privacy) among childhood psychiatric patients. However, it was hard to draw clear conclusions on the above underlying issues because of some methodological issues.

Evans et al. (2000) found that residential crowding (number of people per room) and loud exterior noise sources (e.g., airports) increased psychological distress. Paradoxically this did not contribute to serious mental disorders. Putrid air pollutants and toxins (e.g., lead, solvents) cause behavioural disturbances such as poor self-regulatory abilities and aggression (Lawrence, 2002 & Matte, 2000). Insufficient daylight is associated significantly with increased depressive symptoms. At this juncture, we should include the effect of the properties of built environment on individual personal control, social relationships, and restoration from stress and fatigue (Gary & Lawrence, 2002 & Matte, 2000).

Different research designs such as longitudinal studies and experimental studies should be employed to examine the potential effects of mental health amongst children in their interaction with the physical environment. The minority groups such as young children, ethnic minorities and the poor are more vulnerable to developing mental health problems from the impacts of built environment and exposure to poor environmental conditions. Not much attention has been given to health implications of multiple environmental risk exposure. Perhaps, further research has to be explored in this area.

d. Traffic and Road Safety

In general, children are prone to accidents as victims of traffic stressors because they have cognitively immature experience and exposure to negotiate potentially hazardous environment as compared to adults (Van Vliet, 1983). Today, in a fast-changing society, children are moulded into 'safety –seat' children. Children explore their outside world mainly by observing the changing scenery through their car windows. Due to dangers from traffic and unsafe road environment, children's mobility is becoming far more restricted and isolated from their physical surrounding (Bjorklid, 1982).

e. Social Relations

Children develop their social identities through social relations and exposure with their physical environment. Children who live in smaller towns have the tendency to integrate experiences of their home, neighbourhood, and the whole township (Bonaiuto & Bonnes,

1996). It has been affirmed that the old and young report less social isolation in smaller municipalities (Spencer & Woolley, 2000). As cited in Spencer & Wooley (2000); Skantze (1995) reported that children between the ages of 10 to 12 years choose real activities over designed children's play areas in larger cities.

During adolescence, an individual's stage of social relations and development of personal identities are based on the choices of leisure- settings and their development of partnerships. Other public places such as sports centres and shopping malls may provide young people as a place to 'hang-out' with a group or a partner. A theory in social psychology suggest that in late childhood and early adolescence, place and identity can be interrelated in assisting one's social relations (Breakwell, 1986; 1992; 1993). The theory states that four principles of identity that are continuity, self-esteem, self-efficacy, and distinctiveness emerge in the child as his or her identity develops to guide his or her behaviours (Breakwell, 1986; 1992; 1993).

Other researchers also assert the significant relationship between place attachment and social identity development. Spencer and Woolley (2000); Fuhrer, Kaiser, and Haitig (1993) show how a measured level of attachment can predict the way individuals will use places for restorative reasons. Lalli (1992) reviewed some published articles on place identity and found that spatial-physical environments are relevant for human identity. On the contrary, other researchers have neglected the importance of the role of place-identity as a basis for social relations and personal identity formation (Spencer & Woolley, 2000).

f. Physical Health

Nations in South-East Asia and the Western Pacific undergoing industrialization have emitted environmental threats such as water contamination, wood smoke, chemical pollutants, untreated manufacturing wastes, and atmospheric lead emissions that are hazardous to children's health and development (Suk, 2003).

Health and development are determined by genetic inheritance, economic, social, and psychological factors. These factors interact in complex ways via specific diseases for particular individuals and population groups (Suk, 2003). Children are particularly at risk of exposure to more than 15,000 synthetic chemicals and a variety of physical agents, of which most of them had developed over the past 50 years. Besides, developing organisms are more vulnerable to environmental contaminants due to greater and longer exposure and particular susceptibility windows (Tamburlini, Von Ehrenstein & Bertollini, 2002).

Children's exposure to environmental hazards is not uniform across social strata. This is due to the frequent overlapping of poverty, poor housing conditions, polluted environment and restricted access to education, information, prevention and care in disadvantaged population groups. Education and cultural backgrounds play a crucial role in determining exposure to illnesses. Besides, genetic heritage is often dependent on environmental factors to produce illnesses (Tamburlini, Von Ehrenstein & Bertollini, 2002). The physical environment is acknowledged as one of the factors that influence health to better understand its interactions with genetic, social and psychological factors. This is a primary challenge for the scientific community. Effective public health policies must reflect this holistic concept of health determinants and is based on multidisciplinary and multi-sectorial approaches, in which the community is seen as an entirely participating partner.

CONCLUSION

This paper contributes to an excellent review of the qualities and characteristics of the physical environment of the 'holistic' development of children's cognitive, social, emotional and physical competencies. The researchers undeniably agree that the physical environment plays an important role as an 'equal partner' in promoting learning experiences. It also acts as a 'third instructor' apart from parents and teachers in the moulding and developing children. The issues of physical environment, play behaviour, school performance, mental health, social relations, physical health and safety that affect children's developmental competencies in cognitive and social aspects are addressed in this review. Children not only learn from the interactions with their physical environment but also from the people that they interact with in their daily lives. The physical environment provides different types of learning opportunities needed for their development. When children are presented with different opportunities and challenges at the outer edges of their current skill levels, they are encouraged to use these opportunities and challenges to reach a higher level of cognitive and social functioning. This is critical for young children's development. Perhaps, one can suggest that agencies or institutions consider proper planning and implementation of safe and environmental facilities when building play areas for children in the environment industry. However, there are several limitations and improvement that can be done for future study. Some limitations include the lack of current articles that would be the most difficult for researcher to conclude and discuss the concern above. Research methodology also could be one of it, since this is only review paper thus nothing much can be said on the current data analysed. Some areas of improvement for future study include selecting mixed methods of experiment and observation if necessary. The participants also must be including from different background and developmental level (age).

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