THE IMPACT OF PHYSICAL SETTINGS ON PRE-SCHOOLERS CLASSROOM ORGANIZATION

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Abstract:
The physical setting plays an important role in the lives of pre-schoolers and can be an important component of children's experience and development when it is wisely and meaningfully designed. The classroom organization enhances and supports the pre-schooler capability to perform activities himself, initiate and finish tasks, creates the possibility of his own determined choices and responsibilities, permits to connect and interrelate with educators and other participants easily and helps to improve his cognitive skills. In this research, the classroom environment is approached in terms of diverse aspects, as a relation between physical atmosphere and the curriculum philosophy, the planning of proceedings, adjustments, safekeeping topics and assignment of zones, equipment resources, illumination, surfaces and other environmental factors.

Keywords: pre-schoolers classroom, pre-schoolers capabilities, physical setting, classroom organisation

Introduction

A learning setting, which is named the third teacher in the Reggio Emilia schools (Gandini, 2002), plays one of the most important roles in education and development of children. A learning setting has been fragmented into many characteristics, such as:
 - the social/emotional environment,
 - the behavioral environment,
 - the physical environment.

The purpose of this research is to investigate the physical setting and its significance in the educational process of preschoolers.

The literature specifies that the physical setting of preschools has an important influence on the educational process and development of the preschoolers.

Greenman (1988) states:

"More than the physical space, it [an environment] indicates the way time is structured and the roles we are expected to play. It conditions how we feel, think, and behave; and it dramatically affects the quality of our lives"

(p. 5)

Caples (1996) also highlights the significance of the physical setting in preschoolers education process and states:

"The better the architect understands the school's philosophy, schedule, and operations, the more likely the design will embody the school's fundamental goals"

(p. 20)

Accordingly, it is important to examine how the physical environment influences preschoolers with special needs if it is well designed or poorly designed.

Dukes and Lamar-Dukes (2009) state that:

"…when thinking about the issues involved in designing an environment for children with special needs, it is important to define the parameters of the issue first."

In this research, the classroom environment is approached in terms of diverse aspects, as a relation between physical atmosphere and the curriculum philosophy, the planning of proceedings, modifications, safekeeping topics and assignment of zones, equipment resources, illumination, surfaces and other environmental factors.

Since the requirements and interests of preschoolers are different from a classroom to another, the scope is not to recommend one specific organization or inspect each factor or area individually. Common factors associated to the physical setting will be observed considering that; the physical setting requires to be modified to individual requests of preschoolers. Before examining the physical setting, it is crucial to have a definition of it.

Physical setting

Lawton makes a difference between the objective physical setting and the subjective physical setting. Lawton (1999) states:

"…the objective physical environment is all that lies outside the skin of the participant, is inanimate, and may be specified by counting or by measuring in centimeters, grams, or seconds. Theoretically, everything in this class is observable and potentially capable of exact measurement."

(p. 106)

For example, seats, toys, books, windows, rugs are considered components of the objective physical environment.

On the other hand, the physical setting is not defined only by the objects in the environment or the physical features of the environment, but the physical setting is also defined by the association between the physical setting and its residents.

Lawton (1999) indicates that:

"…in the subjective physical environmental realm, an element of the objective physical environment is transformed cognitively or affectively by the participant, endowed with personal meaning or functional significance for the individual."

(p. 106)

Once defined the physical setting, it is important to clarify why studying the physical setting has a significant role on the educational process.

Physical Setting Role and Importance

It is well known that planning a supportive environment is as important as planning the curriculum, since it will support the teacher, the children and the curriculum.

Wolery (2004) states:

"…intervention and educational programs are manipulations of children's environments; thus, understanding those environments is central to making decisions about using assessment results in planning children's individualized intervention programs."

(p. 205)

Negative effects may happen if the physical setting is not designed carefully. There is some proof indicating that if the classroom is inadequately planned, it will not provide support for children's learning process and evolution and will lead to distracted and unsatisfied children.

Dukes and Lamar-Dukes (2009) state:

"…the environmental design process begins by identifying all of the issues that may help or hinder education and development of preschoolers."

Being unable to recognize the influence of the physical setting can lead to serious difficulties. For example, the physical setting many hinder children's development or even act against that. In order to avoid the downsides of physical setting and to add a noteworthy dimension to children's education process and development, it is indispensable to understand how the physical setting can be wisely and meaningfully designed.

The classroom organization enhances and supports the preschooler capability to perform activities himself, initiate and finish tasks, creates the possibility of his own determined choices and responsibilities, permits to connect and interrelate with educators and other participants easily and helps to improve his cognitive skills.

Moreover, if the physical environment is designed carefully, it can inspire choices, discoveries, and communication with the other children and the teacher.

Bailey and Wolery (1992) state:

"…a good physical arrangement meets the following three components:
- the ideal space allows the teacher to observe ongoing activities in the classroom and yet reduces distractions across activity areas;
- the space should be functional, comfortable, and safe for both children and adults;
- finally, the space should be designed to encourage and facilitate maximum independence for children with sensory and motor impairments."

(p. 210)

Many researchers and educators reflected how the physical setting can support young children's educational process. Behind the research, there are many theories about the physical setting and its relation to its occupants.

Bailey and Wolery (1992) indicate that many theorists agree that the environment has a considerable impact on education, development and experiences of young children.

Theoretical Background

Bailey and Wolery (1992) stated that diverse theorists as Skinner, Piaget or Bronfenbrenner consider relevant the designing and the arranging of the c;assroom environments for young children with and without special needs.

According to Bailey and Wolery, Skinner suggests that "*our interactions with the environment shape our behavior*".

For example, the physical setting should be free of impediments, so that a child can move around the room more easily and frequently with self-confidence. Otherwise, bumping and hurting himself might discourage that child from moving and discovering things around.

In addition to Skinner's behaviorist theory, the role of environment on development and learning can also be explained by Piaget's cognitive theory.

According to Piaget:

…children build their knowledge through working with the materials in the environment.

Bailey and Wolery (1992) indicate that Piaget emphasized the role of environment in building knowledge. According to Bailey and Wolery, this suggests that through interacting with the environment, people challenge, confirm or deny their existing knowledge structures.

Accordingly, if the teacher provides appropriate materials and toys, the child can play with them, manipulate them, and do experiments with them to understand the world around him/her and build his/her own knowledge. Bailey and Wolery emphasize that Skinner and Piaget give an importance not to the environment alone but the children's interactions with that environment. Accordingly, importance of both the objective and subjective environments are stressed.

While considering materials, toys, furniture or other elements of the physical environment that the teacher wants to supply for preschoolers, the teacher should not only consider those preschoolers' chronological age. However, the teacher should also consider their developmental ages. A toy which is suitable for a typically developing preschooler might not be suitable for a preschooler with a disability (L. Katz, personal communication, April 1, 2005).

Accordingly, the teacher should also pay attention to developmental ages of children while creating an appropriate physical setting for preschoolers with special needs.

Bronfenbrenner is another theorist who enlightens us about the ecology, developmental psychology, and early intervention (Bailey & Wolery, 1992). His theory, called "*Ecological Theory of Development,*" consists of four environment systems:

- Microsystem
- Mesosystem
- Exosystem
- Macrosystem

Bailey and Wolery explain each system in Bronfenbrenner's theory clearly. In this model, the center is the individual -the child in our case- surrounded by different systems. The microsystems are the immediate settings in which the child lives, such as school.

Mesosystems represent the relationships between different microsystems and the people in the microsystems. The exosystem includes the social organizations, agencies, and services which the child does not have direct interaction with. Macrosystems are attitudes and ideologies of the culture in which the child lives.

In Bronfenbrenner's theory, there is one more layer, which is not cited in every resource, called the chronosystem, which represents:

> "*…the patterning of environmental events and transitions over the life course, as well as sociohistorical circumstances*"

<div align="right">(Santrock, 2001, p. 47)</div>

The microsystem will be the focus of this study, because it represents the environment with which the child has a direct interaction. Accordingly, the physical environment of a preschool setting is a part of the microsystems. Bronfenbrenner (2005) states that some of the research done in microsystems are related to: "*the developmental effects of the immediate physical environment*" which is our focus in this study (p.74-75).

Bronfenbrenner indicates that researchers who investigated the effects of immediate physical environment, focused on:

> "*the availability of objects that enable and invite particular types of activity, such as toys or reading materials; and the structure of the setting with respect to barriers and pathways restricting or directing movement and activity*"

<div align="right">(p. 75)</div>

Bailey and Wolery (1992) indicate that many young children with special needs spend hours in child care settings, and stress the importance of the environment in those children's lives. Bailey and Wolery (1992) state:

It is an obvious but essential principle that the environment shapes our behavior, thoughts, and feelings in many important ways. The environment dictates the kinds of behaviors that are appropriate and inappropriate, invites or discourages exploration, provides feedback on behavior, and can establish a mood or tone that may range from exciting and enjoyable to boring or scary. A key to effective intervention by any professional is the understanding this relationship and recognizing that the environment is both a tool that can be modified for intervention purposes and a factor that must be taken   into consideration when setting realistic expectations for change.

(p. 72)

Here we will examine the role of the physical environment in the lives of preschoolers. Specifically, a physical setting for preschoolers with special needs will be examined in relation to the following components:

1)   Curriculum philosophy and general schedule of activities
2)   Modifications
3)   Safety-security
4)   Areas
5)   Placement of different areas
6)   Furniture/materials, lighting, and textures/colors
7)   Outdoor area

Among those components, there might be some overlaps, since they are so interrelated to each other. There might not be a clear cut sometimes. For example, lighting might be considered under both physical arrangements and placement of different areas according to the purpose. Each component is examined and discussed in the following sections.

Curriculum Philosophy and General Schedule of the Activities

Caples (1996) indicates that thoughtfully designed physical architectural environment can support the activities planned in the curriculum. Accordingly, curriculum philosophy of a preschool is connected to the physical environment.

For example, a curriculum philosophy which is based on play might imply to us: (a) supply materials and toys, and

(b) give the child free time to interact with them and play (Garvey, 1990).

The importance of the environment is stressed by various early childhood education approaches. For example, the Reggio Emilia approach, which is one of the current early childhood education approaches, addresses the physical environment of Reggio Emilia schools as viewed as a teacher. To show the importance of the environment in Reggio Emilia schools, it is stated that, "*the environment is viewed as a teacher*" (Gandini, 2002). Accordingly, an appropriate design is like a coach who helps, guides, and serves children facilitating the social, cognitive and physical development. The beauty of the physical environment is also stressed in the Reggio Emilia approach. Gandini (2002) states the physical environment in the Reggio Emilia schools is not just beautiful but also personal. She states:

> "*…everywhere there are paintings, drawings, paper sculptures, wire constructions, transparent collages coloring the light, and gently-moving overhead mobiles*"
>
> (p. 17)

Accordingly, a child can see his/her own work all over the space in the Reggio Emilia schools.

Another preschool curriculum based on the Whole Child principle might imply different strategies in designing the physical environment. Bowe (2000) indicates that to enhance the development of the child, the teacher should attend to, assess, and intervene in all 5 domains, namely, the adaptive, cognitive, communication, physical, and social/emotional domains. Bowe states:

> "*…by looking at the whole child, the interventionist or preschool special educator can help a child develop strengths – not just improve on areas of weakness.*"
>
> (extra pages located between the pages 276-277).

In every domain there is attention given to the physical environment. For example, in the physical domain, Bowe states:

> "*…consult accessibility guidelines for possible alterations in the physical environment*", or "*examine the room and the building for any materials or objects that children may be allergic to or that may trigger any asthma attack*".

On the other hand, under the social/emotional domain, he states that teachers should:

"later the environment to make the classroom more suitable for learning- eliminate distractions, change assigned seats, give more but shorter breaks."

(no page numbers, extra pages located between the pages 276-277).

Allen and Schwartz (1996) state:

"…a statement of the specific intervention services, supports, and equipment to be provided for each child must be included in every IEP."

(p. 166)

The physical environment of the classroom should be designed accordingly to address the child's Individualized Education Plan (IEP).

While shaping the curriculum and addressing children's IEP, preschool teachers depend on not just educational philosophy they have, but also guidelines and standards required or suggested by the nation or state. For example, natural environments requirement that *"settings that are natural or normal for the child's age peers who have no disabilities"* appears in Part C of Individuals with Disabilities Education Act Amendments of 1997 (IDEA '97) (Sandall & Ostrosky, 2000, p.v). Natural environments imply that children with special needs can learn alongside typically developing peers.

While considering the "*natural environments*" in which preschoolers with special needs are being taught and cared for, it is also important to understand the physical environment as part of natural environments. While prompting inclusive settings for children with special needs, creating a natural environment might have implications on designing and organizing the physical environment of preschools, such as letting children bring something from their homes, or designing the classroom like a real home. Shepherd and Eaton (1997) indicate that home- like furnishing and furniture contribute to comfortable dimensions in childcare settings, and children feel like being at home. It is also nice to display photographs of children, staff and families, because they also contribute to children's sense of belonging and ownership.

"*The Least Restrictive Environment*" (LRE) stated in IDEA is another concept which helps to explain inclusive settings and natural environments. Bowe (2000) states:

"Least restrictive environment is a philosophy stressing the placement of children with disabilities in appropriate settings closest (when compared with other appropriate settings) to settings used by nondisabled children."

(p. 476)

It implies that to the extent appropriate to their needs, preschoolers with special needs should be educated in the types of setting on which their typically developing peers would participate. To do that, accessibility standards should be considered, namely, accessibility to parking area, parking signs, exterior routes, exits, doors, elevators, stairs, ramps, alarms, telephones, drinking fountains, restrooms, and operating mechanisms (Wood, 2002).

In terms of the general schedule of activities in relation the physical environment, Allen and Schwartz (1996) state that the ideal schedule includes the following principles:

(a)   accommodating individual differences;
(b)   varying activity levels;
(c)   ensuring orderly sequences;
(d)   giving advance notice; and also transitions.

Klein, Cook, and Richardson-Gibbs (2001) give some ideas that can meet those principles; such as posting the daily schedule in large letters, identifying areas or activities with pictures, making photo albums to reflect recent classroom activities, creating communication board by placing photos or simple drawings, putting a transition sequence board where children can see and follow easily. The daily plan posted on the wall including print and photographs can help children understand the schedule.

Shortly, the physical environment of a preschool should be considered in relation to the curriculum philosophy, general schedule of activities and the factors, which shape the curriculum, such as national or state standards, IEPs. While thinking about the most appropriate physical environment for an individual child, it is essential to make some modifications to meet the child's specific needs or interests. In the following session, some examples of modifications have been proposed to meet preschoolers with special needs.

Modifications

The classroom modifications should be appropriate and based on the child's special needs and strengths. Also, these modifications selected should be in compliance with the child's individualized educational program (IEP). Teachers should consider special equipment, supervision related to those equipment and adaptations in the physical environment. The terms, accommodation and adaptation are mostly used interchangeably. Actually, they have different meanings.

Klein, Cook, and Richardson-Gibbs (2001) state:

"Adaptation is more likely to be used in reference to something children use to enable them to adapt to or fit into a setting or activity", whereas *"the term accommodation is more likely to refer to a change in the larger environment (or program policies) that removes barriers and allows comfortable access to an environment."*

(p. 106)

Klein, Cook, Richardson-Gibbs state:

"Adaptations include using equipment like a wheelchair or walker for a child who is not ambulatory, attaching a specially designed paintbrush to the child's hand with Velcro, and using assistive technology to enable the child to communicate or turn on a battery-operated toy."

(p. 106)

For example, Hinchliff (2008) indicates that computers help children with special needs. She states,

"the use of specialized computers and software for very young children with disabilities is especially important because it allows them equal learning opportunities."

(p. 48)

On the other hand, Klein, Cook, and Richardson-Gibbs (2001) state,

"…accommodations would include adding access ramps, rearranging the space in a classroom, providing a one-to-one aide to keep a child from running away, placing high-contrast markers to help a child identify certain materials, proving a developmentally simpler task for a child with a cognitive disability, or reducing the ambient noise in a classroom to accommodate the needs of a child wearing a hearing aid or a child who is sensitive to certain sounds."

(p. 106-107)

Allen and Schwarts (1996) point out that environments which allow children with special needs to "be included easily and naturally, convey a powerful message about human values: *all types of children can play together and have fun*" (p.224). Designing the physical environment appropriately plays an important role in creating inclusive settings and meeting the needs and interest of preschoolers with special needs.

The SAALE model (Systematic Approach for Adapting the Learning Environment) developed by Wood shows how to adapt physical environments as well as learning and behavioral environments (Wood, 2002). While making modifications in the physical environment, the idea in the SAALE model is to find out the mismatch and create a match between the child's abilities, needs and the physical environment. Wood states:

> *"…if a student cannot copy from the chalkboard and the teacher requires copying from the chalkboard, then you have a mismatch. Now, there is nothing wrong with requiring copying from the blackboard or not being able to copy; the point is we have a mismatch"*
>
> (p. 200-201)

The teacher should consider the situation of the child, such as his abilities and needs, while expecting him to do something. The teacher might do some modifications in the physical environment. Accordingly, modifications in the physical environment will fit the mismatch, and meet the needs of children in the setting as well as supporting their strengths.

Parallel to the SAALE model, Hull, Venn, Lee, and Buren (2000) stress the importance of "*creating a responsive environment*" (p.75). They suggest changing the types of materials present in the environment. Thus the environment could be more responsive to children's strengths as well as needs. It is important to stress that while making modifications to meet children's needs, teachers should also pay attention to and support their strengths (Hull, Venn, Lee, & Buren, 2000; Wood, 2002).

Safety and Security

Based on the National Center for Injury Prevention and Control of the Centers for Disease Control and Prevention reports, Wolery (2004) indicates that each year many children are dying or injured unintentionally. He states that those deaths and injuries are preventable suggesting that some of them are tied to factor in the physical environment. In order to prevent those deaths and injuries, the teachers should be careful about the factors, such as unsafe materials, in the situation.

In order to maintain safety and security in preschool settings, the followings can be considered:

(a) how a bus transfer works,
(b) where caregivers and children will meet,
(c) appropriate waiting areas,
(d) bus shelters,

(e)   door security,

(f)   safety of supplies against a thief,

(g)   complete isolation from neighborhood drug dealers,

(h)   fire safety (Caples, 1996).

It is obvious that the physical environment plays an important role in creating safe and secure settings for young children. For example, Allen and Schwartz (1996) state:

"…moving about safely, in an environment free of clutter, slippery floors, or rumpled rugs, contributes to the safety and security of every child; for children with limited vision or physical problems, an environment free of obstacles protects against serious injury."

(p. 224-225)

Not just the inside of the classroom, but anywhere the child could be should be taken into consideration. For example, Allison (1999) states that a one-way road is better for pickup and dropoff, and pickup and dropoff areas must be large enough and safely situated. Thus, parents can easily park and the safety of the children can be supported.

Furthermore, playgrounds are the places where children could be and where many accidents might occur; many checklists are created and publications are written on that issue, such as *"Public Playground Safety Checklist"*. US Consumer Product Safety Commission reports *"each year, more than 200,000 children go to U.S. hospital emergency rooms with injuries associated with playground equipment"* (Consumer Product Safety Commission [CPSC], 2005). For more safety issues, such as issues related to materials, toys, cribs, or products, Consumer Product Safety Commission provides a good source of information (see web site: http://www.cpsc.gov/cpscpub/pubs/pub_idx.html).

Areas

Depending on the goals of the curriculum and changing needs of preschoolers, different areas of interest can be created, such as an art/science area, a dramatic play/water area, a computer area, a reading/language area, a block area, a big group area, and a therapeutic area. Different interest areas are very important, because they allow children to feel secure, and not overwhelmed with the complexity of a big room (Caples, 1996; Greenman, 1988). This leads children to develop a sense of control and easiness to explore the environment (Kentucky State Dept. of Education, 1991). Different interest areas also enable teachers to provide diverse activities for individualization. Accordingly, each child can choose what to do (Kentucky State Dept.

of Education, 1991). Moore (1996) called these areas resource-rich activity pockets, since each area is a different source of activity.

Depending on the needs of the inhabitants, there might be some other centers, such as a peace center. Providing children a peace center can encourage the community in the center to solve their conflicts. In one of the schools, in Florida, the teacher and children create "*I Care Rules*" and a center called "*the peace table*" where "*the Rules for Fighting Fair*" are posted. When children have a conflict, they go to the peace table, discuss the rules posted there and find a solution (Teaching Tolerance, a Project of the Southern Poverty Law Center, 2003, p.158).

> "*Maintaining a safe, friendly and consistent social environment in the early childhood classroom is a multidimensional process. Classroom rules serve as the explicit framework for this endeavor by openly encouraging certain behaviors and discouraging others.*"
>
> (Teaching Tolerance, a Project of the Southern Poverty Law Center, 2003, p. 158)

To build a community of learners, teachers might need also to set up some rules. And those rules will be part of the physical environment in various ways. For example, rules can be placed in a highly visible area, or hanged on the wall. As seen, the physical environment can also serve for children to create a safer environment where they can solve problems, and conflicts. There are some other factors that need to be considered while creating different areas in the classroom.

Allen and Schwartz (1996) state:

> "*Minimizing clutter and confusion enhances the ability of all children to concentrate on the tasks at hand; for children with attention or learning disorders, reducing distractions may be the best way to promote learning.*"
>
> (p. 225)

Clayton and Forton (2001) indicate that if the area is clearly defined with distinct boundaries and obvious pathways, children will use it more appropriately and successfully. A physical order in spaces may lead to the room more predictable and familiar (Caples, 1996; Greenman, 1988), and may foster children's skill of competence and independence (Kentucky State Dept. of Education, 1991; Greenman, 1988).

Shepherd and Eaton (1997) indicate that young children need familiarity and stability in their physical environment. They also state:

"In a stable and orderly environment, children are secure in their knowledge of where things are and aimless wandering is therefore reduced."

(p. 45)

Greenman (1988) stresses that the pathways between areas should be clear; otherwise:

"…it's like being in a huge unmarked parking lot" (p.68). On the other hand, the boundaries between the areas should also be flexible; for example, children should be able to read a book in another quiet area. Greenman states, "like clothing, settings need to change to fit" so that they can meet changing goals, interests, and needs of its inhabitants.

(p. 42)

Moore (1996) recommends that since evidence show that children mostly play in groups of less than five, it is useful to consider this when deciding the amount of space of each play area. On the other hand, since sometimes children tend to play or work by themselves, there should be areas for children alone.

Similarly, Shepherd and Eaton (1997) stress that when organizing the environment, some spaces should be established where children can work collaboratively with others and some spaces where children can work alone uninterrupted. Moore indicates that providing children intimate and small scale caves, such as nook or crannies, allow them to be alone. Thus, they can read books or play with solitary games (i.e. puzzle), observe others.

Taylor and Vlastos (1975) state:

"…children seek a place to work and play away from teachers, and sometimes even away from fellow classmates".

(p. 15)

While creating the areas, it is also important to think about how big or how small they would be. If the space is too small and there are too many people in a given space, children may act aggressively and react by withdrawing socially and physically (Greenman, 1988; Moore, 1996).

Moreover, Moore indicates that such settings are mostly associated with less constructive interaction, less quiet play, and less solitary play. Furthermore, if there is less space and less equipment but more children, social interaction will be high and, consequently, the most frequent conflicts will occur (Hartup & Laursen, 1993).

On the other hand, evidence from studies conducted by Moore (1996) tell that, for example, if the amount of space is too large, this will lead to:

"…reduced attention span, more supervision required and more non-developmental or down time."

(p. 22)

Loughlin and Suina (1982) indicate that Carol, a kindergarten teacher, found herself constantly reminding *"No running! No wrestling!"* redirecting, nagging, calling, refereeing, and reciting the rules again and again. Moore also points out that if the space is too large this will lead to noise, confusion, and underuse.

Moore (1996) suggests that child care centers should provide about 42.5 square feet space per child. However, depending on the needs of children, it may change. For example, enough space should be provided for children who have walkers or wheelchairs so that they can easily maneuver.

Placement of Different Areas

Placement of the different areas is as important as creating such distinct areas, since they can support each other if they are thoughtfully placed across the classroom. It is stated:

"…zoning implies grouping areas according to level of noise (e.g., placing the book nook area near the puzzle area, both quiet types of activities) or interest and skill (e.g., situating the block and dramatic play near each other can encourage imaginative play)"

(Kentucky State Dept. of Education, 1991, p. 2)

Caples (1996) states that adjacent relationships should be considered, so that the space will function well. For example, the cot storage closet should be located near the rest area. Sinks are important for many reasons, such as cleanup, watering flowers or caring for pets, drinking water and hygiene. Accordingly, it is recommended to organize some areas near the sink, for example cleanup is so important in an art area (Caples, 1996). Shelving between some areas or even in the same area is crucial, since:

"…it is important to protect some activities from intrusion, and shelving is a good way to create quiet, intimate areas for reading or solitary activities."

(Shepherd & Eaton, 1997, p. 50)

Furniture/Materials, Lighting, Textures/Colors

A careful arrangement can support positive experiences of both children and the teacher. For example, Prescott (1997) indicates that if the entire room is carpeted, messy activities will eventually cause the carpet to become messy. Caples (1996) recommends that art area should have a washable floor, and some furniture should be easy to sterilize, such as lunch table for health issues. Moreover, environments with soft materials, such as carpeting, cushions, curtains, are good for low-activity areas, such as quiet and group meeting areas. Also, since they reduce noise they are necessary for blocks and other floor work (Caples, 1996; Kentucky State Dept. of Education, 1991). On the other hand, hard surfaces, such as tile, asphalt and wood, encourage louder, active participation, and are important for working with liquid (Kentucky State Dept. of Education, 1991).

Moreover, in time, the settings gets more complex, pathways disappears, storage areas become so messy and children cannot find what they want and do not place the materials in proper places, since they cannot be sure where those materials belong (Prescott, 1997). This may lead to many collisions and accidents begin to occur (Greenman, 1988). Accordingly, teachers should be careful about such complexity. Greenman (1988) also states that more than one floor level can limit flexibility and may create obstacles for food service carts, wheel chairs, and pedestrians.

While making arrangements in the classroom, it is always important to remember that good classroom arrangement supports the educational objectives and developmental needs of its own inhabitants (Prescott, 1997), because needs and interests might change from school to school and individual to individual. Accordingly, here some examples are given, but those examples could be extended or changed depending on the current context. In terms of general framework for physical arrangements of a setting, we can talk about furniture/materials, lighting (including sun light), textures/color of the room. It is proposed that even some simple arrangements can become big help for preschoolers with special needs.

Furniture and Materials

Evidence suggests that dividers, furniture and windows should be low enough to allow children to act freely. Accordingly, children can see and select easily items without depending on teachers or others. Also, with low windows, they can see the outside world, which is important for them. On the other hand, in order to ensure the safety of

children it is a good idea to put some blocks in front of the window, so children can see outside, but stay a little bit away from the windows (Caples, 1996).

Shepherd and Eaton (1997) state that low shelves are very useful, since they can be used as dividers to create functional spaces, as well as storage and surface for display. When children cannot easily access the storage that is located higher than their height, their movements are limited. Taylor and Vlastos (1975) state:

"…child access to storage promotes independence, and makes children feel responsible for their environment (p. 51). Moreover, open shelving and open storage contribute to children's independence to become self-directed, rather than waiting on teachers to give them what they want. Moreover, children tend to care materials and objects more, since they are given responsibility"

(Shepherd & Eaton, 1997)

Prescott (1997) also indicates that open and well-organized storage can give children ideas and themes to play.

Hannah (1982) states that dividers can be used to order space visually, to provide sound control, and to enhance privacy and behavior control. They can also be used to create distinct areas. In order to get the room to be flexible, these dividers can be moved according to the needs. Moreover, Taylor and Vlastos (1975) indicate, "*movable storage systems provide flexibility of space usage*" (p.57).

Caples (1996) states that materials which are durable and easy to maintain should be selected ones. Corners should be curved for safety of children and should not require repainting, such as stainless steel or plastic guards. Wood (2002) indicates that teachers should provide appropriate chair sizes for children and make arrangement for left and right-handed children. Materials, which were specifically designed for children with special needs, are helpful in terms of empowering them and supporting their involvement in activities (Floyd, & Vernon-Dotson, 2009).

Lighting

The room should get enough natural light for children's health, because the evidence suggests that daylight destroys mold and bacteria, provides vitamin D, contributes to a sense of positivism, and offers connection with the natural world (Caples, 1996). Moreover, Greenman (1988) states that fresh air is essential for the health of children, thus the windows should be opened in order to get more air circulation. Accordingly, children can feel and smell fresh air and changing seasons.

Children with hearing loss might be affected by lighting in the classroom. Katz and Schery (2006) state:

"Lighting that produces a glare behind a speaker and obscures facial details is detrimental. It is best for the natural and artificial light to illuminate the speaker's face and not be behind the speaker, shining into the child's eyes."

(p. 95)

Accordingly, children with hearing loss can easily see the teacher's lips and understand what s/he says.

Greenman (1988) states that windows should extend 18 to 24 inches off the ground, so children can view outside. However, he cautions us that this is not appropriate in areas where there are many motor activities, but Plexiglas panels can be used to block windows against children. Also, he stresses that windows should be shatter resistant for safety of children.

Greenman (1988) indicates that light can be used to influence activities and moods. For example, increased lighting can brighten, and reduced lighting can calm spirits. Shepherd and Eaton (1997) offer that different types of lighting, such as soft lighting lamps and directed/spot lighting to focus on objects or children's work, can be used according to the purposes. Mirrors also contribute to environment by reflecting light and providing different dimensions, which children can see (Shepherd & Eaton, 1997). However, it is better not to use fluorescent lights, since Greenman (1988) says, *"fluorescent lights may have a negative impact on hyperactivity"* (p.111).

Osmon (cited in Greenman, 1988) suggests that in order to minimize objects or adult presence, the ceiling should be at a height, such as 10 to 11 feet. Otherwise, children will likely overestimate the size of what they see. One of the advantages of a high ceiling is that they increase the amount of usable space by allowing the development of lofts and platforms. On the other hand, a low ceiling has some advantages too. For example, a low ceiling can create intimate spaces. In order to create a low ceiling in the room with high ceiling, Osmon suggests that some materials, such as parachutes or hangings can be attached to the ceiling. Accordingly, he claims that high ceilings can also provide for intimacy.

Textures and Colors

Greenman (1988) stated:

> *"If young children were designers, the textural quality of the space would be one of the first orders of business" (p.66). Textures are very important in the lives of children, because young children use their hands frequently to learn and to explore the physical environment, so a variety of materials, views and spaces can stimulate children's sensation (Allison, 1999). As stated by Olds (1997), "the skin is a vital source of stimulation for arousal system"*

> (p. 52)

Caples (1996) recommends a range of textures and bodies, such as finished wood, ceramic tile, vinyl tile, plaster - smooth and indented textures-, tear-resistant cloth and padding, rubber, leather, metal, safety glass, and tackable surfaces. They can be used in kindergarten, thus children can experience different surfaces. Greenman (1988) indicates that one of the advantages of rugs is getting children to experience more variety of textures. Moreover, rugs can provide flexible space to use, such as floor work.

Allison (1999) added that different range of colors can be used according to what psychological impact is expected. Bright reds create excitement, deep purples and greens are nearly stabilizing and soothing, and yellows are restful and easily perceived by young children. Also, Greenman (1988) indicates that color can be used to create boundaries between different areas.

Outdoor Area

Children need and love high mobility activities, such as sliding, climbing, gardening, spraying, crawling, balancing, riding and running, and playgrounds are usually the places for high mobility activities. Prescott (1994) indicates that when choices are provided, a number of children will never choose sitting down activities. Accordingly, playgrounds are another physical environment which should be examined for benefits of children.

Outdoor spaces are essential not only for exercise and physical coordination, but also children's social skills and their imaginations. In order to create safety play areas, rubber matting is essential. They should be used in especially areas around equipment and stairs. Moreover, well-designed equipment can allow an exuberant level of body movement. Also, it can provide shapes and configurations that encourage children to

connect the natural world and their imagination, so that they can create stories (Caples, 1996).

Moreover, playgrounds are where the caregivers should supervise carefully. Some evidence showed that aggressive tendencies of children are increased there. For example, bullying occurs frequently on playgrounds or the places where no teacher supervision exists (Sullivan, 2000).

Moreover, teachers should be careful about whether there is shade, because shade provides children a place for role playing games, as well as medical necessity to escape from heat and sun light. Teachers should provide a source of water for any reason, such as drinking or watering plants (Allison, 1999; Caples, 1996). Allison (1999) also suggests that easy access to toilets is important for children to satisfy their various needs. Furthermore, Shepherd and Eaton (1997) indicate that through effective organization and simple room arrangements, teachers can have more time and energy to devote to meaningful interactions with children.

Conclusion

As a conclusion, the physical environment plays an important role in the lives of preschoolers with special needs. It can add a significant dimension to children's experience and development when the physical environment is carefully and knowingly arranged. The physical environment and the curriculum together enhance and support the child's ability to do something himself, take care of himself, initiate and complete activities, take control of his own actions and responsibilities, communicate and interact with others easily, and have better perceptual and motor skills. In this paper, more than a physical space, the physical environment is discussed in terms of different aspects, namely, relation of the physical environment to the curriculum philosophy, general schedule of activities, modifications, safety-security issues and different areas, placement of those areas, furniture/materials, lighting, textures/colors, and outdoor area.

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