

THE EFFECT of PHYSICAL and ENVIRONMENTAL FACTORS OF A “CHILD DEVELOPMENT CENTER” ON A CENTER’S SELECTION

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Abstract

The role of education is a key factor for an individual’s development. After the 1980s the findings of educational research has shown that preschool age is a very important period in one’s development. The single parent family structure and an increase in the number of working mothers have required children to attend schools in “child development centers” (CDC). Preschool education is becoming important in the new millennium because a child’s personality, emotions, cognitive and social abilities develop during the first five years. The purpose of this study is to investigate the reasons for selecting CDCs by parents and children by focusing on physical and environmental factors. The sample was a diverse group of 95 parents and instructors who use CDCs at two different locations in Turkey. The instrument used in the study was a self-designed standardized questionnaire. The results should enlighten later CDC design studies, and give support for architects who design preschool education centers. The study may be used for educational, governmental and advertising purposes to contribute to changing the negative situation of poorly designed centers.

Keywords: *child development centers; preschool education; physical environment; environmental quality; child development center selection*

INTRODUCTION

Education plays an important role on an individual’s personal development and the future of society. It is an open and dynamic system that interacts with its environment and is only successful if it goes with the changes. Until the 1980s preliminary school education was described as formal and has been a subject considered in a systematic education system. Till today, there has been intensive study on education beginning from elementary to high school as a formal education period. Preschool childhood education is an important phase in the education process. Beginning with the industrialization period, preschool childhood education centers have become important, because there is a rapid increase in the number of working mothers and the problems of a single parent’s child. In the beginning, the “Child Development Centers” (CDCs) had the aim of taking care of children during the parent’s working hours. But now they have begun to be a part of basic education (Gur Sener, 2001).

In the CDCs of the 1920s, a well body health was targeted. In the 1940s, instructors focused on social and emotional development. In the 1960s, the studies concentrated on cognitive successes (Kamii, 1971). Research after the 1980s showed that the individual’s basic personal characteristics mostly developed between the ages 2 and 5. Many early childhood educators have defined the importance of children’s physical, cognitive and emotional development and the goals of CDCs. The importance of early childhood care and education has been a source of discussion for years. Opinions differ about the advisability of placing a young child in some type of care and educational setting outside of the home. Some parents and educators believe that children benefit socially and intellectually from such experiences, but there are some psychologists, psychiatrists and pediatricians who believe that a young child can be psychologically harmed by being taken care of out of the home during these early years. Of particular concern of many parents and educators is that the young child gets off to a good start

intellectually. So the preschooler gets some basic knowledge and skills that he or she can use in the playground (Lawton, 1988).

Play enhances the usage of the child's internal motivation, ability to make unique decisions and the usage of verbal and nonverbal communication. During play children develop their internal worlds by creating various fantasies with their imagination (Engdahl, 2011). Early childhood education is important for two reasons. First, at an early age a child's intelligence can be dramatically affected by the experiences in the environment during play and while learning and discovering. Secondly, the growing awareness of the influence of poverty and environmental deprivation on a child's intellectual development has made these findings an urgent practical application. With these factors added to the need for providing child care services for working mothers, a major responsibility is loaded upon local communities to integrate early education with daycare (Sanoff and Sanoff, 1981). According to Bronfenbrenner (1979), our knowledge of the environment is much more than children who live in it. In the last few years, social scientists and parents have become aware of their lack of knowledge about CDCs. The aim of early childhood programs is "to provide a safe, caring environment with opportunities for each child's ultimate social, emotional, physical, and cognitive growth" (Lawton, 1988). Early childhood centers vary in their beliefs about the growth, development, needs and abilities of children, the appropriate roles of staff and parents and the type of physical environment needed. Research about CDCs have discussed the role of the centers on a child's development and showed the importance of the physical environment in preschool education. The physical environment around children is as important as toys and lesson plans, because children immediately respond to the sources of stimulation around them (Sanoff, 1995). For this reason, architects need to design and create places as much as educators in CDC design (Dudek, 2008). The aim of enrichment of a CDC physical environment is an important subject to be discussed.

THE IMPORTANCE AND THE QUALITY OF PHYSICAL ENVIRONMENT FOR THE DEVELOPMENTAL NEEDS OF A PRESCHOOL CHILD

During the preschool period, the child's socio-emotional, cognitive and physical developments are affected by his/her experiences, and interaction with the environment is a basic factor in his/her personality. It is also understood from recent studies that a physical milieu that a child can explore, examine and learn with has a positive effect on both a child's behavior and his/her learning capacities and talents. As a branch of environment-behavior studies, there is a great deal of research made on child-environment relations, particularly on the role of space in early childhood education (Coates, 1974; Gump, 1975; Prescott, Jones et al., 1967, 1972; Prescott and David, 1976; Moore, 1983, 1986; Weinstein and David, 1987; Cohen, McGinty et al., 1982; Moore, Lane et al., 1994; Moore, Sugiyama et al., 2003; Burger, K. (2010); Abbas and Othman, 2011, Dalli, White et al., 2011; Pairman 2011-2012; Rentzou, 2014).

All children are motivated to interact with the environment (Piaget, 1966). Development of the child is a process whereby the child changes the environment and in turn adapts to changes in the environment. Children learn via interaction with their physical and social environment, the staff, curriculum and space. The active agents in a child's development are exploring, discovering, testing, and experimenting, imitating, fantasizing and developing. With these agents, he or she not only interacts with the social environment of people, staff, and other children, but also with the physical environment such as architecture, furniture, and materials available. Development occurs when a child observes the consequences of his or her personal actions upon materials and events. The overall quality of this interaction depends on engagement possibilities with the environment (Moore, Lane et al., 1994).

Children begin to understand themselves by their contact with the physical and social world. Unlike the world of adults, the physical world reflects his or her manipulations and it offers a particularly valuable domain for developing a sense of self (Hart, 1987). The CDC's physical environment quality and the organization of its interior and exterior spaces are important issues to be thought about for the child's development as a result of his or her spatial experience and learning. The result of research shows that children growing in qualified CDCs have a high level

of communication skills, lingual intelligence and positive social behavior (Philips, Scarr et al., 1989). The design process for a qualified childcare and development environment necessitates a CDC program that answers developmental needs of children spatially (Sanoff, 1995)

Limited research has been made on the physical environment quality of a CDC. Prescott and her colleagues (1967) realized that the physical environment is the variable that appears to be implicated, and devised a scheme for evaluating the quality of the environment. She proceeded to rate the indoor and outdoor space in all of the centers in their samples. Prescott Jones et al. (1967, 1972) pointed out that there is a link between spatial quality and behavior. In CDCs with high spatial quality, children are found to be more involved and the instructor spends less time on management and enforcement of rules and more time in responding to children and fostering social interaction. In another research, Prescott (1987) explains a number of increasingly complex observational measures of environment quality and discusses the implications of particular spatial features for program content and for child behavior.

Buildings with certain qualities constitute a strong image on any observer. CDCs give silent messages reflecting inner activities and life. The first impression of parents and children on a CDC is formed long before entering the building. So for children and parents, these messages can be inviting or not. Also, it is thought that there is a strong relationship between the preference of the centers by the parents and their children, and the center's image. Thus, the aim of this study is to investigate the physical and environmental properties which effect CDC selection and its image by parents and preschoolers.

THE PHYSICAL AND ENVIRONMENTAL FACTORS THAT AFFECT CDC'S SELECTION

Selection of a CDC is related to the image of the center in a preschooler and his/her parents' minds. At the same time, this image is affected by both physical and environmental factors. To design a warm and attractive atmosphere, it is necessary to investigate both of these. The physical factors are the properties of sub-spaces such as: the front yard and front porch, entrance space and paths, outdoor play and learning spaces. Environmental factors are related to the relationship with parents, child and community such as: high visibility in the community, user-friendly and child centered aesthetics, and scale and location of the CDC. It is important to design a CDC with interior and exterior spaces on a child-scale, to increase the aesthetic quality for drawing preschooler's attention and to have different image than institutional buildings. Also, to be aware of CDC's existence and place, it is important to build a CDC to be visible.

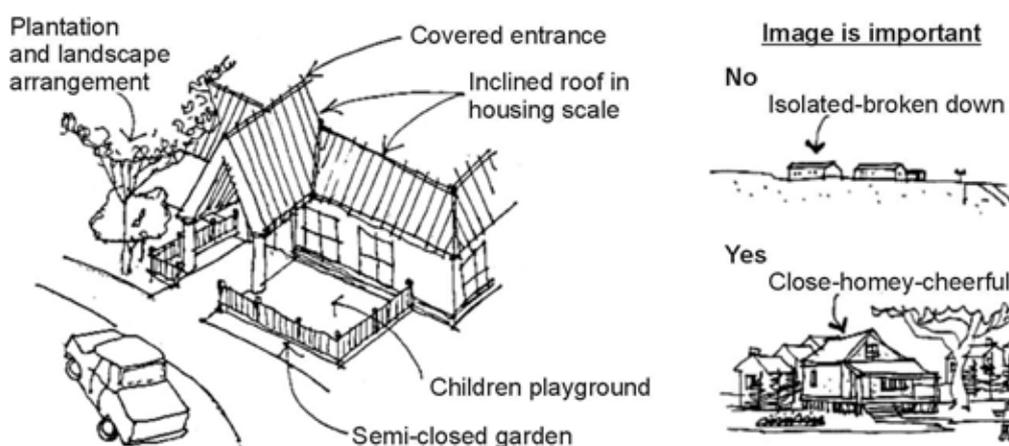


Figure 1: Home as a Model for Child Development Center
(Source: Moore and Lackney, 1994; Moore, Lane et al., 1994).

Some researchers support the idea of home-like front yards and front porches that decrease anxiety about school. This situation reassures both child and parent that the CDC is home-like in its overall functioning (Moore, Lane et al., 1994). The use of pitched and visible roofs is another

design response (Figure 1). It is important to minimize the rapid transitions between home and institutionalized educational facilities for young children (Wapner, 1995).

There are many examples in architectural literature of centers that use home-like elements in their design such as pitched and visible roofs, residential scaled, colorful and aesthetically pleasing entrances, shutters on windows reflecting neighborhood homes, and many good examples of residential looking design, with one-story sloped roofs, playrooms engaging the surrounding landscape, and enclosed “backyard” space for outdoor learning activities (Moore and Lackney, 1994). The home, rather than office or other institutional buildings, is a model or image for the child development center. In CDC designs rather than designing institutional environments, home-like atmospheres should be created (Kotnik, 2011). For children, an old house has a positive image because it has a “homey” atmosphere. For parents however, new construction has a positive image because of the relative ease in creating functional space.

Physical Factors

The first group of factors that affects the selection of a CDC for parents and children is physical. The physical factors of CDC selection handled in this study are properties of front yard and front porch, entrance space, paths and outdoor learning spaces.

Front yard and front porch properties: Pollowy (1977) indicates that young children have more tendencies to part from their parents if they are in a familiar setting. This yard leads directly into a front porch as the next degree of enclosure in the overall entry-transition sequence. The front porch is a covered space which provides weather protection. Here parent and child may linger for a few minutes before entering the center. The outdoor area leading to the entry is partially enclosed by shrubbery, fence, wall, etc., and scaled like a small, enclosed yard or court (Figure 2).

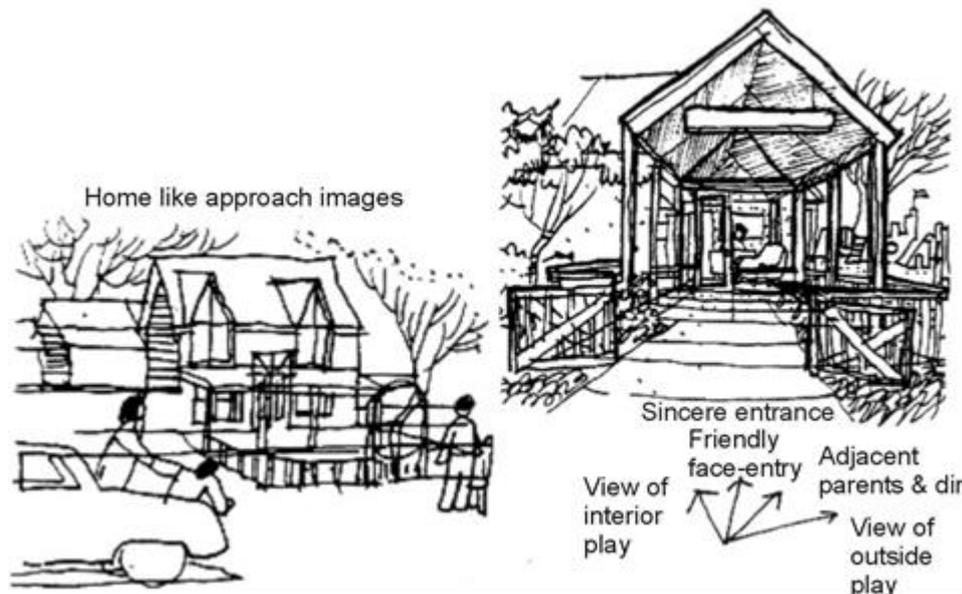


Figure 2: Front Yard and Front Porch
(Source: Moore et al., 1994).

The covered entrance can be large enough to provide outdoor waiting space and protected enough to provide transition space for people using the building. An outdoor covered space at the entry includes a minimal amount of seating on both adult and child scale. This could be under an overhang, on a porch, or on a deck, etc. Parents are encouraged to go inside and interact with their children (Moore, Lane et al., 1994).

Entrance space and paths properties: The very first impression of parents and children of a CDC is formed long before entering the building. This impression is related to the degree of clarity or confusion in finding the entry (Moore, Lane et al., 1994). If the path from community to center is unclear and the entry is difficult to find, both child and parent will enter the center with a residue of frustration. If children are unfamiliar with identifying building types by subtle architectural cues, then they may identify buildings by the activities that they see happening inside (Appleyard, 1969). If children can see activities through windows while they are approaching the entry, this may relieve anxieties and apprehensions (Figure 3).

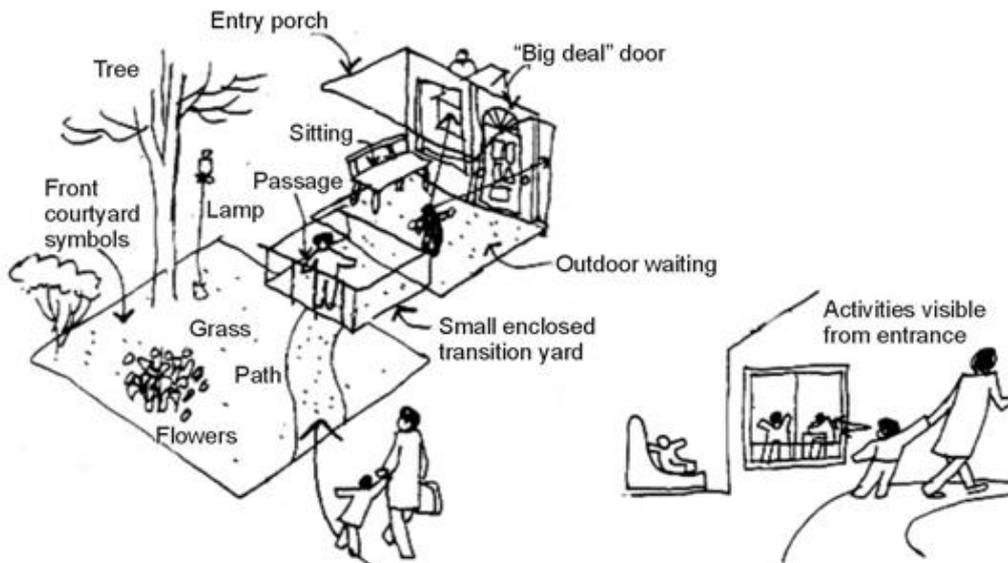


Figure 3: Entrance Space and Paths Arrangements
(Source: Moore, Lane et al., 1994).

Methods of making the pathway obvious include a gateway, possibly even with a sign over it, landscaping and pavement cues, level changes, rhythmically spaced color, lights, or reflectors. Making the entry obvious may be an extension of the pathway cues (e.g. carrying the same pavement indoors), or can be an emphasis point in the building form (Cohen, Moore et al., 1978).

Outdoor learning spaces: Outdoor learning spaces are among the most memorable places of childhood. Playgrounds are for exercise and physical coordination. Indispensably, they are places to test imaginations and social skills of children (Caples, 1996; Themes, 1999; Greenfield, C.F., 2012). Outdoor playgrounds are not simply for releasing stored-up energy. Learning and playing spaces should contain sites for children to develop their imagination and creativity, to use for an area of activity and to satisfy their need for play (Sener, 2001). As a result of research, it has been widely recognized that almost anything that can be done indoors also can be done outdoors. For this reason playgrounds should be designed in much the same way as playrooms (Frost and Wortham, 1988; Vaughn, 1990; Guddemi and Eriksen, 1992). The only difference between indoor and outdoor spaces is that indoor spaces have a roof over them. Both of them need architectural expression and they are thought to be an obligation to meet the child's developmental needs.

In contemporary playground design, the aesthetic values such as sculptural play elements, novel forms, colors and textures become important features (Hayward, Rothenberg et al., 1974; Rohane, 1981). The diversity of ground covers on horizontal, vertical and inclined surfaces enriches the preschool child's experience (Shaw, 1987).

Environmental Factors

The second group of factors that affects the selection of a CDC for parents and children is environmental. The environmental factors of a CDC selection are visibility in the community, user friendly and child centered aesthetics and scale and location.

Visibility in the community: According to Appleyard (1969), people remember buildings firstly by their function, secondly by visibility to the cone of vision walking and driving, and thirdly by its architectural character and detail. Moore and his friends (1994) in their research pointed out the importance of the high visibility of a new child development center: so that parents know about its existence and location, and a measure of protection for children, buildings and grounds (Figure 4).



Figure 4: High Visibility in the Community
(Source: Moore, Lane et al., 1994).

User-friendly and child centered aesthetics & scale: The utilization, the experience and the visual perception of the space according to children should be imagined and the design should be adapted to the scale of children (Kotnik, 2011). Child-scaled and user friendly spaces are more pleasant for children. In the past few years some researches have been made to minimize the institutional character, and in general, the exploration of friendly, less institutional, and distinctive personalities for buildings. Other examples to this user-friendly aesthetic demand include the creation and use of natural materials and colors (e.g. cedar channel sliding), extensive landscaping coming right up to the school, interesting, and engaging spaces, forms, textures, etc., child scaled spaces, and the use of friendly symbols (Moore, Lane et al., 1994). There is limited evidence that soft playrooms are related to higher levels of voluntary participation, and that overall aesthetic quality in educational facilities is related to students' task persistence.

Location of child development center: An environmental psychologist, Terrance Lee (1964), found out that preschool children walking to child-care centers, interacting with people and the environment along the way have a better understanding of their physical environment than those having to be driven in cars, buses or services. He suggested the possible appropriateness of child-care centers being within the child's immediate neighborhood. Such a finding is not surprising, given Piaget's general theory of child development which stresses that for the young child, knowledge is concrete and active, that it arises from actions and objects, not abstract considerations of them. Thus, child development facilities are preferred to be located in the child's own neighborhood whenever possible and most children are able to walk between home and their child development facilities (Lee, 1964; Moore, Lane et al., 1994; Cohen, 1974; Prescott and David, 1976).

Child development centers are preferred to be located near community learning resources which we could call places of natural interest to children, like libraries, interesting places of work, shops, museums, galleries, nature areas such as zoos and botanical gardens. This will provide opportunities for field trips, use of nature as a learning environment and the possibility of sharing certain facilities (Moore, Lane et al., 1994).

RESEARCH OBJECTIVES, METHOD AND ANALYSES

The overall physical properties of a CDC are important variables for child care. Well-designed centers help children to develop their cognitive and behavioral talents easily. If a center can help children to develop, it would be a preferred one by parents from among the other centers. Being enrolled at a child development center is often a child's first separation from his or her parents, home and familiar surroundings. Generally, all children can find this experience difficult and anxiety provoking. Initial impressions of the center of both the building and its occupants can effect adjustment to the new environment for both child and parent. Properties of a building make it seem warm and inviting in appearance, or cold and formal. A CDC has the real possibility of being overwhelming to a child by its formality, size and lack of friendliness. Both the site and the center should look like it belongs to children and should fit pleasantly into the physical context.

Within this study, in terms of the above-mentioned necessities and spatial preferences of the preschoolers' parents and instructors, a survey design has been conducted. The objectives of the research are to investigate the following issues and properties related to the center's image and environmental properties that affect the CDC selection by parents and preschoolers as addressed in the questionnaire:

- visual properties that affect this selection,
- important physical properties which constitute the image of a CDC in a parent's mind;
- the factors that enhance the general positive influence of a CDC;
- location properties.
- the visibility of a CDC as observed by pedestrians and drivers,
- user-friendly and child centered aesthetics and scale.

The sample is a diverse group of the preschooler's parents and instructors who use CDCs in two different locations in Turkey, Antalya and Istanbul. In order to ensure the quality of the study, the research team communicated the survey with instructors in the target CDCs first, and then organized similar schedules. The sample group was selected randomly to ensure that recruited preschooler's parents were demographically diverse in education and from middle and high socio-economic status. The survey instrument used in the study was a self-designed standardized questionnaire. The questions which were asked in the questionnaire were closed and open-ended. The questionnaire was distributed and tested on the sample group of 95 persons: 79 preschooler's parents and 16 preschool instructors. Within these 79 parents, 55 were female, and 24 were male. Information, which can be data for the design of CDCs and about the experiences and preferences of the preschoolers' parents and instructors, has been analyzed.

RESULTS

All 95 respondents were interviewed using a questionnaire to examine the CDC selection under the following topics:

1. Visual, Institutional Image and Positive Influence Properties of CDC: Institutional image type, visual properties, and other properties that enhance positive influence of a CDC that affects selection by parents and preschoolers have been investigated under this topic:

. Visual properties: Parents and instructors were asked to select visual properties that affect CDC selection. Percentages for answers given for "Visual properties" are respectively: 37% for "playground contents", 17% for "symbols", 15% for "aesthetic quality", and 12% for "landscape",

10% for “colors”, 8% for “façade materials”. For instructors the “playground contents” factor increases to 56% while “symbols” decrease to 12% and “landscape” and “aesthetic quality” to 8% (Figure 5). Other visual properties for selection added as answers to open-ended questions by parents are: sufficient greenery, secure entrance, healthy material usage in ground cover, clean toilets, lighting, cleanness and volume properties of sleeping spaces, interest of instructors, toys, discipline, homey atmosphere, comfort, qualified education and hygiene. Instructors added: education quality and reliability, reliable environment, quantity of education materials, homey atmosphere and clean physical space, individual interest, references to institutional image factors for CDC.

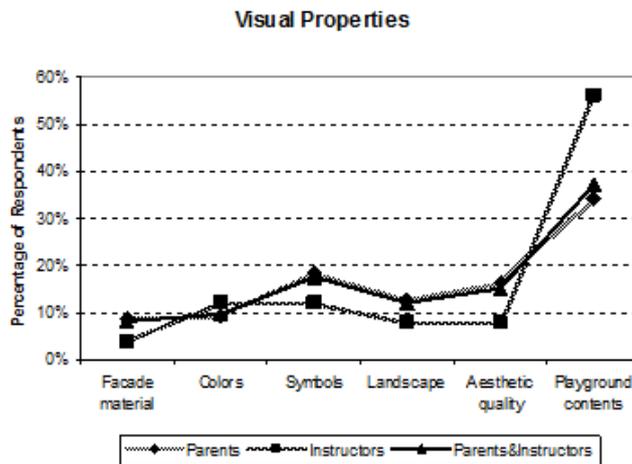


Figure 5: Visual Properties that Effect CDC Selection.

• **Institutional image:** Percentages for answers given for “institutional image of CDC” are respectively: 45% for “homey”, 38% for “school”, 18% for “institutional-homey”, and 8% for “homey-school”. For instructors the “homey” factor decreases to 32%, “homey-school” to 0% while “institutional-homey” factor increases to 32% (Figure 6).

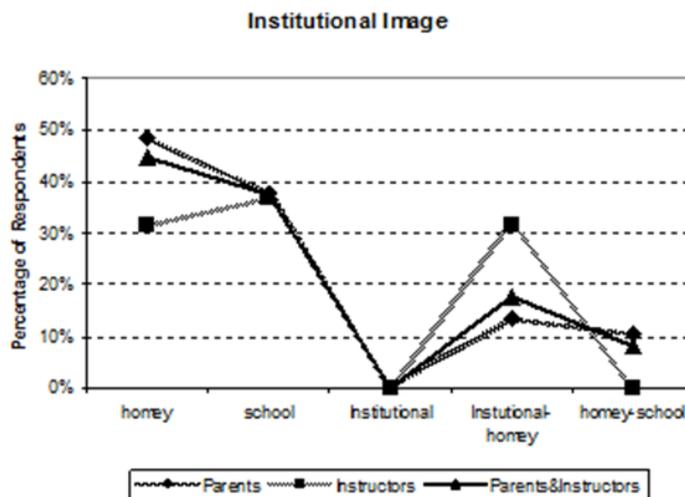


Figure 6: Institutional Image Properties that Effect CDC Selection.

Also, parents and instructors gave extra definitions to an open-ended question for image factors. For image of a CDC parents added; disciplinary homey atmosphere, environment that join children together and provide safety playing, possibility for activities that enhance child's bodily and mental development, disciplined with amity, not a boring environment, family environment and discipline, warm and understanding, a garden fulfilled with adventure elements, friendly, clean and well cared atmosphere. Instructors mentioned; environment that provide free motion for

child, a place that child can feel at home in between CDC rules, a CDC that can make child feel as researcher, free and happy.

• **Positive influence:** Parents and instructors were asked to sort CDC properties that enhance its positive influence on them from most important to least. The scores changed from one for the least to eleven for the most important. The average score per respondent is 9.4 for “homey” atmosphere, 7.1. interior-exterior spaces in child-scale, 6.9 direct playroom-outdoor learning space relation, 6.7 visibility of interior child activities from the entry, 6.1 visible entry, 6.0 high quality front yard ground cover, 5.6 location of CDC, 4.9 exterior view of CDC, 4.8 in a residential scale, 3.9 use of pitched and visible roof, 3.8 quality of surrounding buildings (Figure 7).

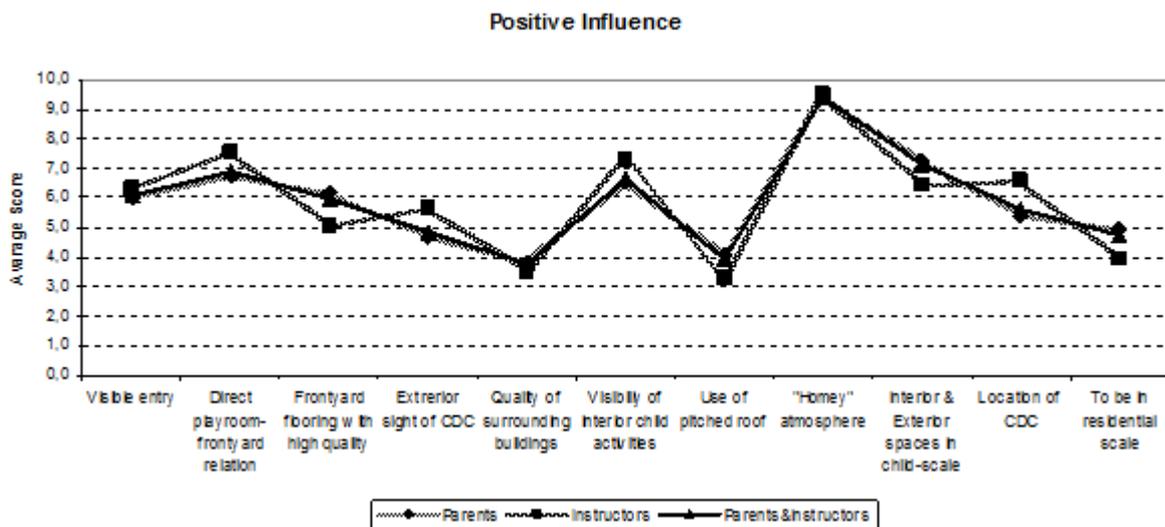


Figure 7: Properties of CDC that Enhance its Positive Influence.

2. Environmental Properties of CDC: Visibility in the community, user-friendly and child centered aesthetics and scale, location of a CDC that affects selection by parents and preschoolers have been investigated under this topic:

. **Visibility in the community:** Percentages for answers given for “the visibility of a CDC to passing motorists, riders of public transportation and people walking around” are respectively: 77% for “yes” and 23% for “no”. The reasons for the negative answers are: (1) drivers will drive carefully if they see CDCs, (2) everyone will be aware of the existence of a CDC. The answers of parents and instructors are similar to each other.

. **User-friendly and child centered aesthetics and scale:** When asked to the sample group if the equipment in the preschooler’s learning environment are child-scaled, percentages for answers given are respectively 100%. Percentages for answers given for “the relationship between child-scaled equipment and participation of child to the activities” are respectively; 96% for “yes” and 4% for “no”. The answers of parents and instructors are similar to each other.

. **Location:** Percentages for answers given for “location properties” are respectively: 44% for “near home”, 19% for “not crowded street”, 19% for “near to residential area”, 11% for “isolated”, and 7% for “presence of childhood population”. For instructors, “isolated” factor decrease to 0% while “not crowded street” increased to 37% and “near to residential area” to 24% (Figure 8).

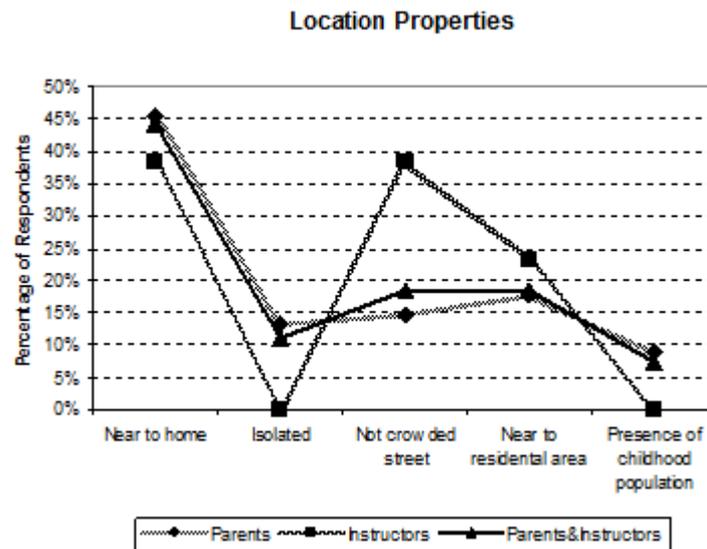


Figure 8: Location Properties of CDC that Effect CDC Selection.

DISCUSSION AND CONCLUSION

As a result of industrialization, a rapid increase in the number of working mothers and problems of a single parent child, the existence and design of preschool child education centers have become important. The quality of interaction of a preschooler with his or her physical environment is related to the possibilities of the physical environment and the richness of the environment in which a learning experience will be realized. For this reason, there are too many alternatives of CDCs with different space qualities. So the selection for the right CDC becomes an important subject. In this study, physical and environmental factors that affect the CDC selection of parents and preschoolers have been reviewed. With case study visual, institutional image, positive influence properties and environmental properties of CDC has been investigated. According to the above results, the following findings and recommendations are thought to enlighten later CDC design studies.

CDC design criteria for a building must not be “institutional”. Design should be away from formality, and be warm, inviting and comfortable for children, parents and staff. CDC design should look “homey”. The general image of a CDC should be on that gives a disciplinary homey atmosphere, an environment that joins the children together and provides safe playing, possibility for activities that enhance a child’s bodily and mental development, disciplined with amity, not boring, a family environment with discipline, warm and understanding, friendly, a clean and well cared atmosphere, a place that can make a child feel like an explorer, free and happy. The appearance of the building’s exterior, its location, and the quality of surrounding buildings and other facilities are other important variables in this image.

Playgrounds which can also be thought of as outdoor learning space, their contents, aesthetic quality and symbols are the most important visual properties that affect CDC selection. It is as important as indoor space for qualified childcare. Other important visual factors for center selection are sufficient greenery, secure entrance, healthy ground cover material, lighting, homey atmosphere, reliable environment, clean physical space.

The properties of CDC that enhance its positive influence are “homey” atmosphere, interior- exterior spaces on a child-scale, direct playroom-outdoor learning space relation, visibility of interior child activities from the entry, visible entry and front yard ground cover with high quality. Children’s image for the child development center will be positive when it helps children to see from nearby paths, projects, activities, and spaces in the building (Osmon 1971).

Child development centers should be visible to passing motorists, riders of public transportation, and people walking in the area. The reason for ease of sighting is that everyone will be aware of the existence of a CDC.

Location properties of CDC are to be near home, not on a crowded street and near to a residential area. The child development centers located within walking distance of the majority of users' homes and on a line between neighborhoods will maximize community involvement, provide for integrated settings, engage children more in their immediate physical environment, and contribute to the development of environmental cognition (Rahaim and Moore, 1982; Moore, 1987). For the practical image of the child development center, it should not be located in an area where there is a noticeable outflow of population. Instead, they should be located in areas of stable or increasing child population (Moore, Lane et al., 1994).

It is important that a CDC design be built giving importance to:

- increase the aesthetic quality to draw attention of children,
- form a different image than institutional buildings,
- design interior and exterior spaces in child scale,
- form a homey atmosphere at approaching to the center
- have visibility easiness for parents to inform about the existence and location of the center.
- select the location of CDC near to the residential area,
- increase the outdoor learning space content quality,
- provide visibility of interior child activities from the entrance.

This article points out design properties that affect child development center selection by parents and preschoolers and adds to the existing literature on child development center selection by examining physical and environmental factors. Further studies may be carried out for physical and environmental properties of a child development center that have been mentioned in this study. These efforts may contribute to changing the negative situation of poor design centers. This study may be used for educational, governmental and advertising purposes.

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