

The Influence of Interior Design Elements on Children's' Learning, Happiness, Comfort and Growth (Petra Nursery as A Case Study)

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ABSTRACT

This article aimed to investigate the impact of nursery interior design on the growth, happiness, comfort and learning of children in Petra Nursery. This research was carried out by descriptive-analytical approach by choosing Petra Nursery as a case study which is located in the University of Petra campus to provide stimulation for the children with the positive impact of learning-friendly environmental nursery for the early childhood development system in Jordanian campus. The data was collected from published resources of quality assurance department of Petra nursery, open-ended interviews with five teachers, and qualitative surveys with 19 mothers of children in Petra Nursery, and observing children aged from 3 months to the 4 years, by taking colored photos and site visits every week. The results indicated that the children were very pleased with the interior and exterior of nursery designs. For example, the level of learning performance of children was increased in the indoor play area especially in the dance and music areas, while the lowest level of learning performance for children was in the house area. The results also indicated that the level of happiness for children was decreased in sciences and discovery area due to color and material elements. However, the color and picture elements had a positive impact on children in nursery sleep rooms and they were very pleased. The conclusion of this research shows that the rooms were very cozy and comfortable, and the children were extremely happy with friendly environmental materials, color, and furniture.

Keywords: Nursery design, Children's' Learning, Happiness, Comfort,Growth

1. INTRODUCTION:

Learning environments are important spaces that support the development of children. They can influence on children learning, happiness, comfort and growth. There are many researchers studied the impact of interior design elements on children performance such as colors, shapes, texture and lighting. It is clear that color has a profound impact on human's emotion, mood and performance (Al-Ayash et al. 2016). Color can affect children's learning by using color to develop pattern recognition, memory and absorbing new information. It can also visually guide children to locate, compare, understand and recall information faster (Hamdy, 2020). For example, pastel colors are appropriate for children to be calm in sleeping area while the red and black colors are not suitable choices for sleeping. It is noticed that warm colors like (red, orange, yellow) can stimulate the energization of the body and mind and make the large spaces very welcoming and cozy, on the other hand warm colors are not relaxing colour and not suitable for sleeping activity (Stankovic and Kekovic, 2019). Warm colors also are cheerful and stimulating such as orange can motivate social interaction and communication, yellow can makes the room sunny and bright, red is increasing athletic ability. It is a color associated with happiness, but it uses with caution (Weingerl and Javoršek, 2018). Pink is associated with calmness and relaxation color, and it evokes femininity and empathy. Blue is the opposite of red, it has a calming effect, lowers blood pressure also a good color choice if you wish to create a cool environment in a hot and humid location. Green is a calming and nurturing color also it is associated with nature and symbolizes health and well-being; it can even increase reading ability. This makes it the best color for learning environments (Barrett, et al. 2017).

Several studies indicated that the positive environment in child center can enhance children's physical, social, growth and intellectual development (Knauf, 2019; LGA Architectural Partners for Children's Services 2016). Many studies are interested in the 'learning environment'. For example, Ellis and Goodyear (2016), focused on the context of higher education, explored how well-designed, furniture layout, and spatial organization can be effective for learning activity. Personal wellbeing was defined by ONS as 'overall satisfaction with life, the extent to which we feel the things we do are worthwhile and daily emotions such as happiness and anxiety. According to a study by Benchekroun, et al. (2020), it is widely observed that the interior design elements of buildings such as physical environment, lighting, temperature, and noise have a significant impact on young children's wellbeing and health. In regard to the space, for example, in England, there are minimum standards for designing a model nursery. In relation to indoor space, it should be 3.5 m² per child under 2; 2.5 m² per child aged 2; and 2.3 m² per child for children aged three to five years (Benchekroun, et al. 2020).

1.1 Significance of the Research

This study is highlighted on the design of Petra Nursery which was designed and implemented by the researcher in 2015. The study has analyzed the impact of interior design elements such as wall treatments, furniture layout, graphic design elements and colors on children's learning, happiness, comfort and growth.

1.2 problem statements:

Key questions addressed in this study are:

- Do the interior design elements of Petra Nursery spaces increase the level of children's happiness and comfort?
- Do the interior design of indoor spaces help the children to learn and grow?

1.3 The aims of this study are to:

1. Investigate the influence of interior design elements on the learning, happiness, comfort and growth of children in Petra nursery.
2. Evaluating the interaction between children and nursery's indoor and outdoor environmental elements.

1.4 Research Boundaries:

The boundaries are the University of Petra (Petra Nursery) and the time frame is five years (2019-2020).

2. METHODOLOGY OF RESEARCH

This research used the descriptive analytical approach to investigate the influence of nursery interior design elements on the learning, happiness, comfort and growth of children in Petra nursery. The data was collected from open-ended interviews with five teachers working in Petra Nursery, the sample was selected by contacting the manager and staff, then the children were observed by taking colored photos and site visits every week. This research was also published resources in quality assurance department questionnaire of Petra nursery to evaluate the interaction between children and nursery's indoor and outdoor environment by using qualitative surveys of the year 2019-2020.

The questionnaire consisted of five questions which focusing on the relationship between the nursery interior design and its impacts on the interaction of babies and kids in Petra Nursery, it covered 3 aspects:

1. The physical development of the child: (growth)
2. Emotional development (happiness, and comfort)
3. Language development (learning).

2.2 Participants

The participants targeted in this study were five teachers work in Petra Nursery, 19 children aged from 3 months to 4 years, who divided into four stages (male and female): first stage the infants from 3 months to one year, the second stage the babies from one

to two years, the third stage from two to three years old, and the fourth stage from three to four years old, 19 children's mothers in Petra Nursery, who employed in university of Petra.

2.3 The Research Sample

In this study, specific internal and external spaces were used and their impact on children was verified as follows: Classrooms, bedrooms, breastfeeding room, indoor and outdoor playroom, movement corridors.

See Figure (1,2,3,4,5,6,7,8).

2.4 Describe the Petra Nursery

The table below show the analysis for the elements of interior and exterior design's descriptions of Petra Nursery. See Table 1.

Table (1) show the analysis for the description of Petra Nursery

Element of design	Outdoor entry and the door of Petra Nursery					
	Celling	flooring	furniture	Wall & door	Games	Graphic shapes
Shape	Rectangle	-	-	Giraffeand grass	-	Four babies ages
color	yellow	Cement gray	-	Pink, green, blue	-	green, blue, purple, and orange
Texture	Wood and waterproof fabric	cement	-	wooden door and plastered wall	-	Acrylic & pent
Element of design	Outdoor Play Area of Petra Nursery					
	Celling	flooring	furniture	Wall & door	Games	Graphic shapes
Shape	Rectangle	Oblong	-	Giraffeand grass	Left zoon: cars, bicycles, basketball and football. Right zoon: swing, slide and big plastic house	Four babies ages
color	yellow	green	-	Nude, white and baby blue	Blue, yellow, pink, green, gray, nude orange.	green, blue, purple, and orange
Texture	Wood and waterproof fabric	Industrial grass	-	wooden door and plastered wall	plastic	Acrylic & pent
Element of design	Indoor Entrance Hall and play area of Petra Nursery					
	Celling	flooring	furniture	Wall & door	Games	Graphic shapes
Shape	Rectangle	Puzzle & parka wood,	Seating Squiredesk, T.V unit Kidney Tables and eight babe's chairs	Squire and rectangle	Small kitchen T.V screen Music instrument, since game	Four babies ages in entrance hall
color	whit	Orange, blue, green, and yellow	Red, yellow, and blue with green	Baby blue and nude	Red, yellow, and blue with	green, blue, purple and orange
Texture	Gypsum board	P.V.C	Wood and plastic	Plastered With pant	Iron with fabric	Wallpaper

Element of design	Classrooms of Petra Nursery					
Shape	Rectangle	Rectangle	Kidney table with squire chair & locoer	Wall & door Balloons, flowers	Games -	Graphic shapes Balloons, flowers
color	white	Green& pink	Yellow, green, red	Pink, green, blue, yellow and pink	-	green, blue, purple and orange
Texture	Gypsum board	P.V.C	-	wooden door and plastered wall	-	wallpaper
Element of design	Babies bedrooms& the breast feeding room of Petra Nursery					
Shape	Rectangle	Rectangle	Bedroom	Wall & door Girl with hart, plant and Monkey with butterfly	Games baby play gym	Graphic shapes Heart with butterfly
color	White	move blue and	brown	Purple white and nude	Purple,blue, white	green, blue, purple, and orange yellow
Texture	Gypsum board	P.V.C	wood	wooden door and plastered wall	co-friendly Steel with cotton fabric	Wallpaper



Fig 1: The Outdoor Right play Area [by researcher]



Fig. 2: The Outdoor Left Play Area [by researcher]



Fig.3: The indoor play area [by researcher]



Fig.4: The indoor Entry & corridor [by researcher]



Fig. 5: Infant Heart classroom [by researcher]



Fig.6: Infant butterfly classroom [by researcher]



Fig. 7: The breast feeding & Rest Area [by researcher]



Fig. 8: Infant sleep room [by researcher]



Fig.9: Babies flower classroom [by researcher]



Fig. 10: Babies Balloons classroom [by researcher]

3. THE RESULTS:

3.1 Results of Measuring Parents' Satisfaction

According to the questionnaire conducted by the Quality Assurances Committee at the University of Petra, 19 mothers were asked about their satisfaction. The results show that 93.6% of mothers were satisfied with the level of extracurricular activities provided to children in the nursery. As for breastfeeding space, it was found that 98.8% of mothers were confirmed that the space design increased comfort and growth level, and 94.8% of mothers mentioned that language development was improved as well. In addition, the results indicated that 94.8% of teachers confirmed the type of games and educational tools had a positive impact on the physical and linguistic development of babies. The result also shows that 92.6% of teachers confirmed that the capacity of the space is enough for the number of children and teachers.

3.2 Observation Results

The researcher visited the Nursery of the University of Petra weekly for one year to observe and record children's activities and the impact of the indoor spaces of their growth, happiness and comfort, and learning.

3.2.1 The Impact of Physical Aspect on Child's Growth:

It was observed that the connection between the entrance, the open shared space and the indoor play area support the children to walk, run and jump with each other, and these activities help children to grow in healthy way. The indoor play area is divided into five zones: the first one is Lego zone, the second zone is a house, third zone is music and dance, fourth zone is science and discovery, fifth zone is reading stories. See Fig. 3, Fig.11, Fig.14, Fig 18.

In addition, design elements of breastfeeding spaces in the nursery, like swing chair and pastel green, yellow wall colors, helps the baby to grow and create a comfortable place for their mothers see fig (7, 17). The drawings on the light purple wall like sleeping monkeys and butterflies in addition to the comfortable bed, help the children to sleep comfortably and stimulated their growth and comfort. See Fig (6)

The different types of educational games for outdoor areas in the right zoon like swing, slide, and big plastic house, and the left zoon like, cars, bicycles, basketball, and football, help the children in their physical development growth. See Fig 1, Fig. 2, Fig.15, Fig.17.



Fig. 11: Babies Engagement & happiness in the indoor play area [by researcher]



Fig. 12: Babies Learning in the Balloons classroom [by researcher]



Fig. 13: Babies Learning in the flower classroom [by researcher]



Fig. 14: the puppet show story in the indoor play area [by researcher]



Fig. 15: The happiness & playing in the outdoor left play Area [by researcher]



Fig. 16: The achievement wall in the left outdoor area [by researcher]



Fig. 17: The comfort in the infant room [by researcher]



Fig. 18: The drawing & learning in the indoor play area [by researcher]



Fig. 19: the learning by story engagements in the indoor play area [by researcher]

3.2.2 The Impact of Physical Aspect on Happiness, and Comfort

As for happiness and comfort level for children, it was noticed that using the false ceiling in the corridor of the indoor play area as a display unit for student papers increased students' achievement, happiness and comfort. See Fig 4. In addition, lightweight movable furniture such as chairs, tables, and bean bags helped to change the events inside the indoor games hall and this created positive atmosphere with variety of activities, which increased the level of happiness and comfort for the children. See Fig 10, Fig 19. The interactive achievement walls motivated kids in the left outdoor zone to play, draw and paint and helped their social and emotional development. See Fig 16.

3.2.3 The Impact of Physical Aspect on Learning Development (Language)

It was observed that using different colors, themes and draw graphic shapes in the wallpaper of interior classrooms such as pink, yellow, green colors of the indoor and outdoor play area wall and floors of the nursery helped the children to recognize between play and education spaces. See Fig (5,9,8). The three different sound-isolated and quiet classrooms helped children to learn and develop linguistically. The spacious areas in the indoor play area provided a place to read the story and follow the educational programs on TV that assisted children to develop their education and language skills. See Fig (14) As well as the physical and linguistic developments of the children were increased by the ideal usage of friendly environmental material in the P.V.C puzzle floor and acrylic graphic art in the wall of these five learning Art and Science zones, with Many different types of games (educational and entertainment like a small kitchen). See Fig 14,18. The usage of different types of kidney and rectangular tables and babe's chairs with many different colors (pink, yellow, red, blue) were used in the indoor play area with classrooms zones to help children improving writing and drawing skills. See Fig (11,12,13). Also, the use of big T.V on the front wall of the indoor play area to watch educational films and songs, help children to increase their education. See Fig (14).

3.3 Results of Staff's Interview

Five teachers in Petra Nursery were interviewed and asked about the impact of indoor play area, classrooms design and outdoor area on babies' growth, learning, comfort and happiness. Table 1 Shows the results of interview.

3.3.1 The Impact of Indoor play area on Babies Growth, Learning, Comfort and Happiness

The results show that 95% of the babies' learning were increased especially in the dance, music, science and discovery area, 87% in Lego, 86% in puppets show, whereas the teachers confirmed that the lowest percentage of babies learning was 78% in the house area.

It was noticed that the color scheme and materials in all play areas increase the happiness level as it was found that 95% of the babies feel happy and excited, in contrast it was found that just 66% of babies were happy with the color schemes and materials of the science and discovery area were. As for comfort level, it was found that 93% of the babies feel comfortable in the dance & music area, 90% in Lego, 88% in puppets show, and 85% in house area. On the other side the teachers indicated that the lowest percentage of babies' comfort about 77% in the science and discovery area.

In regard the growth, the results indicated that 90% of the babies their growth were increased in the science and discovery area, 89% in dance and music, 84% in house and 82% in puppets show. On the other side the teachers said that the lowest percentage of babies' growth was 77% in the Lego area. See table 2.

Table. 2 The Impact of Indoor play area on Babies Growth Learning Comfort and Happiness

Indoor play area	Growth	Learning	Comfort	Happiness
Dance & Music	89%	95%	93%	95%
Puppets Show	82%	86%	88%	95%
Lego	77%	87%	90%	95%
House	84%	78%	85%	95%
Science & Discovery	90%	95%	77%	66%

3.3.2 The impact of Classrooms Design on babies' growth, learning, comfort and happiness

In regard the classrooms design, it was found that the learning level was increased for 95% of the babies in the flower classroom, 75% in Balloons classroom, while the teachers mentioned that the learning level was lowest percentage for babies learning were 22% at Butterfly classroom and 40% in the heart classroom.

As for happiness level, color schemes and materials of all classrooms had a positive impact on babies' emotions, 95% of the babies felt happy, while 87% of babies felt happy in the butterfly classroom. It was noticed that 95% of the babies' infants' comfort were increased in the Butterfly classroom, 91% in Heart classroom, while the lowest percentage of babies' comfort were 83% at Balloons classroom and 86% in the Flower classroom. For the growth level, the results show that 84% of the infant's growth were increased Heart classroom, also 73% in Butterfly classroom, whereas the teachers noticed that the lowest percentage of babies' growth were 62% at Flower classroom and 65% in the Balloons classroom. See table 3.

Table.3 The Impact of Classrooms Design at Babies Growth Learning Comfort and Happiness

Nursery Classrooms	Growth	Learning	Comfort	Happiness
Heart Classroom	84%	40%	91%	95%
Balloons Classroom	65%	75%	83%	95%
Flower Classroom	62%	95%	86%	95%
Butterfly Classroom	73%	22%	95%	87%

3.3.3 The Impact of Outdoor Play Area on Babies Growth, Learning, Comfort, Happiness

The teachers were asked about learning level of babies, it was found 95% of the babies learning were increased in left zoning [interactive wall] and furniture. However, the teachers mentioned that the lowest percentage of babies learning were 20% at grass flooring. The happiness impact of color scheme and material in all outdoor elements design was increased for 95% of the babies. Except the canopy was 87%.

As for comfort level, the results indicated that 95% of the babies' comfort were increased in the canopy. 91% in the interactive left wall, while the lowest percentage of babies' comfort were 86% for furniture and 88% in the grass flooring. See Fig 15.

It was noticed that 84% of babies' growth were increased in the outdoor play games [furniture like slid, swing and house], and in interactive left wall, while the lowest percentage of babies' growth were 10% at grass and 5% at the canopy. See table 4.

Table.4 The Impact of Outdoor play area at Babies Growth Learning Comfort And Happy

Outdoor Play Area	Growth	Learning	Comfort	Happiness
Interactive Wall	84%	95%	91%	95%
Grass	10%	20%	88%	95%
Furniture	88%	95%	86%	95%
Canopy	55%	10%	95%	87%

CONCLUSION & DISCUSSION

It was clearly found that the interior design elements of Petra Nursery have a positive impact on the learning, happiness, comfort and growth of children. The results confirmed that interior design of nursery environment created pleasant working conditions for the staff as well, also supported the intellectual development of the children. The babies were pleased with the cozy and comfortable room, and they were very happy with the choices of color, furniture and other design elements.

The findings of this study agree with the findings of Al-Ayash et al. (2016) and Barrett et al. (2017) in terms of the effect of colors on children's affection, mood and performance in the nursery, the warm colors in the classrooms and the multi-purposes playroom inside and outside increase the motivation for education, growth and happiness. As for the cool colors, it was found that feeling of comfort and sleepiness for infant in bedrooms were increased.

The findings of this study indicated that the learning environment of Petra Nursery was well designed in terms of color scheme, furniture, space planning, materials and using recreational games inside and outside the nursery to enhance children's learning, performance, physical and mental development, and their sense of happiness and well-being. Studies show that human learning development is reaching the peak during the early years of human in well-designed learning environments (Knauf, 2019; Ellis and Goodyear, 2016).

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