

FULL PAPER PROCEEDING

Multidisciplinary Studies Available online at www.academicfora.com

#### Full Paper Proceeding ECBA-2016, Vol. 352- Issue. 35, 6-15

ISBN 978-969-683-028-3

# ECBA -16

# **Creation of New Learning Friendly Environmental Nursery in Jordanian Campus**

# Mayyadah Fahmi Hussein\*

University of Petra, Amman Jordan Abstract

*This* article is aimed to introduce the creation of a new learning friendly environmental nursery for the early childhood development system in Jordanian campus. This research was carried out by experimental approach at University of Petra, to create a new friendly environmental Nursery by reusing and renovation the part of the Girl's Dormitory building, which is located on the university of Petra campus before 20 years ago. a new project was started at may, 2015. First step: Design a friendly environmental nursery by using Petra university designers, one of them are graphic, and two are interior designers they works in Faculty of Architecture and design, and used many computer programs to explain the concept, like elastrator for graphic signs and AutoCAD 3d max, very rendering in the 2d and 3d detailed drawings for architecture and interior spaces. Second step: implementation of this design in the Girl's Dormitory Building, inside the campus used all architectural design considerations like safety and security location, natural and artificial lights, doors, windows, natural and HVAC ventilation system, curtain wall, furnishings, Telephone and internet system, Graphic signs. and ceiling, flooring in a new modern way of Friendlily environmental colors and materials. The data regarding the Girl's Dormitory Building was collected by colored photos and site visits. The results according to this study showed very safety, elegant outdoor and indoor play area, entrance with open reception offices area, connected with practical indoor play area and artificial educational five classrooms, one infant sleep Rome and tow modern comfort sustainable toilets with the kitchen, laundry area and rest, breastfeed room, which was very comfortable and cozy.

© 2016 The Authors. Published by Academic Fora. This is an open access article under the CC BY-NC-ND license (<u>http://creativecommons.org/licenses/by-nc-nd/4.0/</u>) Peer-review under responsibility of the Scientific & Review committee of ECBA- 2016.

Keywords- Friendly Environmental Nursery, Jordanian Campus

#### Introduction

our children can experience the world in a place where caregivers and the community as well can gain support. This place is the child care or nursery. An excellent child care is created by different elements among which are the quality of life and health. Given that almost half of many children's waking hours are spent in the child care, hence, the quality of children's life are positively affected. (Child care design & technical guideline 2016).

The interior design of the nursery is an important element in creating a typical environment for the support of a child. In this project should be considered to create a positive environment of child center that encourages and enhances physical, social and intellectual development. research has shown the ideal usage of sustainable marital and furniture by reused and renovation of old building inside the university of Petra campus and rearrangement of all the spaces in it. (DESIGN GUIDE 1997). The aim of this research is to create a new learning friendly environmental nursery by reusing the building (the part of the girl's dormitory which is located on the university of Petra campus)

## Literature Review

#### Planning and design Guidelines

Planning and design Guidelines for child care centers (2006) [ministry of children and youth services, Ontario,]. The reason for this model is to offer advice in the planning, design and renovation of licensed nursery centers and licensed child care facilities. The Guide was to help the development of centers that are child and family friendly, risk-free setting, encourage healthy growth, are designed elegantly, useful in their design, and economical to maintain. The center's sketch, representation of area and color, safety standards, are imperative to the child's growth and skills learned. This Guide will deliver skills for construction workers and their consultants in designing a child care facility.

## Effect of Color and Theme

This section includes data on starting a color plan and its emotional effect on paint and painting techniques. It also has information on merging a nursery color, paint and theme choices made for Petra nursery.

\*All correspondence related to this article should be directed to Mayyadah Fahmi Hussein from University of Petra, Amman Jordan\ Email: mayada19732004@yahoo.com

@ 2016 The Authors. Published by Academic Fora. This is an open access article under the CC BY-NC-ND license

(http://creativecommons.org/licenses/by-nc-nd/4.0/)

Peer-review under responsibility of the Scientific & Review committee of ECBA-2016.

Different choices of color and scheme play an important role in the facility. "The theme and color choices you make set the room's mood" (Strand, 2002, p.13)

. Many aspects of color and color schemes were researched before selecting a color for the facility. The main color was chosen first and then by using the color wheel the suitable color plan that works with the main tone is then selected. There are different kinds of color schemes which includes; analogous, monochromatic, complementary, triadic, and split-complementary tetrad (Still, 2004).

- Analogous-Adjacent Colors in the color wheel. For example, pink with purple and blue with blue green. "Varying intensity, value texture, and pattern will add interest to analogous color schemes" (Still, 2004).

-Monochromatic- only one color. For example, all-green or all yellow. Monochromatic schemes can be made by merging different patterns and textures in the same color way and by using varying strengths of the same color (Still, 2004). The Monochromatic room could be altered by adding accent colors with accessories such as area rugs, pillows and curtains (Still, 2004).

-Complementary- Two colors that contrast each other on the color wheel, such as blue and orange. Complementary colors harmonize warmth with coolness and create a more lively feeling (Still, 2004).

-Triadic- Three or more colors that are of equal distance apart on the color wheel (Still, 2004). For example, yellow, red and blue.

-Split-complementary- Combination of one color with those on both sides of the first color's complementary scheme (Still, 2004).

-Tetrad- Any two pairs of complementary colors, such the combination of orange and blue with red and green (Still, 2004).

-Pink- Promotes a sense of well-being and happiness.

-Orange- Warm, friendly, revitalizing. Shade is important and greatly has an emotional impact.

-Yellow- Happy, joyous, uplifting, wholesome and friendly. Promotes clear thinking.

-Green- Color of rejuvenation, new growth and new promise. Has the ability to relax and calm.

Blue- cozy and comforting. Can lower blood pressure and slows breathing rate. In large amounts can be disturbingly formal.

Purple- Creative, off-beat, adds an element of light fun and restfulness.

Neutrals- (Beige, Taupe, Brown, White, Gray and Black) Soothing and refreshing, peacemakers that separate brighter shades. Lighter shaded are rational and darker shades can be dramatic. (Ingram, 2004).

Hi-gloss- maximum lastingness, stain resistance, scrub ability and shine.

Semi-gloss- astonishing durability, stain resistance, scrub-ability and shine.

Satin- scrub-able, durable, pearl-like sheen for medium to high traffic areas.

Flat- washable paint that has no radiation so it lowers imperfections.

# Objective

1. Supporting and activating creation of nurseries in private Jordanian universities .

2 stimulate the participation of women in the labor market.

3. Petra nursery should be one of the best strategic projects of national employing workers in Amman.

#### Methodology of Research

This research was carried out by experimental, approach at University of Petra, to create a new friendly environmental Nursery by reusing and renovation the building) part of the Girl's Dormitory) which is located on the university of Petra campus and designed before 20 years ago

this projector of creation nursery started in may of 2015.

First step: Design a friendly environmental nursery by using Petra university designers, one of them are graphic, and two are interior designers they works in Faculty of Architecture and design, and used many computer programs to explain the concept, like elastrator for graphic signs and AutoCAD 3d max, very rendering in the 2d and 3d detailed drawings for architecture and interior spaces. See Fig. 1, Fig.2 Fig.3, Fig4, Fig 5, Fig. 6, Fig 7, Fig 8, Fig.9, Fig 10.

Second step: implementation of this design in the Girl's Dormitory Building, inside the campus Was carried out by the staff of Engineering Office of the University. this office was used all architectural design considerations like safety and security location, natural and artificial lights, doors, windows, natural and HVAC ventilation system, curtain wall, furnishings, Telephone and internet system, Graphic signs. and ceiling, flooring in a new modern way of Friendlily environmental colors and materials.

The data regarding the Girl's Dormitory [nursery Building] was collected by colored photos and site visits.

# Process Plan for Design & Implantation of the Nursery

Time line of the design : for 5 months, worked on the draft concept paper which was included (2 weeks) researched baby nurseries, bedding, equipment, and baby gear online, 2 days, researched design, color, space, and lighting online. One day, worked on the bibliography and the final concept paper, 3 baby stores were visited in two days and looked at different nurseries. the plans for room construction were made in two days. many different libraries were checked and researched books in three days , then evaluating them in 4 days.

#### Results

# Create The Petra Nursery in The University of Petra

The purpose of this research is to provide both the use and the aim of each area of a child care facility in the Petra nursery. By using different references for the design ideas regarding spatial organization, circulation, and room layout, this work provides guidelines for designing useful, secured, and motivating.

## Outdoor Entry

Petra nursery has safely accessible to all users. This will include children and adults, parents with single and double pushchairs, people delivering goods, a safety barrier was located immediately opposite the entrance to prevent children running straight out into the road.

Three canopies in the outdoor area were designed, two of them were in the outdoor play area, and the other one was in the main entrance, it capable of protecting three or four people with push chairs on arrival or departure, giving shelter for staff while unlocking the front door or for parents unfolding an umbrella etc.. This may also contribute to the enhancement of the identity of the building and the clear indication of the entrance. See PIC.(1), (11)

It had a clearly graphic signed and named designed by our tem, the logo was located in the outdoor and indoor of the nursery building, many murals were designed related to the logo and put in the external play area walls and inside the nursery rooms, play area see PIC.(2), (12). The security man was outside the gate.

# Outdoor Play Area:

A safe and challenging outdoor environment for children was designed to give the child through different active play chances in the natural environment, the ability to socialize and learn more. Different age groups (infant, toddler, preschool) had separated play areas with a low fencing or dividers in this nursery.

This Area was divided into two main zoon's [left and right]:

a. Left zoon had a main interactive wall for painting, writing and many play games like: cars, bicycles, basket ball and football. see PIC. (14).

b. Right zoon: had a many outdoor play games like: swing, slide and big plastic house. see PIC.(3) (13).

#### The Indoor Entrance Hall & Supervisor's Office

The main entry offers a friendly environment the way finding has employed elements such as color, finishes and lighting to enhance the route. The entrance was large enough to fit parents, staff and children during busy hours. An area for seating, posting notices, and display art had a great effect on the identity of the space. The identity for the center was created with a natural lighting and ventilation system in this zone. It's accommodate all the functions and all condition of the weather like: getting children in and out of pushchairs, opening and folding of pushchairs etc. This place also had a visual contact with the staff room or office. This office had computer, printer, scanner, copier, fax and with voice and data connections. This place was connected with the entry, and it had a secluded and secure place to meet the staff and parents. The open shared space with the indoor play area was organized by how easily the staff supervising the babies and using the furniture in the space as well as the flexibility to accommodate a variety of activity. It also connects the internal and external activity spaces with direct access see PIC. (16).

# Indoor Play Area

This area was created by merging two rooms in the existing building and opening the left wall to the entrance hall, reception, administration room and the main Corridor. (All these functions are in the same open place).

This room aids learning Art and Science in a good caring and relaxing environment, and it is well organized, flexible, healthy and safe by using friendly environmental material, P.V.C puzzle floor, toys, and graphic art in the wall (acrylic and foam material). designed by graphic designer Maha Al Saeed. See PIC (5. also A sustainable furniture were bought from E. Learning Company and used in this area two tables and eight babe's chairs with many different colors (pink, yellow). Small kitchen games and big T.V screen are put in the front wall, many toys and boxes also used in this place. this place was divided in to five zones: [fist one was Lego zoon, second was house, third was music and dance, fourth was since and discovery, fifth was reading stories. See PIC. (15), PIC. (17).

#### Security System

Main Entry Access Equipment supplies a video control system that is streamed to Supervisor's office in a way that the main kitchen and all other play rooms are well controlled. see PIC.(26).

#### Class Rooms

Petra nursery had tow class and sleep rooms for infants which is called [Heart with yellow color scheme see PIC. (19) & (9). and butterfly with violet color scheme) see PIC. (18) & (8). a separated, quiet and safe sleeping area for infants away from activity area were designed. see PIC. (20) (10). This room had a direct physical and visual connection with the playing area by using clear glazing in the dividing wall. Lockable cabinets for all in-room storage were used, glazed door in the sleep room was used to allow sight into activity area, with acoustic separation. And safety Windows with natural light. Also had two classrooms for babies, first one named (flower class) see PIC. (21). & PIC(7) It had a pink P.V.C floor and friendly environmental wall paper with flower graphic art. The second one named (balloons classroom) it had a green P.V.C floor and friendly environmental wall paper with balloons graphic art. In these classrooms the visual and acoustic connection to the play room is done in a way so that the staff can supervise and control the babies see PIC. (22). &(12)

#### Kids Toilets:

The washroom area is separated from the play room with a gate-wall that is half height so that kids can't enter the area without control. The child-size toilet and sink is provided with mirrors to support toilet training and hand washing. See fig. (28) & (30) also see Fig 1

## **Babies** Toilet

Change table with roll-out steps, were put in this toilet, and a clean area was safe and accessible for both children and staff. It was separated but visibly attached for diapering and toileting of infants. See fig (27) & (29) also Fig 2 in both toilets the environment should be warm and welcoming to lower anxiety. The next table show the used materials in these toilets. (See table 1.).

## Kitchen

An area for preparing healthy food and/or the handling of nutritious catered food was designed. This kitchen offered the chance for children to learn about different food items and its preparation. Petra nursery kitchen was visible to children from the corridor, nearby this kitchen there were breast feeding & Rest Area see PIC. (23, 24, 25).

Space	Required	Color	Dimensions	Area m2
	material			
Kids toilet	Ceramic	White	5cm *5cm	28 m2
	Ceramic	Blue	1cm *1cm	5.812 m2
	Ceramic	green	1cm *1cm	6.226 m2
Babies	Ceramic	White	5cm *5cm	34.3125 m2
toilet				
	Ceramic	Blue	1cm *1cm	2.59 m2
	Ceramic	orange	1cm *1cm	4.426 m2

# Table 1:

Toilets Materials in the Petra Nursery

	Space	Required	Color	Area m2
		material		
	Indoor playing area	PVC	Puzzle texture	24.4 m2
	Reception & corridors &	PVC	Parquet texture	64 m2
food court				
	Babies rooms	PVC	Parquet texture	23.1 m2
	Kids rooms	PVC	Parquet texture	36.25 m2
	Outdoor playing area	PVC	Grass texture	84 m2

## Table 2: Flooring Materials in the Petra Nursery

# Staff Toilets

One WC and wash basin is recommended for each six members of staff. If there are to be both female and male members of staff, separate WCs should be provided.

#### Flooring

All of the rooms in the nursery should use P.V.C Homogeneous floor covering (one layer) except bathrooms and kitchen and outdoor areas in Staitieh decoration company in Amman. See the next table (2) See Fig. 4

## Ceiling Finishes

The gypsum board in all nursery ceilings including room's hall reception, toilets, kitchen administrator was used. Ceilings were providing acoustic absorption and reflecting light. They were preparing all substrate surfaces to be dry and free of dust, wax, oil and other contaminants. The environmental considerations were used in the ceilings for example, all dimensional lumber and plywood have Forest Stewardship Council certified wood. Adhesives, sealants and mastics that have low VOC levels, Water-resistant, low VOC content were also used. All paints and primers have no VOC content. An acoustic ceiling tile with a Noise Reduction Coefficient of 0.50 was provided. See Fig. 3

## Wall Finishing

Different effects can be obtained using different ways of paint applications. In Petra Nursery National Polydex and National Hypalon are water and solvent based systems respectively was chosen. They offer a pliable and elastomeric Impermeable seamless membrane with excellent adhesion. They are highly resistant to water, moisture and UV radiation. The water proofing coatings are designed to absorb the possible dimensional movement caused by the contraction and expansion of surfaces. Also National water based paints (Emulsions) were used on the different nursery rooms as environmentally friendly (Low VOC), based on high quality pure acrylic and copolymer emulsion.

A monochromatic color scheme and classic taupe were chosen as the main shade. The bedding, curtains, area rug and accessories were used to add accent colors. A neutral and warmer color was chosen to provide a calm and serene environment for the infant. As mentioned above, color can stimulate emotional responses in infants. Lively and bright colors extract the feeling of creative and expressive environment which is abundant with activity, while warmer colors, neutrals and pastels tend to provide a more soothing feeling (Still, 2004). Each color can produce a different emotional effect.

We also chose wall paper environmentally friendly (Low VOC), with different graphic fingers and stories made by our team work. See Fig. 5 Fig 6 and PIC. 14

#### H. Cubbies

Each child had an individual transitional area for dressing, storing belongings and for easier communication between parents and staff as well as assisting the children. Each cubby should be enough for the child's seasonal clothing, footwear and other belongings.

#### Furniture

Multipurpose and portable furniture plays an important role in designing the nursery. Most nurseries have a changing table, crib, chair and dresser. Each of these items can be found in different colors and styles. Functionality, quality, and safety are the main things to be taken in mind before selecting the furniture and making the decision and purchase. This section contains information on different types of furniture, as well as the proposal of the choices in Petra nursery from learning Collection Company

Wooden Kidney shape table please note the color of the table is mauve size : 38"w x 65"l x 16"H, 1 Circle table with 8 chairs, 15 Wooden Chairs for the kids colors: Red Green Blue Yellow Size: h 60cm w 30cm legs 26cm, Blue Sack Style Sheets Special Offer Pack of 6, stackable cots set of 6 Size: 52.5"L x 21.25"W x 7.5"H, 8 beds for infants with Size: 54.2 x 33 x 43 inches, changing table 39.9 x 25.6 x 6 inches.



Elastrator plan drawing of graphic mural on the Right play outdoor area [by Maha alsaeed]

Figure 6: Elastrator plan drawing of graphic mural on the Left play outdoor area [by Maha alsaeed]



PIC.1 3dmax shot of the Out Door Entry [by Eng Aseel Abdulla]



PIC.3 3dmax shot of The Out Door Right play Area [by Eng Aseel Abdulla ]



PIC.5 3dmax shot of The indoor play area [by Eng Aseel Abdulla]



**PIC.7** Show the 3d max shot of flower classroom [by Eng Aseel Abdulla]



PIC.9 3d max shot of infant Heart classroom [by Eng Aseel Abdulla]



PIC.2 3dmax shot of the Out Door Petra nursery [by Eng Aseel Abdulla ]



PIC.4 Show the 3d max shot of Balloons classroom [by Eng Aseel Abdulla ]



PIC.6 3dmax show The indoor Entry & corridor [by Eng Aseel Abdulla ]



PIC.8 Show the 3d max shot of infant butterfly classroom [by Eng Aseel Abdulla]



PIC.10 3dmax shot of infant sleep room [by Eng Aseel Abdulla]



PIC.11 Show the Out Door Entry [by researcher]



PIC.13 Show The Out Door Right play Area [by researcher]



PIC.15 Show The indoor play area [by researcher]



PIC 17. Show babies five zoning of the indoor play area [by researcher]



PIC.19 Show infant Heart classroom [by researcher]



PIC.12 Show the Out Door Petra nursery [by researcher]



PIC.14 Show The Out Door Left play Area [by researcher]



PIC.16 Show The indoor Entry & corridor [by researcher]



PIC.18 Show infant butterfly classroom [by researcher]



PIC.20 Show infant sleep room [by researcher]



PIC.21 Show babies flower classroom [by researcher]



**PIC.23** Show The breast feeding & Rest Area [by researcher]



PIC.25 Show Kitchen area [by researcher]



PIC.27 Show babies toilet y researcher]



PIC.29 3dmax shot of Babies toilet [by Eng. Aseel Abdallah]



PIC.22 Show babies Balloons classroom [by researcher]



PIC.24 Show The Kitchen Area [by researcher]



PIC.26 Show The indoor office & reception desk [by researcher]



PIC.28 Show Kids toilet [by researcher]



PIC.30 3dmax shot of Kids toilet [by Eng. Aseel Abdallah]

# Lighting:

Data on various kinds of lighting appliances that can be used in a baby nursery is described in this section. Considering lighting in a baby nursery is an important part in designing it. The nursery will be used almost exclusively for feeding and sleeping in the first few months of life, and when the nursery gets natural sunshine during the day, it will be great once the child is getting older, but not in the early period of life (Biscotti-Bradley, 2006). Functional lighting gives illumination to keep the child out of the dark and shows where activities take place (McMillan & McMillan, 2004). Decorative lighting creates different mood and meaning. General lighting starts with a ceiling fixture or recessed lights equipped with a dimmer switch (Biscotti Bradley, 2006). Other great choice for the nurseries are track lighting and wall sconces as there will be no safety concerns about floor lamps or cords when a baby starts to crawl and stand (Biscotti-Bradley, 2006). In baby rooms, lamps and nightlights can also be helpful, but should always be kept away from children as bulbs may become too hot and exposed cords can be risky to infants.

In Petra nursery, we chose the hidden light and spot light Led light system for efficiency energy, also it used the daylight system by the windows inside the rooms.

## Curtain and Blinds

We used wood venations blinds in all of the nursery windows. See PIC. 19

## Conclusion

- The location of the day nursery inside the university of Petra building has many advantages. There is the direct use
  of its engineering systems (heating, hot water, mechanical ventilation, electrical distribution, communications,
  etc.) which is already used photovoltaic system and gray water system. and services (kitchen, laundry etc.)
  observation of children playing by many camera inside all the rooms and exterior ply areas, it will be a positive
  influence
- 2 the important advantage for this nursery is, the staff leave and pick up their children or to make visits during break periods.

#### Acknowledgment

The author is grateful to The University of Petra/ Facility of Architecture and design team work / Department of interior design/ Engineering office of university and it's all staff member/ Amman- Jordan for the full financial support granted to this research project.

## References

- 1. Biscotti-Bradley, B. (2006). Ideas for great baby rooms. Menlo Park, CA: Sunset Publishing, 84-88.
- 2. Design Guide. (1997). The design of day nurseries with particular. District General Hospitals, London, 7
- 3. Ingham, V. R. (2004). *Color schemes made easy*. Des Moines, Iowa: Meredith Books. Chronicle books. San Francisco, 67.
- 4. LGA Architectural Partners for Children's Services. (2016). *Child care design & technical guideline*. City of Toronto, Canada.
- 5. Still, J. (2004). *The smart approach to baby rooms*. New Jersy, NJ: Creative Homeowner, New Jersey, 39,-49.
- 6. Strand, J. (2002). Baby's rooms: Ideas and projects for nurseries, 13-17.