

Spaces for children in healthcare settings: design essentials and innovations

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Introduction

This short paper focuses in the design of healthcare facilities for children and it is a small part of my PhD entitled "Design parameters of children healthcare Units". In the current paper concepts such as "healing environment" and "creation of friendly atmosphere/ambience" are introduced and analysed through modern built examples from around Europe. The starting point for this research was about the contribution of the environment during hospitalization and how it could positively affect the patients. The research is centered specifically around children because they are a more vulnerable group of patients and hospitalization is a

defining experience for them. This happens because they are still in a developmental stage of their life both physically and mentally and this is related to the way they perceive and react to the environment.

The term "healing environment" was defined by Ulrich (1984) at one of his comparative studies in which he highlighted the importance of the natural view from a patient's bed and the value of the hospital environment with the presence of natural elements (in particular it was about window with a view of a tree).

Especially for children, the inclusion of natural elements is very crucial as they positively affect their psychology during the hospitalization and offers a feeling of security.

This works for a child's psychology like a bond to the exterior world and reminds them the life before their hospital admission.

Some basic characteristics of the healing environment are linked to their design that:

- Offers contact / unification with the exterior environment (large openings for views or gardens, small parks, healing gardens etc.);
- Inspires security and tranquility;
- Stimulates children's interests;
- Includes elements that are used as positive distractions (e.g. nature, technology, art etc.);
- Offers pleasant / Interesting views (e.g. nature).

Due to the holistic approach of health, during the past decades that has gained many followers, the architectural design of contemporary healthcare buildings is also affected by it. In this holistic context for health, when it comes to the design of modern children's healthcare facilities, there is much attention given apart from the creation of healing environment, there is a shift of interest to some other basic design parameters such as:

- the role of the natural / surrounding environment in architectural synthesis - biophilic design - natural elements
- Sustainability - green hospital & (ideally!) the "zero waste" hospital
- Concern for activities (especially in children's hospitals) during their stay
- The overall atmosphere - ambience (especially in children's hospitals) of the space.

The design parameter of "atmosphere - ambience" is a very important one and it is rather hard to be defined both verbally and in the design process.

This mainly happens because it is also linked to time and has a temporary effect that has a personal unique meaning for each and everyone. In order to clarify its meaning in the design process some aspects that are related in the creation of a more friendly atmosphere in children's hospitals are the:

spatial relationships (size, distances, positions of objects)

- functional relationships;
- aesthetics;
- sensory aspects (subjective - personal experiences);

Another important factor for the "atmosphere - ambience" of the space is the parameter of "Light" (both natural and artificial) in public spaces but also at the patients' rooms (see fig01). In order to understand better the healing qualities some of the most important design parameters for children's hospitals they will be analyzed and explained through some recently built examples (Case Studies) from around Europe.

1 - The volumes and the facades of children's hospitals

The exterior of the building is noticed on recently built examples that has lower total height (compared to the past) and therefore has a more friendly scale towards children.

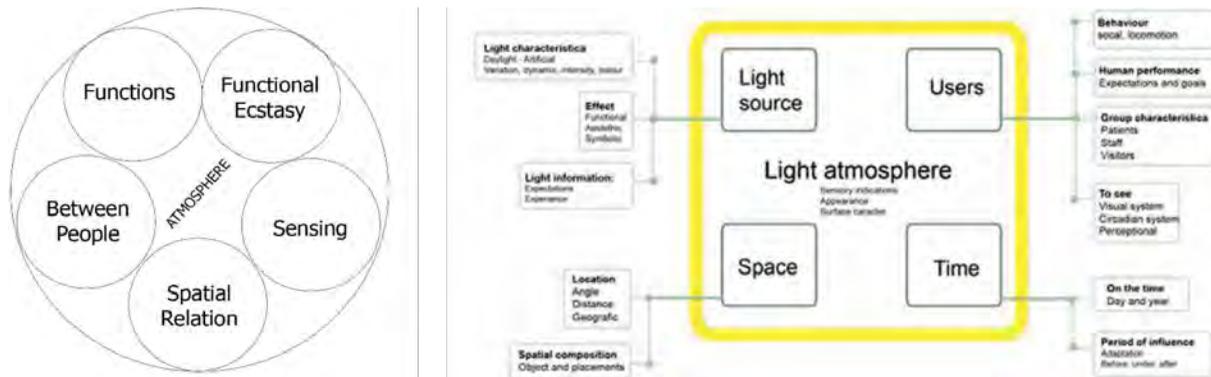


fig01 - (left) Design elements in defining the importance of atmosphere. Cfr. Stidsen et al. (2010) Design proposal for pleasurable light atmosphere in hospital wards. (right) Design elements for creation of friendly atmosphere. Cfr. Stidsen et al. (2010) Design proposal for pleasurable light atmosphere in hospital wards. *Colour and Light in Architecture, First International Conference, Proceedings, 11-12 November 2010, Venice, Italy, p. 368.*

Also, it is observed, that architects attempt to intergate more harmoniously the building's volume in its environment (natural or built) (see fig02).

About the facades of the children's healthcare buildings there is usually a balance between the masses and the voids - so this results to less compact / massive buildings. This impression is also reinforced by the use of transparency; Which also gives the attributes of "continuity" and "flow" between the interior and the exterior spaces.

The façades are also enhanced by the choices of their materials which are lately based on:

- their ecological and nature friendly attributes as an indication of respect the natural environment and current ecological issues;
- their characteristics and how they can add to the sustainability of the building;

- their qualities to function as positive distractions (innovative material that changes the color of the facade = interesting to children example form Switzerland).
- Also Artworks (e.g. large sculptures) on the main façades are used in order to create a more positive public image to the outside.

2 - The Public Spaces

The main entrances of children's hospital buildings are usually highlighted and their modern design ensures:

- easy access - harmonious transition from exterior to interior;
- these spaces are usually enriched with:
 - _ Special constructions (that work as elements of surprise or play for children);
 - _ Art (sculptures / exhibitions);
 - _ Sheds (functional reasons / help in way finding),



fig02 - (left) integration of the building's volume in its environment, Meyer Children's Hospital, Florence, Italy.

(right) low building volume, transparency on the façade and use of material that can work as positive distractions, University Children's Hospital, Basel, Switzerland

in order to create more positive impressions and optimistic feelings to the children.

- The public areas (**Reception - Waiting - Lobby - Atrium area**) of the modern children's hospitals are part of the healing environment and are appropriately designed in order to support the patients and their family at all times. Their design resembles the public image of the hospital and its identity. The design of these public areas aims to reinforce socializing of the users and create a more positive psychology. Therefore these spaces are usually:
 - Large areas with big interior height and combination of uses (leisure, culture, commerce etc.).

Also, a very crucial design parameter for these public spaces is the parent - child relationship and the design should support and strengthen it (see fig03).

- **The Corridors, staircases, elevators** (see fig03) can play an active role to the creation of the friendly atmosphere due to the:
 - _ enlargement of corridor's width (change of the linearity) or the use of curves that can take away the institutional impressions of the past;
 - _ use of transparency that creates easier contact to the exterior environment
 - _ use of light or colors (soft tones or delicate use of colors NOT bright and too many otherwise the result will be opposite);
 - _ Use of elements at the child's scale (e.g. elevator / staircase's railing height).

3 - The patients' rooms

It is noticed that in the most cases the design turns to single or double patient rooms which gives better control of diseases, privacy, comfort, calmness but maybe (?) feelings of loneliness increase.



fig03 - (left) Waiting areas designed specially for parents with children, Meyer children's hospital, Florence, Italy, (middle) the transparency of the corridor creates a more positive impression to the users, Birmingham children's hospital, Birmingham, UK, (right) the use of light to this corridor creates a more friendly atmosphere and also works as a positive distraction, Birmingham children's hospital, Birmingham, UK.

Also, modern patients' rooms have the appropriate equipment for creative activities (technology) and that the patient can control certain attributes of the room's environment from his/her bed (e.g. temperature, shades, lighting etc.).

Also in the most cases there was a wc in the room and accommodation for comfortable parents' overnight stay.

4 - The role of natural elements

Nature and its elements (e.g. plants, flowers, animals like in an aquarium ect.) help significantly in the creation of the healing environment.

Natural elements are inserted in the design in 2 different ways:

- Directly with:
 - _ exterior gardens (healing gardens);
 - _ rooftop gardens;
 - _ atriums with greenery;
 - _ views of nature,

or,

- Indirectly: Integration of artificial elements (e.g. materials, pictures etc.) that imitate nature or by technology (e.g. sounds from the natural environment, digital projections of water that reacts to the children's movements etc.).

5 - Lighting

Maximum use of natural light (and ventilation) was noticed in most of the case studies but also, due to the use of transparency (always depending on the local climate) during the night - the lighting also worked as a mean that stimulated the children's interest and also transformed the hospital's building to a landmark for the city (see fig04).

At the public spaces it was noticed that the light can enhance functionality, users' circulation and way finding.

Lighting also added significantly to the overall atmosphere of the space (see fig04).



fig 04 - (left) the light during the night transformed the university children's hospital building to a landmark for the city of Basel, (middle) lighting in public areas enhanced functionality, users' circulation and way finding in Great Ormond Street Hospital, London, UK, (right) led lights that react to children's movements on a wall surface work as a positive distraction at a waiting room at Birmingham children's hospital.

Lighting details in public spaces also functioned as positive distractions for the children and also positively affected their psychology (see fig04).

6 - Materials and Colors

It was observed that some of the most important criteria for the chosen materials (both in the interior and the exterior) was:

- Friendly attributes to the environment (very often natural materials were also used);
- Safety;
- Hygiene;
- Characteristics to work as positive distractions for the hospitalized children and stimulate their interests.

Colors are following soft changes of tones and combined with materials and lighting result to harmonious visual effect that inspire calmness and positive impressions.

The use of bright colors could be used at some points BUT not excessively because then the

overall result will lead to too much visual information and will have negative outcomes to the patients.

7 - Scale

Scale is a very important design parameter that helps hospitalized children feel more comfortable and welcome at the unknown hospital environment.

Design elements at a proper scale for children can also help them use the space on their own and feel more autonomous and secure (see fig05).

8 - Art

Art's presence at children's hospital can offer psychological support and add to the creation of the healing environment.

At many children's hospitals many artwork programmes work by and for the patients (e.g. London Arts Heath Forum, UK - Meyer Art Program, Italy).



fig05 - (left) glass at different heights help children use the doors more easily, Birmingham children's hospital, Birmingham, UK, (middle) staircase's railing at different heights at Great Ormond Street hospital, London, UK, (right) interior of the elevator with small round windows at different heights with interesting colored light views at University Children's Hospital, Basel, Switzerland.

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