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# Kids in the atrium: Comparing architectural intentions and children's experiences in a pediatric hospital lobby

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## ABSTRACT

The study reported here adopts an interdisciplinary focus to elicit children's views about hospital environments. Based at the Hospital for Sick Children (SickKids), Toronto, the research explores the ways in which designers and patients understand and use the eight-storey lobby, The Atrium, a monumental addition constructed in 1993. It is a public place that never closes; hundreds of children pass through the namesake atrium every day. Combining methodological approaches from architectural history and health sociology, the intentions and uses of central features of the hospital atrium are examined. Data were collected from observations, focused interviews, and textual and visual documents. We locate the contemporary atrium in a historical context of building typologies rarely connected to hospital design, such as shopping malls, hotels and airports. We link the design of these multi-storey, glass-roofed spaces to other urban experiences especially consumption as normalizing forces in the everyday lives of Canadian children.

Seeking to uncover children's self-identified, self-articulated place within contemporary pediatric hospitals, we assess how the atrium—by providing important, but difficult-to-measure functions such as comfort, socialization, interface, wayfinding, contact with nature and diurnal rhythms, and respite from adjacent medicalized spaces—contributes to the well-being of young patients. We used theoretical underpinnings from architecture and humanistic geography, and participatory methods advocated by child researchers and theorists. Our findings begin to address the significant gap in understanding about the relationship between the perceptions of children and the settings where their healthcare occurs. The study also underlines children's potential to serve as agents of architectural knowledge, reporting on and recording their observations of hospital architecture with remarkable sophistication.

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Although most children and youth find hospitalizations stressful (Korpela, 2001; La Greca & Bearman, 2000; Pillitter, 1987, pp. 567–578) Very little is known about how hospital architecture may ameliorate or exacerbate this distress (Pelander, Lehtonen, & Leino-Kilpi, 2007). This gap in knowledge is surprising given the evidence-based design movement that developed in the slipstream of evidence-based medicine (Cesario, 2009; Dijkstra, Pieterse, & Pruyn, 2006; Ulrich, Zimring, Quan, Joseph, & Choudhary, 2004) and the dramatic architectural changes that occurred in pediatric hospitals in recent decades, ostensibly to increase their child-friendliness (Horsburgh, 1995; Kearns & Barnett, 2000; Ulrich, 1995; Whitehouse et al., 2001).

During post World War II construction booms in western countries, hospitals primarily were designed to facilitate the

efficient delivery of clinical care and typically, they resembled neighbouring austere, angular office buildings (Gesler, Bell, Curtis, Hubbard, & Francis, 2004; Hughes, 2000; Ulrich, 1995). Beginning in the mid 1970s, social scientists argued that the windowless, maze-like hallways, medicalized interior landscapes and unusual “smellscapes” could generate feelings of “placelessness” (Relph, 1976) and thereby contribute to young patients' distress (Boyd & Hunsberger, 1998; Lobsinger, 1993; Varni & Katz, 1997). Since the 1980s, these arguments have led architects to design pediatric hospitals intended to “de-emphasize connotations associated with institutionalized medicine” and to foster a “sense of enchantment” (see also Gesler, 1992; Kearns & Barnett, 2000; Kearns & Gesler, 1998; Schweitzer, Gilpin, & Frampton, 2004; Sloan Devlin & Arneill, 2003). These intentions have been accomplished through features thought to promote non-threatening, therapeutic fantasy “elsewhere” (Hopkins, 1990), such as bright colours, natural light, indoor foliage, park benches, water fountains, juvenile artwork, nursery images, mascots, film and television characters, stores and fast food

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Fig. 1. Watercolour rendering of exterior; courtesy ZPA.

franchises with easily recognizable aromas (Dalke et al., 2006; Horsburgh, 1995; Whitehouse et al., 2001).

These architectural and design features are particularly prominent in the multitude of atrium-based pediatric hospitals that were built toward the end of the twentieth century throughout North America. Atria are large public spaces that are frequented by hundreds of patients, staff and visitors everyday. They also typically reflect the characteristic design elements – the architectural intentions – of the entire hospital (Plappert, Gabel, & Clements, 2005). The 1993 Atrium-based addition to the 1951 Hospital for Sick Children (now known as SickKids) in Toronto is an iconic, widely emulated example (Fig. 1). Designed by Zeidler Roberts Partnership Architects (now known as Zeidler Partnership Architects, ZPA), SickKids' Atrium constitutes a monumental entrance lobby that is connected to the former main entrance in the original building by a corridor known as Main Street (Fig. 2). The lobby occupies nearly 25% of the 790,650 square foot ground floor, is eight storeys tall, and is topped by a curving glass roof (Fig. 3). The floors that surround this atrium accommodate 96 inpatients in four nursing units, each with its own playground (Fig. 4). Some patient rooms have large windows overlooking the atrium (Fig. 5). A signature feature of the atrium is a very large mobile sculpture featuring a tutu-clad pig on an overhead tightrope (*Barnyard Animals* by Jane Buckles; Fig. 6). On the ground floor, a fountain,

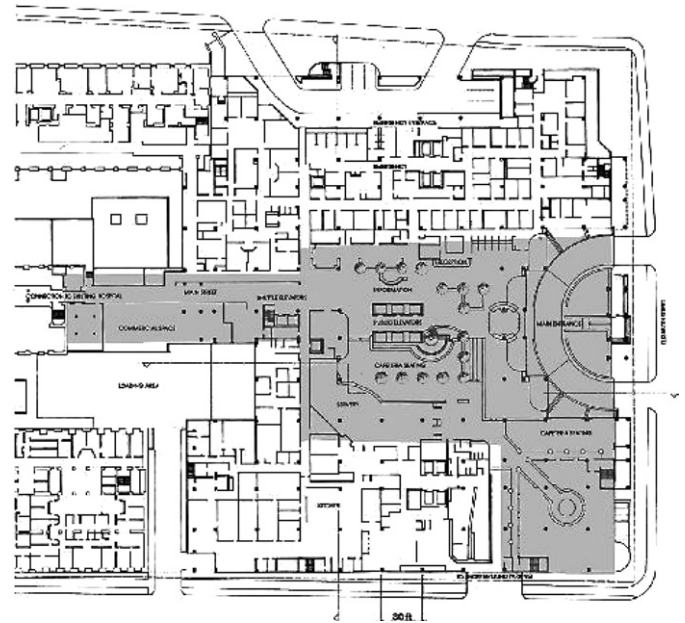


Fig. 3. Ground floor plan; grey shaded area indicates public lobby and Main Street; courtesy ZPA.

plants, murals, yellow steel and glass elevators, and a 722-seat franchised cafeteria, all intended to play an important role in state-of-the-art pediatric care, were recently supplemented with brand name retail outlets, recalling urban and suburban mall design.

### The hospital atrium: a place of consumption

Hospitals, like all buildings, are both shaped by people and capable of shaping occupants' behaviours and feelings (Gieryn, 2002). They are complex places that are simultaneously physical, social and symbolic environments (Gesler et al., 2004). Their designs are affected by developments in medicine, social values and political priorities, all of which are themselves affected by differential power relations. Inspired by critical social theories, recent thinking in "post-medical" and critical architectural geography casts hospitals as contested places that are occupied by multiple

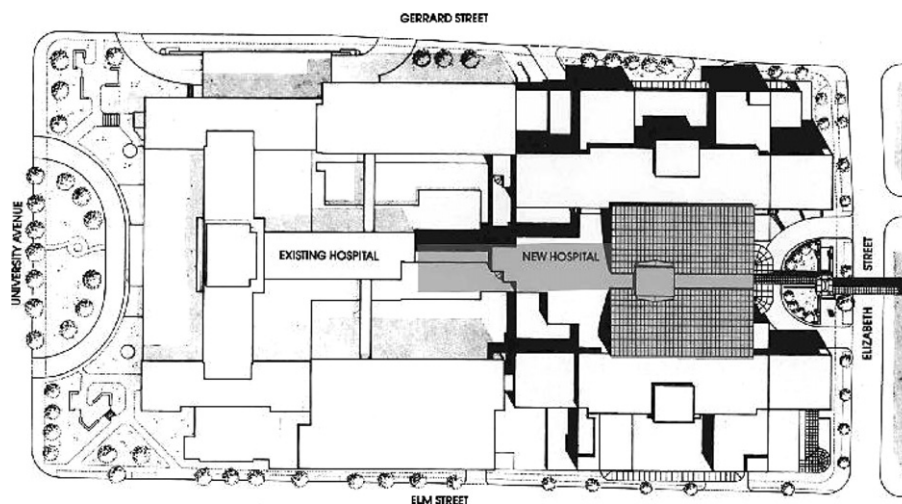


Fig. 2. Roof plan; grey shaded area indicates public lobby and Main Street; courtesy ZPA.



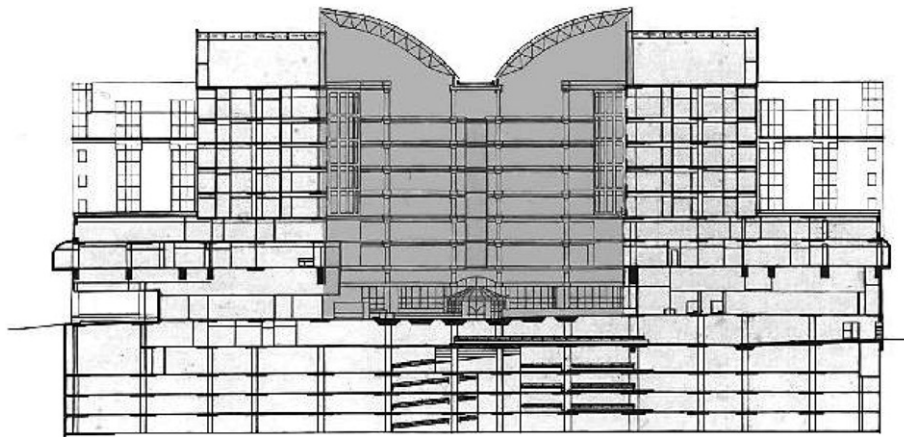


Fig. 4. Section drawing through the Atrium; grey shaded area indicates public lobby; courtesy ZPA.

stakeholders and nested in particular socio-historical-material contexts (Gesler et al., 2004). Our findings address two kinds of stakeholders in particular. First, our study concerns children as respondents. The omission of children in social science research on hospitals likely reflects their marginalized position as hospital stakeholders and in society-at-large (de Coninck-Smith & Gutman, 2004). Children and youth are routinely denied a voice as agents of architectural knowledge, even in studies of pediatric hospitals. Second, we are concerned with the social and symbolic environment expressly to the degree that environment is controlled, shaped and made manifest by architects. In international evidence-based design studies (Cesario, 2009; Dijkstra et al., 2006; Schweitzer et al., 2004; Sloan Devlin & Arneill, 2003), and more theoretical research (Kearns & Gesler, 1998), the architect is occluded from the workings of the symbolic realm. The architecture, that is, is described only as a window onto values determined by other stakeholders; the architect's role is merely to express or

reflect design goals established elsewhere ranging from community integration to notions of well-being. Our project points to an architectural firm that actively shaped institutional goals, such as the inclusion of nature, the idea of a healing environment, physical and symbolic connections to the city, and consumerism. This activity suggests a different appreciation of the architect's role, than studies by environmental psychologists and geographers cited above suggest.

Although hospital architecture responds to developments in medicine and social values (Rosenberg, 1987), larger architectural trends also determine form and design. In a study of American and

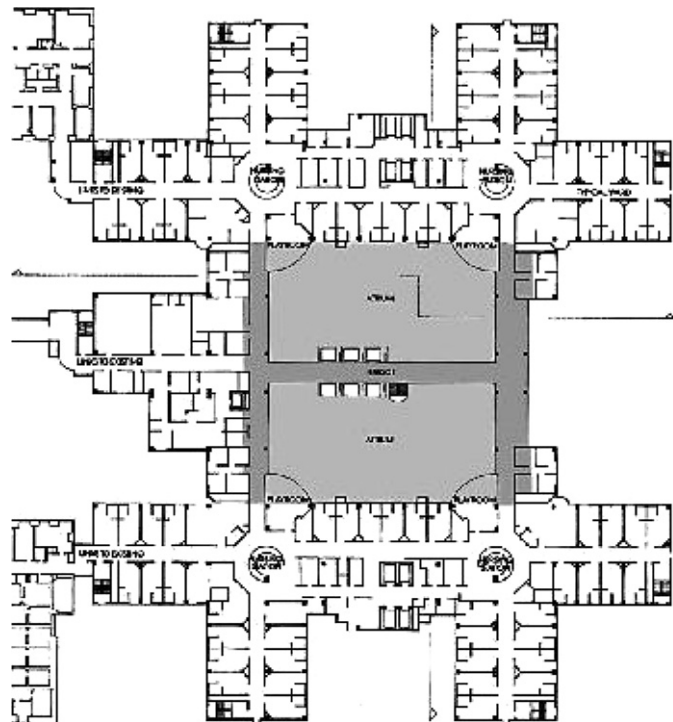


Fig. 5. Typical patient floor surrounding atrium lobby; grey shaded area indicates public lobby; courtesy ZPA.



Fig. 6. Photograph featuring the sculpture Barnyard Flyers by Jane Buckles. Courtesy Ricardo L. Castro.

Canadian hospitals built after 1965, Verderber and Fine (2000) concluded that the hospice movement and post-modern thinking encouraged the development of new architectural forms that replaced the 1970s undecorated mega-hospital. For example, the infiltration of ornamental and formal references to historical styles, bright colours, the inclusion of commercial and retail spaces follow from post-modern ideas in architecture and the rise of consumerism rather than medical imperatives (Adams & Theodore, 2002a).

Hospital atria exemplify an architectural trend that began in the late 1960s when multi-storied spaces roofed by glass skylights were used as ordering devices in hotels. Often used as lobbies, atria provide a highly visible entrance, enable easy orientation and circulation, and most significantly, constitute an atmosphere of consumption. Since about 1980, themes of consumerism and escapism have come to dominate North American hospitals, airports, museums, and shopping malls (Cohen, Hanchett, & Jackson, 1996; Davis, 1997; Gesler & Kearns, 2002; Gillette, 1985; Koolhaas, 2001; Sorkin, 1992; Venturi, Scott Brown, & Izenour, 1972). Sloane and Sloane (2003) argue that American hospitals became mall-like to compete successfully in a profit-driven healthcare system. Finally, this hospital form has been linked to the parallel rise of family- or patient-centred care philosophies that also are modelled on consumerist ideologies (Kellner & Wellman, 1997).

Although the reasons the atrium model came to dominate contemporary *pediatric* hospitals are unclear, it has been postulated that a mall-like atmosphere constitutes a familiar, fun public space for children in late-consumerist societies (Adams & Theodore, 2002b; Kearns & Barnett, 2000). It is also unknown how this form affects its primary occupants – hospitalized children and youth (Western Australian Centre for Evidence Based Nursing & Midwifery, 2007). While children sometimes are consulted during the planning and design stages of hospital building projects, they rarely have participated in post-occupancy evaluations (Pelander et al., 2007). To address this gap in knowledge, the interdisciplinary study reported here was designed to determine how children's evaluations, perceptions and uses of SickKids' Atrium correspond to the architects' and planners' intentions.

## Design and methods

The study consisted of two parts that were conducted in Tandem. Historical, visual, and interview data were analyzed to reveal the architects' symbolic and typological intentions for the atrium, while children's and youth's evaluations, perceptions and uses of the space were elicited directly from a sample of patients.

To determine the designers' intentions, the following questions were posed: (1) What was the design process and why was the atrium-centred design chosen? (2) Why does the atrium resemble a shopping mall? (3) How was a child-friendly environment conceptualized? Three data sets were analyzed to answer these questions. First, Zeidler Partnership Architects provided access to over 455 itemized folders from 1983 to 1993 that included plans, drawings, sketches, photographs and correspondence surrounding the planning and construction of the Atrium. These documents were scrutinized for implicit and explicit visual and verbal statements of intentions. Second, an architectural photographer was commissioned to compile comprehensive photographic documentation of the lobby today. Third, three architects principally involved in the design and construction of the Atrium and the former director of planning were interviewed.

## Architectural and planning intentions, 1983–1993

The architectural intentions for the Atrium addition must be understood in relation to the contemporaneous medical and

architectural contexts within which they were formulated. A 1985 hospital newsletter proclaimed that the 1951 hospital “was built to floor plans drawn up in the 1930s and the wards are now 50 years out of date” (Insider Report, 1985). The Atrium addition both confirmed and extended leading-edge medical services, but the data reviewed provide clear evidence that new clinical requirements were organized around the architectural desire that an atrium would be the heart of the hospital's identity and activities. One of the documents the hospital planning committee consulted was the report from a 1983 conference on healthcare facilities at Chicago's La Rabida Children's Hospital. The report noted:

“Every element of the ‘hub’ is child-oriented, making it immediately apparent that this is a place for children. The ‘hub’ is also an orienting device marked in colour, pattern and texture” (La Rabida Children's Hospital and Research Center, Chicago Illinois, 1984).

Subsequently, the steering committee recommended the inclusion of at least one atrium as a planning principle and suitably experienced architects were chosen.

The architects' willingness to build the hospital around an atrium was based on the firm's own experience with atria in healthcare and commercial architecture; belief in health benefits of daylight and healing gardens; and a desire to extend the public space of the city inside the hospital. The director of planning commented that the principal architect had explained how healing environments work through space and sunlight and that the committee “bought into that big time” (interviewed May 24, 2007). The architects argued that although gardens were a necessity, Toronto's climate discouraged putting them outdoors:

“[an] outdoor area tends to be unused even in good weather. The possibility of using the ‘outdoor’ spaces in enclosed atria on a daily basis is an opportunity that should not be missed” (ZPA, 1983).

Doubts about the atrium concept were expressed by representatives from the provincial government funder who reportedly envisioned the atrium as “a lot of empty space” (director of planning). Their concerns were abated by cost evaluations. Important hospital benefactors also questioned whether the monumental scale of the Atrium was suitable for children (Anderson, 1985). Finally, the hospital board sent an investigator to visit a recently completed atrium at another ZPA-designed adult hospital. His report allayed apprehensions by concluding that “Staff, visitors and most important, patients totally approved this concept” (Project Steering Committee, 1986).

Once construction was underway, the hospital marketed the atrium as its most innovative feature. A promotional pamphlet entitled “Soon One of the Best Children's Hospitals in the World Will Be Even Better” (ca. 1985) included a sketch of the atrium filled with balloons, trees, a waterfall, and a giant llama. The text accompanying the Master Plan called for “a happy environment,” so that children and their families would experience a “place of relief, of courage, of tender love, of laughter, and even great joy” (ZPA, 1983) and “a green space of hope during all seasons” (Zeidler, 1995). Brightly coloured exposed elevator mechanisms, clocks with inverted numbers, murals of parks, overhead animal sculptures, a food court, toy and clothing stores, and a wishing well fountain were intended to create a place that satisfied the emotional needs of sick children (Snow, 1992). In summary, the atrium was intentionally designed in line with other environments for children meant to engender pleasure and indulgence (rather than fear and pain) for children (Parr, 2003).

## Children's experiences of the atrium

To determine patients' experiences of the Atrium, a survey was conducted between October 2005 and March 2006 posing the



following questions: (1) How do children and youth perceive and respond emotionally to the space and; (2) How do they use the space, furnishings, services and amenities within it? To enable participants to reflect on and express their views about this unusual topic, strategies described recently by geographers and sociologists of childhood were adopted (Clark-Ibanez, 2004; Driskell, 2002, chap. 6; Harper, 2002; Holloway & Valentine, 2000; Matthews & Limb, 1999; Matthews, Limb, & Taylor, 1998; Salvadori, 2001). For example, through a partnership with the hospital's Children's Council (whose mandate is "to make HSC a better place for kids"), ten young people contributed to the study's design and conduct. Child-friendly techniques including conversational interviews, child-led tours, and photo-elicitation were used to gather data. This concerted effort to include children in every phase of the research supports Ning de Coninck-Smith's and Marta Gutman's (2004) assertion that children must participate directly in research because they are "social and cultural actors within public settings shaped by adult interests and concerns" (p. 134).

### The sample

After receiving ethics approval from the hospital and participating universities and pilot testing the procedures, a stratified, convenience sample of inpatients ( $n = 35$ ) and outpatients ( $n = 45$ ) was recruited by hospital staff who were not otherwise involved in the study. Inpatients occupied rooms with windows overlooking the Atrium and outpatients were recruited from clinics where wait times were lengthy. Potential participants could communicate in English, were between ages 5–18 years and were considered by a parent or nurse to be in no physical or psychological distress. The decision to use photo-elicitation techniques meant that children with sight impairments that would prohibit visual description and camera use were excluded. Visual design features are thus emphasized in the collected data.

Inpatient and outpatient samples were similar demographically and reflected the hospital's diverse population. Although participants who lived in urban centres throughout the province were recruited, the majority lived in the Greater Toronto area. Half of the parents and 11 participants were not born in Canada and 42% could speak a language other than English. Slightly more than half of the participants were male (55%) and were between 5 and 12 years old, 11 used a mobility device and two used hearing aids. Most participants had chronic health conditions, evidenced by the fact that 62% of the outpatients visited a clinic weekly or monthly and 66% attended more than two discrete clinics. Similarly, 60% of inpatients had been hospitalized more than twice (range, 1–11 times) and for 70% the current hospitalization had lasted three days or longer (range, 1–120 days).

### Data collection techniques and analysis strategies

Wearing a colourful shirt featuring the project logo depicting the Atrium's sculpture, a research assistant met with potential participants and parents, to explain the study, answer questions, obtain assent/consent, collect demographic information, and review simple digital camera skills. Participants unwilling or unable to use the camera instructed the research assistant or parent to take photographs on their behalf. For ethical reasons, participants were instructed not to photograph people. Outpatients (and some parents/siblings) were escorted by the research assistant on a tour of the Atrium stopping at four corner points on the ground floor and used the elevator to access an eighth floor corridor overlooking the Atrium. Inpatients toured the corridors that overlooked the Atrium stopping at the same corner points of their respective floors. At each vantage point, participants paused, looked around, and photographed architectural or design features that interested them.

Throughout the tour, participants wore a clip-on microphone which recorded their spontaneous comments and their responses to focused, open-ended questions posed by the research assistant. Their movements within and reactions to the atrium also were observed. Participants determined the speed of the tour (mean = 30 min) and the number of photographs taken (range = 2–41; mean = 8). Following the tour, a portable printer and photo-elicitation techniques were used to engage them in a discussion of their photographs. Each participant selected photographs to keep as souvenirs and received a Certificate of Participation, a small gift and compensation for transit or parking expenses.

ATLAS.ti (v 5) software was used to code, store and manage transcribed interview, observational and photographic data. Data were coded deductively by grouping segments of text that corresponded to the research questions. The photographs were analyzed to determine the visual cues participants used to denote architectural features, and frequency counts of objects depicted were conducted. Categories and emerging themes were discussed by the researchers in relation to the architectural intentions determined in part one. The categories/themes thus emerged from the interviews and photographs themselves, based on majority trends, rather than pre-conceived ideas about children's perceptions of hospital spaces. Coded segments were then re-categorized and organized into themes corresponding to designers' intentions pertaining to: a) architectural scale; b) connectivity and surveillance c) way-finding, access and navigation; d) architectural associations and e) consumption and distraction. This process enabled us to achieve the study's overall goal which was to compare the architects' intentions to children's experiences of the atrium.

### Findings

#### *Architectural scale*

The designers' intent to make the scale of the atrium appropriate for all users is clearly stated in planning meeting minutes in statements such as; "By landscaping, furniture, sculpture etc. scale will be provided to human scale. Atrium also used for staff, parents, visitors as well as children" (ZPA, 1985). However, in a May 2, 2007 interview, the principal architect recalled that, because vast, vertical spaces could be frightening for children, "You don't want to build atriums too high... because you feel scared to just look into it." A small number of participants expressed a fear of heights (#114; 12-year-old girl) and found the large space "intimidating" (#225; 17-year-old girl, #226; 16-year-old girl). However, the majority considered its vastness a very positive attribute that symbolized a reassuring, safe and reliable hospital. For example, a 13-year-old girl found the size comforting because "You can look up and you can see different types of stuff on different levels. And about the space, I think it's the perfect size – it's not too big, it's not too small" (#232). The ease with which the atrium accommodates a large number of people also was seen as positive, because strangers and staff could be asked for help or directions.

Several children, like the 10-year-old girl quoted above, noted that the atrium could accommodate large numbers of visitors, which in turn implied that many children could be treated: "Well it's really big and so they can take care of a lot of kids 'cause a lot of kids are sick and, that's not very happy, but they can take care of a lot of them" (#203; 10-year-old girl).

#### *Connectivity and surveillance*

Although not stressed by the architects or planners, the social uses of the lobby were highlighted by children and youth. While 14

(35%) expressed ambivalence or felt “okay” about seeing other patients in the atrium, others found the ability to socialize an important counterpoint to the solitude of their private rooms.

“the atrium is really important because kids rarely get to come out of their rooms so when they do they need like a big open space to be able to enjoy it and look around and not be cooped up in one spot” (#226).

Seeing other children with visible signs of illness in the atrium comforted some and distressed others. Those who found it comforting described feeling relatively lucky or grateful for a shared experience of illness:

“It makes me realize how fortunate I am to have something so subtle” (#223; 14-year-old girl).

However, 10 participants spontaneously described feeling worried or sad when they encountered other patients:

“when you see all... the little children that have like cancer. That’s the only part. And ones that have been in terrible accidents that’s just the part that makes me feel a little sad” (#232).

Additionally, many adolescents described how the large public space caused them to feel embarrassment or pressure to look “presentable” in the atrium, suggesting such exposure in public space may have begun a therapeutic process of coming to terms socially with a new identity. A 16-year-old girl remarked:

“For me at first with the wheelchair, I didn’t want to go out of the room with the gown. I didn’t quite want to be seen in public in the gown with dirty hair all that jazz. But once I got more presentable clothes on, I wouldn’t mind going out... I like people and talking with people a lot” (#134).

Still, the atrium was intended to be a large public square with multiple connections to the urban core. According to the design architect, the glazed wall on the entrance side was meant to connect the atrium to the city: “Inside looking out, you feel a connection to the city.... It’s a very public space and in that sense its part of the city” (interviewed May 2, 2007). In promotional material, the Atrium’s ability to enable hospitalized children to survey their surroundings was emphasized. However, hospital planners stressed that finding a balance between physical openness and the safety and security of patients was a crucial challenge:

“Reality is we’re a public building.... We’ve got a huge amount of public traffic. We would never be able or want to change that... How do you make an atrium attractive and welcoming and still have plexiglass walls?” (director of planning).

Some of the architectural intentions for balancing openness and protection have been changed since the atrium opened.

“We had to also make sure that no child could jump in so we had all these literally fences over the walkways and everywhere else... Originally we wanted to get flowers in there and they put seats where we had flowerbeds” (principal architect).

Many participants enthused about their freedom to move about and survey their environment from various points:

“From here you can see everywhere outside. You can see the roads, you can see the sky and you can look down to one of the entrances to the hospital. I like it because you feel free, like you are outside but you are really inside” (#221; 12-year-old boy).

However, a contrasting theme of containment or entrapment also emerged. These feelings were inspired by the wires and window-like cages in hallways overlooking the lobby and by the benches occupying positions originally intended to be filled by

flower boxes (Fig. 7). Containment was spontaneously discussed by eleven participants (14%), who associated the wires and cages with a jail or a spider web. Some said that the height of the cages made them feel safer looking down into the atrium, while others were suspicious of the role of the wires:

“Kind of looks like a jail. And all these wires up here – barbed wires?” (#121; 13-year-old boy).

Participants considered the atrium a place to see, be seen and be involved in the social life of the institution. Inpatients enjoyed using their room windows to wave to visitors in the lobby or on elevators; looking outside and watching the moving barnyard sculpture or the elevators. Several described how the windows let light in and appreciated being able to see the weather and the city (Fig. 8): “When... Grandma wasn’t here yesterday I spent like all night looking out the window because I was so lonely... There’s so many lights. It’s beautiful” (#107; 9-year-old girl).

Others did not enjoy using their interior windows and were challenged to manage their privacy and sense of space. A 14-year-old girl did not like how visible she was from the elevators and frequently closed the blinds: “Sometimes people are staring through the window. Sometimes it makes me feel – when I need my own time – my own space; I don’t want them to look” (#125).

#### Wayfinding, access and vertical integration

Architects and planners emphasized that the atrium was designed to ensure ease of navigation for hospital visitors. For example, in interviews they claimed:

“It’s amazing for wayfinding because you can always reference an outside point or the atrium as you are trying to find places. It didn’t require a lot of signage” (director of planning).

Participants reported that they usually entered the atrium through the front entrance ( $n = 33$ ), the parking garage ( $n = 19$ ), the adjacent Emergency Department ( $n = 15$ ), or the original building ( $n = 13$ ). Once inside, they perceived the atrium as a welcoming space with legible links to other parts of the hospital. A 17-year-old boy liked:

“the one central area I guess, and then just to make a different kind of thing, and then you can go on to wherever you have to go but it just... to start off... I don’t know... It kind of gets you like, welcomed” (#136).



Fig. 7. Digital photograph taken by a 16-year-old girl on the eighth floor, facing west (#226,009).





**Fig. 8.** Digital photograph taken by a 9-year-old boy of a single tree on a nearby building (#245,003).

They found it easy to navigate with the assistance of wall maps, signs, landmarks, artwork, parents and “friendly people.” Although a few worried that they or other children could get lost in the big space, most explicitly emphasized that they had never gotten lost in the space. They found directional footprints on the floor both helpful and amusing and remarked that the transparency afforded through abundant glazing simplified navigation. Note, however, that such wayfinding is dependent on sight; visually impaired patients might have been less favourable toward the navigational cues provided by the design.

The centrally positioned, exposed, glass elevators dominate the atrium and were intended to animate the space, although architects and planners speculated that they could be intimidating. This was the reason that the elevators modelled on those in shopping malls were modified for children and visitors by painting them yellow: “You can point to the yellow elevator. [The yellowness] was a sort of Tonka Toy Thing. We were trying to find something that might be familiar to some of the kids” (design architect).

Not surprisingly, most participants singled out the public elevators and adjacent stair tower as important landmarks (Fig. 9). Many enjoyed both riding the elevators and watching them from various vantage points. A frequently hospitalized girl considered



**Fig. 9.** Digital photograph taken by a 16-year-old boy of the yellow elevators, spiral stair, and mall-like ground floor (#137,001).

the elevators “cool” and recalled liking watching them when she was younger because: “they were all colourful and wheels and pulleys coming down. The elevators are not like your regular silver box elevators but they are... [laughing] they are yellow! They are for kids!” (#206; 15-year-old girl).

Using the elevator was compared to riding a roller coaster, a sensation some participants enjoyed and others disliked. A preadolescent thought windows made the elevators safer, as people would be able to see her if she were stuck. Others reported that abrupt movements and sense of weightlessness induced nausea. As one 11-year-old girl said:

“I think it takes a little bit too long for them to stop and stuff. And what I don’t like about them is when they stop they make you feel like you’re going to vomit. I just think they should stop slower... Look – look at all these [makes sound]. I hate it when it like makes a stop. It’s just disgusting!” (#213).

### Architectural associations

Archival documents and designers’ interview data revealed that the Atrium was explicitly intended to resemble a shopping mall:

“The new facility will be built around an atrium similar to that in Toronto’s famed Eaton Centre [shopping mall],” (*Soon One of the Best Children’s Hospitals in the World Will Be Even Better*, ca. 1985).

“The Eaton Centre had been designed not that long before. They [the board] knew what they were getting when they got [architect] Eb Zeidler. So whether there was a conscious decision or not, there was some unconscious “Yes, this is the kind of environment we want for the kids” (director of planning).

The architects, nevertheless, emphasized that creating an atmosphere of consumption was not paramount, arguing that the shopping mall model constitutes appropriate, enjoyable public space:

“We don’t really see it as a shopping mall... There is a cross-fertilization that goes on between different building types... [We took from the shopping mall] the entire idea of having public space that is appropriate for our climate and that brings in natural light” (design architect).

When asked what other building types the Atrium resembled, participants cited shopping mall (29), hotel (10), condominium (5), school (4), jungle (3), CN Tower (3), Air Canada Centre/Sky Dome (sports entertainment facility) (5) and coliseum (2). Many participants described the hospital-as-mall comparison in positive terms and suggested that a familiar retail atmosphere gave them cues for how to act and feel in the hospital. Comments like these from adolescents were typical:

“Yeah, teenagers usually like to chill and stuff – like almost in this area – you could have a cafe and some stores they would like” (#219; 16-year-old boy).

### Consumption and distraction

Although the Atrium was modelled on a shopping mall, the architects had a minimal role in establishing shopping in the space. Rather, retail businesses resulted from the hospital’s desire to accommodate the day-to-day needs of families and to normalize patient experience. According to the director of planning:

“The fact you are in a hospital shouldn’t mean that you are a prisoner and that you are in an awful place... We have a lot of



chronic populations that keep coming back, and the more you can make the rest of their life seem normal or seem fun is really important.”

The hospital had intended to include a wide range of family-oriented retail shops, including dry cleaning and laundromats, but in the end achieved a few toy and clothing shops and many offering food choices, including fast food franchises that remain controversial in the hospital's academic health sciences community.

Almost two thirds of the participants described spending time shopping or window shopping in the Atrium. One quarter took photographs of the shops, and more than one third took images of the food court. Most commented on the appropriateness of the stores:

“Yes, because kids don't like being cramped for a long period of time, and if they're staying overnight then they probably want to walk around and the convenience store... is selling kids' toys and being open and then a lot of kids I think would love this” (#222; 14-year-old boy).

Shopping allows children to spend enjoyable time with their parents, but some reported that the stores were expensive. Others noted that members of the public also shop in the hospital:

“They just want to come and be actually in the space. Yeah 'cause they don't have to come when they're sick. Like my mom came here yesterday and she's not sick and she went shopping” (#107; 9-year-old girl).

At the same time, the mall-like space seemed to incite some young patients to “do nothing.” Eight participants described it as boring and others lamented that there was a lot or too much to look at but very few activities for them to engage in other than shopping and eating.

The designers did not intend the atrium to bore children but rather to distract and delight them – both through the overall atmosphere and details such as the commissioned art. A strong desire to disguise the hospital's threatening nature was obvious in presentation folder and interview statements:

“If the final result does not look like a hospital we know we are on the right track” (ZPGA, ca. November 17, 1083).

“The atrium helps to de-institutionalize the hospital environment by providing an exciting, busy place for children” (ZPA, 1984).

The question of appropriateness for the wide age range of pediatric patients – infants to adolescents – was addressed through the planning of artwork and choice of colour:

“We didn't want to do a Disneyland or primary colour things that some people like to do, but we did want to liven it up a little bit and have some playfulness... These kids are as old as eighteen and you don't want them to feel like they are in a romper room” (design architect).

When participants were asked about the functions of the Atrium, a few realized that the designers had made assumptions about who might use or like the building. “Every hospital has got their own theory” opined one adolescent boy, and another asked; “Who was the hospital designed for, children, parents or staff?” About 10% explicitly noted the atrium's potential to distract patients from the medical reason for their visit or stay in comments like the following:

“It's a place that's not connected to medical stuff. You just come here and [do] not have to think about all the medicine and needles and everything. As you can see, there is nothing medical here. It's just murals and cafeteria and stuff” (#201; 16-year-old boy).

Seven participants said the plants in the Atrium helped create a relaxed, calm atmosphere, another form of distraction or escape. An early adolescent outlined how the plants made the atrium feel like a little village, while they reminded others of their homes and being outside. Another mentioned the presence of plants in contrast to the features he felt “cluttered” the space:

“Kiddish again. You can just tell by the colours. Like you see all this dark green, the bright yellow, the bright pink, and the cow, and then the bright mural – it's really tacky. I think the environment should be organized, clean, more simple, like all the plants over there. It's nice, but maybe just simple plants would be perfect” (#129; 13-year-old boy).

One child expressed feeling tricked by what most others perceived to be helpful distractions:

“There is not much joy – not too much excitement... people say “Wow!” when they come in... instead people might be scared – not the way it is supposed to be – they think it is going to be exciting and then it isn't” (#215; 8-year-old boy).

Participants voiced opinions on age appropriateness in discussions of the artwork, especially the cartoon pictures mounted on windows. Some children thought that the artwork was aimed at younger kids:

“Well it's probably very visually entertaining to, to small children... Yeah, definitely, like probably preschool, preschool-aged children. Because they see the characters they've seen in shows or movies” (#112; 13-year-old boy).

## Discussion and conclusion

Recent scholarship in the social sciences makes it increasingly clear that it is important to understand patient experience in hospital settings (Andrews, 2004; Kearns & Barnett, 2000; Parr, 2003). This paper contributes to this growing body of research by examining the significance of place in pediatric care. Moreover, instead of concentrating on environments in which children undergo treatment this study examines the cultural and symbolic experience of the hospital's primary non-medical space. The results will be discussed in relation to the role of children's agency in studying pediatric hospitals, the role of atria in healthcare institutions, the ambiguities of healthcare as a consumer experience, the role of scientific research in the design process for children's hospitals, and will conclude with suggestions for optimal design in public healthcare spaces.

It is widely agreed that children should participate directly in research about matters concerning them because most are able and eager participants whose experiences and opinions frequently differ from those of adults who speak on their behalf (Christensen & Prout, 2002; Clark & Percy-Smith, 2006; Sinclair & Franklin, 2000; Willow, 2002). The research reported here establishes the benefits of involving young patients in the study of hospital architecture ostensibly designed for them. The results show that child-friendly techniques enabled a diverse group of children and adolescents to articulate their perceptions and experiences of this type of space in terms of the domains they considered relevant (Mihaylov, Jarvis, Colver, & Beresford, 2004). This corroborates the findings of other studies that demonstrate that healthy children understand and influence the meaning of their environments (Day, 2007; Spencer & Blades, 2006; Valentine, 2000). The success engendered by exploiting children's agency as research participants provides a model for other architectural studies where users are perceived as other than “reasonable adults.” The architects, however, did not consult children and youth during planning and design. Given the

sophistication with which our interviewees engaged the building's symbolic and typological features, we suggest that formal roles for children be included in future planning processes. That is, in addition to the need to recognize more clearly architectural expertise in making meaningful hospital environments, architects in turn should endeavour to involve children in the design consultation (not just by proxy through parents or administrators).

A key design stipulation for children's architecture involves composing the size of rooms and elements relative to children's physical proportions. This practice may need to be reconsidered in light of the fact that SickKids' Atrium was not scaled down yet participants strongly appreciated its vastness perceiving it to convey strength, security, openness and freedom. Children's appreciation of the space's ability to gather such a collective is profound and may reflect Canada's commitment to universally accessible healthcare and accommodating difference. Hence, for Canadian young people, this monumental public space may symbolize a cardinal political value rather than, as Sloane and Sloane (2003) have argued, give the hospital a competitive edge through images of contemporaneity and high technology.

Despite scepticism about consumerism in hospital settings (Kearns & Barnett, 2000), what some consider a harmful tension between retail therapy and therapeutic efficacy also was largely contradicted by participants' accounts of their experiences. Their ability to articulate how the architectural imagery disguised the hospital's clinical functions was sophisticated and unexpected. Many participants described an awareness of how the process of architectural distraction was supposed to work, both in terms of providing familiar imagery and support for visitors. Reservations that shopping is inappropriate in hospitals, or that the shopping mall atmosphere is stressful were not sustained by their freely given comments. Admittedly however, this one study likely has not revealed the complete range of children's responses and the adult-child interview situation, no matter how conversational and child-led, may have elicited what participants thought constituted correct or expected answers (Christensen, 2004).

The high correlation between the designers' intentions and children's experiences suggests the need to re-frame evidence-based studies of hospital architecture. Evidence-based design seeks to provide decision-making criteria based on research by health professionals linking patient and staff outcomes to building design and aesthetics. This case study, however, shows that a traditional version of architectural expertise may be an effective way to design child-friendly, stress reducing environments. ZPA's expertise as a designer of a shopping mall drove decisions about colours, features, the incorporation of nature, scale and other elements that children and youth responded to positively. At the very least this could prompt those who commission hospital design to evaluate the positive contribution of healthcare architects *qua* architects. This would involve acknowledging their analytical, historical, humanistic and formal approaches based on precedent and professional experience. By concentrating on the role of the architects, this research gives more precision to concerns about symbolic and social dimensions of hospital buildings (Gesler et al., 2004). As well, this research proposes a different understanding of how and why healthcare is consumerist in making specific how spaces of consumption are translated from retail environments to healthcare spaces (Kearns & Barnett, 2000).

The findings are relevant to the design of public space in future hospitals. The centrality of the public elevators and stairs plays a significant role in orienting newcomers and regular visitors and enhancing circulation through the hospital. While such changes are noted by social scientists (Sloan Devlin & Ameill, 2003), we emphasize that these ideas about medical space are generated and driven by architects, not just changing social factors such as patient

expectations. SickKids' atrium is the central and most important circulation area because users enter into it and then circulate through the space via elevators, stairs, corridors and bridges. The shopping mall model remains popular, despite the observation that there is "much to see and nothing to do" for children in these spaces. An alternative model is London's Evelina Children's Hospital which opened in 2005 and was shortlisted for the prestigious Stirling Prize in 2006. Play equipment, "fireman type" elevators and window washers dressed as Spiderman are intended to make the lobby a noisy, fun, fear-reducing place. Other contemporary pediatric hospitals offer soothing, quiet entry spaces with stores replaced by art and inclusive interactive, multi-sensory installations. For example, Stockholm's Astrid Lindgren Children's Hospital, the Royal Aberdeen Children's Hospital and Toronto's Bloorview Kids Rehab take this subtle approach. Whether this approach appeals more to children from a higher social class is as yet unknown.

It is important to note that comparative studies have not been conducted to determine which form children and youth prefer nor is it known how they respond to various designs. It is also unknown how pediatric hospitals would be designed if young people were involved as important stakeholders in the planning stages as is the case in Glasgow's Royal Hospital for Sick Children. The children we interviewed, however, made specific suggestions of how to improve the shopping mall model, emphasizing the need for age-appropriate activities. They mentioned, for example, a playground for younger patients (#112), a jewellery store (#110; 6-year-old boy), a bookstore (#108; 15-year-old boy), and a lounge with access to computers, TV and video games (#108) for teen activities. Differing views among our respondents might also inspire studies of how children's health problems or sociodemographic characteristics affect their architectural experiences.

In closing, we would like to question whether the role of hospital design is to promote healing. Hospital lobbies of the interwar period resembled hotel entrances and the grand halls of railway stations and in the postwar period, they resembled sleek office building lobbies (Adams, 2008). The Kids in the Atrium study illustrates that late-twentieth-century hospital design was likewise driven by effective cultural rather than medical models. While our results do not directly refute calls to develop hospital design using biomedical criteria, they at least suggest the need to think expansively about how to determine the effect of design on well-being.

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