Atrium in residential buildings – a design to enhance social sustainability in urban areas

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Introduction

Two-thirds of the world population is expected to live in cities by 2050. In Sweden, this level of urbanization was already reached during the 60s. Since then, urbanization has increased steadily; currently more than 85% of Swedes live in cities. Such rapid urban growth induces both challenges and opportunities. High population density in cities may benefit, e.g. from interconnection of many social circles forming vast information networks.

A social network refers to a set of individuals and the relationships among them (social ties) and are facilitated by social interactions. In his theory on the spread of information in social networks known as "The Strength of Weak Ties", Granovetter (1973) discussed the effect of social ties on flows of ideas, influences and information between individuals. He distinguished between strong and weak social ties. And claimed that weak ties are more likely to connect different social circles and to be the source of nonredundant information, whereas strong ties provide redundant information. Strong ties are often characterized as ties among close friends, whereas weak social ties are occasional, e.g. between casual friendship and neighbours.

Neighbourhoods offer different type of localities for social interactions: public areas, semi-private areas and private areas. Public spaces were reported to effect social interaction regarding access to pedestrian (Wood, Frank, & Giles-Corti, 2010) and main streets (Mehta, 2009), just to name a few. Semi-private spaces like terrace house’s front yards and front porches were reported to encourage social life and sense of community in residential neighbourhoods (Brown, Burton, & Sweaney, 1998; Gehl, 1986). In private spaces like residential buildings, factors such as proximity of apartments in multi-storey buildings, its orientation towards other apartments, position and quality of common place within the building were found to affect the social interactions among dwellers (Marcus & Sarkissian, 1992). However, indoor common areas within multi-story apartment buildings are usually not designed in a way that becomes an integral part of the residents’ day-to-day activities.

In this context, a courtyard or atrium design within residential buildings may benefit from all of the above three localities: apartments as private spaces orientated towards each other, indoor balconies and corridors facing the courtyard acting as a semi-private spaces. And the courtyard itself, as a public space in the “middle” of the residential building, as illustrated in figure 1. In Nordic climates, an open courtyard within residential buildings may not entail large benefits as a place for social interaction within the building due to shorter daylight hours and poorer outdoor thermal comfort during the cold season. A design with heated enclosed courtyard, so called atrium, may be utilized to a greater extent throughout the year. However, such design is still uncommon in the Nordic regions.

Aim

This study used a psychological framework to examine if building design with heated atria in apartment buildings can enhance sense of community and social interactions in Nordic climates, which in turn may increase the number of weak social ties among the residents of the building and the potential for creativity. A survey was conducted to understand the
experience and perception of residents living in one of the few examples of existing apartment buildings with heated atrium located in northern Sweden (Figure 1) in comparison to a traditional apartment building designed without an atrium.

Figure 1. The atrium building with its different type of areas (left figure) and an indoor photo of the atrium (right figure).

**Methodology**

The atrium building was constructed during 2006 in the northern part of Sweden and is comprised of two identical five-storey apartment buildings joined by an enclosed linear atrium in-between, as illustrated in Figure 1. Each of the buildings accommodates 16 apartments with two, three, and four rooms. The entrance to each apartment is through an indoor balcony facing the atrium. All balconies on each floor are connected by suspended corridors. A staircase and an elevator are located in the middle of the atrium and serve both buildings. The atrium is heated during the cold season and can be used by the residents for different activities.

As a comparative building, an apartment building with a traditional design located in the same geographical area was chosen. The building was built in 2011 and consists of 30 apartments divided between four staircases with two or three apartments on each floor. The entrances to the apartments is through the staircases, which also include elevators.

A questionnaire along with a prepaid return envelope was delivered – one per apartment and the choice of which individual should respond to the questionnaire was left up to the residents. The questionnaire was comprised of six parts: (i) questions of socio-demographic interest; (ii) information about the apartment; (iii) questions about social activities within the building; (iv) questions about social interaction with neighbours; (v) information about principles in life; and (vi) sense of community linked to their homes. The survey was conducted during February 2015 and the response rate after one reminder was 81% for the atrium building (26 apartments) and 87% for the traditional building (26 apartments).

**Results**

The results showed significant differences in social factors between the residents of the two buildings (atrium and non-atrium buildings), which could not be explained solely by differences in preferences and principles in life. The atrium building was found to have higher frequency of interactions and sense of community, which are both parts of social sustainability. A large proportion of the differences in social aspects between the buildings could be explained by the building design, as the common and semi-private areas within the atrium building provide opportunities to establish weak ties. Weak ties have the potential to
increase information flow and new ideas among different circles, which may contribute to higher creativity.

References


