ijcrr
Vol 04 issue 12
Category: Review
Received on:22/04/12
Revised on:03/05/12
Accepted on:15/05/12

APPROACHING 'NEED' IN A NEED BASED DESIGN FOR THE ELDERLY

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ABSTRACT

More people are now given the chance to live longer than in the past and old age is now being experienced by an ever-increasing number of people. As more and more people become aged, concern shifts from medically prolonging life to ensuring that a prolonged life is worth living. The rapid growth of the elderly population, the wide diversity in their profiles and the varied inter-related influences need significant consideration of researchers, policy planners and service providers so as to provide them the best possible environment to interact based on their need. This paper is based on the idea that there are significant needs of the elderly people for daily sustenance and it is a challenge to provide congenial environment to them. Understanding the needs and aspirations of an ageing population is a complex business, and yet one that is fundamental. It is essential to integrate the evolving process of global ageing within the larger process of development by responding to their need. This discussion paper attempts to review various facets of needs of an ageing population and their implications for multi-directional research. The discussion is structured around findings from literature studies and attempts to approach into the need for the elderly through Need-based Design.

Keywords: Ageing, Needs, Quality of Life, Need Based Design

THE GLOBAL PERSPECTIVE

By 2050 there will be more people in the world over 60 than there will be people under age 15. This is a historic reversal of proportions and it is unprecedented in human history (United Nations, 1999).

For centuries, cultures around the globe have celebrated the prospect of longer lives for their citizens. People across the world now are living longer and, in some parts, healthier lives. Until recently only select segments of the world population, especially the privileged classes in more affluent societies could realize this dream. However, improved public health and changing economic conditions have dramatically increased human lifespan in most countries around the world. This indeed is one of the crowning achievements of the last century but also provides a significant challenge as longer lives needs to be planned.

Often more visible in developed countries, ageing is an issue that needs to be appraised with much significance also in developing countries just like developed countries. Ageing of the population is one of the most important demographic facts that are hogging the limelight in the 21st century. As is seen across the world, people are living longer, birth rates are

decreasing and consequently the elderly population is increasing both numerically and pro rata. These phenomena are referred to as *global ageing* when speaking about worldwide data, or *population ageing* when considering specific regions of the world. The number and proportion of older persons is increasing at a faster rate than any other age group in the population. Today, one out of every ten persons in the world is aged 60 or over. By 2020, the corresponding figure will be about one out of every eight. Two thirds of all older persons live in developing countries - numbering in 2002 some 400 million persons. Women comprise by far the greater number and proportion of older populations in almost all societies: the disparity increasing with advancing age (UNFPA 2002).

Ageing of the population affects all facets of the society to include health, social security, environment related issues, education, business opportunities, socio-cultural activities and family life. While global ageing represents a success of medical, social, and economic advances over disease, it also presents tremendous challenges, against the existing models of social support. It affects economic growth, trade, migration, disease patterns and prevalence, and fundamental assumptions about growing older (National Institute of Ageing, US Dept of State). The International Strategy for Action on Ageing, adopted at the Second World Assembly on Ageing as the Madrid International Plan of Action on Ageing (2002), provides an unparalleled opportunity to propel concerns about older persons, especially the older poor, into the forefront of the development agenda (UNFPA 2002).

There has been a constant effort to make ageing process a great success in the society. The policy makers, planners, designers and other stakeholders of the process work to make ageing successful so that the protagonist finds joy in living. Design elements in the built environment, and their location of facilities, are all components of a community that can either encourage or discourage active living in elderly. However, considerable controversy has arisen over its causes, and consequences. This controversy has been fueled in part by the fact that as more and more people becomes aged, concern shifts from medically prolonging life to ensuring that a prolonged life is worth living. The concept itself is rather paradoxical as it combines a positive term (successful) with one usually perceived as negative (ageing). Efforts are being made to balance the two and benefit the target group to the maximum.

THE NEED AMONGST ELDERLY

Older persons have similarly as all other people the right to be assessed as individuals, on the basis of their abilities and needs, regardless of their age, sex, colour of skin, disability or other characteristics (UN 2009). These individuals may have varying skills, abilities, support systems, living arrangements, levels of education, health and wealth — all influenced by their diverse experiences and differing circumstances. It is expected that the abilities and needs of future seniors will be no less diverse; in fact, with the rapid changing social system and the global economy, it is likely they will be more so than current seniors.

These needs are best described by the psychologist Abraham Maslow who first introduced his concept of a hierarchy of needs, "A Theory of Human Motivation" in 1943. Maslow categorizes people's needs into: Physiological, Safety/security, Belongingness/Social, Self-Esteem and Self-Actualization. The needs deal with coping, helping, enlightening, empowering and edifying information (Maslow 19430). Maslow's concept revolved around the fact that Physiological or survival needs take precedence followed by safety and security priority. Maslow referred to the first four levels of needs already mentioned

as deficit needs, or D-needs. If you don't have enough of something -- i.e. you have a deficit -- you feel the need. Maslow saw all these needs as essentially survival needs. Love and esteem are also considered a health determinant (Huitt, 2004).

The Loss Continuum Model (Pastalan, 1982) refers to ageing as progressive series of losses that reduce one's social participation. The role of the larger social and physical community and social supports for a more positive ageing in place needs further research. One way of discussing how universal design modifications may affect the physical and emotional state of an individual may be explained using Lawton's Competence and Environmental Press Model. M. Powell Lawton's Ecological Theory of Aging (ETA) has provided a theoretical and practical foundation for the field of gerontology since the 1970's (Barry, 2008). "The competence-press model (Lawton & Nahemow, 1973) asserts that adaptive behavior involves balancing individual abilities (competence) and demands of the environment (press)". Lawton recognized the imbalance between an individual's functional ability and the environment and therefore suggested that individual as well as the home and community resources plays pivotal role in determining environment.

M. Powell Lawton (1983) has defined ''the good life'' (in old age) as consisting of four independent dimensions:

i. Behavioral competence (health, perception, motor behavior, and cognition)
ii. Psychological well-being (happiness, optimism, congruence between desired and attained goals)
iii. Perceived quality of life (subjective assessment of family, friends, activities, work, income, and housing)
iv. Objective environment (realities of housing, neighborhood, income, work, activities, etc.)

So how does Maslow's Hierarchy of needs and Lawton's Environmental Theory of Aging relate? There are five foundational needs that need to be met in order to provide an individual with a balanced and complete self at old age. The needs are defined by three areas, the self and the immediate environment (as mentioned by Lawton), the self and the immediate familiar surroundings (Barry, 2008), and the self and others (Beyond 50.05, 2005). These may also include [i] utility, [ii] safety, [iii] identity, [iv] comfort, [v] emotion and [vi] spirituality. The relationships between these categories are seen to be an interactive structure rather than a linear hierarchical arrangement. The impact of these aspects on the aged population intensifies more as the years go by. These can be seen at both physical and psychological levels like.

- Possible sensory and perceptual changes
- Potential decrease in physical mobility, changes in muscular efficiency and coordination
- Generally slower, less strong, accurate and confident in walking, climbing, gripping, lifting, pushing and pulling
- Experience changes in customary roles, rights and duties.
- Potential loss in comprehension and orientation,

All these inconveniences seem to interact with the social life impregnated with problems of changing of values in our society. Older people's needs are also considered in relation to place of stay which is also a part of their environment. Such issues include location, neighbourhood considerations and land use requirements for special housing outside the house, and internal spaces and user-friendly designs inside the house along with its mechanisms to encourage older people to downsize. The aged population crippled with changed capacity, reduced ability and increased needs require at least the same environments and advantages in late life that

they found in earlier years. In the backdrop of these physical, cognitive, emotional and social problems, most important need of aged population revolves around a decent level of quality of life and satisfaction. All the aspects of "Health status", "Lifestyle", "Life satisfaction", "Mental health" and "Well-being" together reflects the multidimensional nature of Quality of Life of an aged person (Barua et al. 2007). Quality of life is a holistic approach that not only emphasizes on aged individuals' physical, psychological, and spiritual functioning but also their connections with their environments; and opportunities for maintaining and enhancing skills. The way aged population define satisfaction and quality of life changes dramatically from the way people have perceived them while they were young. Maybe the inversion of priorities, wishes and desires comes with age, which leads to reprioritization. Hence the fundamental to appreciating changing priorities, changing dependency and support ratio is the need of these people. Further there is a need to define and articulate the roles and responsibilities of the society in responding to the needs of an aging population which enable them to maintain a balanced and complete self. A designer's goal is to provide the solutions that best support and provide every opportunity to fulfill those needs.

APPROACHING NEEDS OF THE AGED POPULATION

Basic human needs are universal. They are the same for all people for all time. But their satisfiers – the ways to fulfill them – are not. Need addresses both the basic human needs of individuals within the community and the needs of a sustainable global society, both now and in the future as defined by the Brundtland Commission. In their broadest sense, development and human needs are components of the same equation.

For many aged people it is the primary need to be able to remain in habitual and congenial environments. Efforts are currently made to make public spaces 'older person-friendly'. Environments around the elderly must provide solutions that address these distinctions in capacity, ability and need for daily living. To access the health of a built environment and to test its suitability to aged, few pertinent questions on the built environment becomes relevant like

- How are the spaces and the services distributed in the actual built environment?
- Are the spaces easily navigable and walkable?
- What is the nature of use of the existing spaces and facilities by aged population?
- How responsive is the actual built environment for the elderly?

However, the diversity of older people and their different needs are difficult to be fully recognized. Planning focus has tended to be on combating maximum possible issues. There is still a need to understand older people's various requirements in their use of space, reflecting their diversity and different backgrounds. While some are experienced who are used to finding their way in unfamiliar spaces, others may suffer cognitive impairment which makes previously familiar areas unrecognizable and means they need different cues in their environment.

The designers are mostly interested in the physical attributes of housing, although researches have shown that psychological well being is one of the most intrinsic aspects of successful ageing (Carp, 1976; Lawton and Nahemow, 1973; Schwirian and Schwirian, 1993). Successful ageing is a process which encompasses the avoidance of disease and disability thereby maintaining high physical and cognitive function, and sustained engagement in social and productive activities. Besides being social and psychological friendly, the physical

environment itself should be used to form friendship and encourage socialization and relationships.

The design professional faces a tremendous task and challenges to keep abreast of technological advances and research pertaining to many facets of human beings and the built environment (Benktzon, 1993; Pinto et al., 2000; Sagdic and Demirkan, 2000). Few designers presently realize the need for fresh thinking about design – new approaches to the subject, new strategies and new research methods that could help them better understand and respond to the needs of old users. It is worth to be considered that development of products began to shift away from the harder technical and functional performance factor to softer, more human aspects of emotional engagements, lifestyle and aspirations (Clarkson, Coleman, Keates and Lebbon, 2003). Moreover most design oriented research on older user tends to focus on the physiological isolation rather than with the context of social and cultural activities (Huppert 2003).

Design model needs to be proposed in order to design and develop safe and functionally appropriate environment for elderly that will promote and maintain their independent living. There is a growing recognition that the physical environment can enhance or impede the independence and mobility of the elderly. Sanoff (2000) stated that ‘‘the elderly, a rich resource of knowledge and experience, have often been excluded from the design process’’ …. although they are not a homogenous group they are…. ‘‘unique individuals with a common goal-living life with dignity’’.

The response to these issues lies in understanding the need of the aged and approach to design of built environment for them. Research across the world suggests that responding to need of the aged centers around few important approaches namely

- Usability
- Need Based Design
- Human Factors Integration
- Requirements analysis

Needs Based Design for aged organizes the process we adopt to create, build and maintain the physical and social infrastructure of the communities that they live in and is a platform to help the aged move towards, and beyond, sustainability. Approach to Need Based Design for elderly revolves around providing design, development for their ease in interaction with society, and planning teams with a platform, strategy and method for designing, constructing and maintaining the physical and social infrastructure for them. Technology and design have always responded to need. But technology is subordinate when it comes to the area of ageing. Need Based Design for aged provides a new way to think about, propose and pursue a congenial environment by addressing complex and interrelated problems faced by aged population. It uses a systems thinking approach centered on their needs within society and outside it to create healthy and vibrant communities. In view of the complexities in need based requirements and possible conflicts, trade-off practices finds suitability in the design process. User’s Need Based Design hence unify multi-disciplinary design; enabling them to meet their goal. This should also focus on the questions of ‘why’ certain environment, structures, systems and processes have greater potential for helping users to reach success. One way of achieving it is to retrieve the past design information and then study and analyze the user’s need-based preferences in design of similar spaces and features so to provide designers with easy access to relevant designs and related knowledge.

It is of paramount importance to ensure that all ‘user’s need’ based requirements are derived as

low level user requirements before being transposed into system requirements. If that is not possible, the change-as-little-as-possible principle needs to be adopted as the most effective approach. The human factor approach to development of technologies for the elderly must be integrated into the design process for the systems. Need analysis research should be conducted both to refine our understanding of needs and to identify potential solutions for the target groups. Need assessment and requirement analysis are the most important steps to start off a need based system design for the elderly.

The entire elderly people design program needs to be based on design for dynamic diversity. Also it is important to evolve appropriate methodologies to enable creation of an environment where elderly needs are responded and they are partners in development. The solution remains to this is through adopting alternative and innovative methodologies in to respond to need so as to make equitable, affordable and quality environment accessible to the elderly population.

CONCLUSION

We will live an ever-increasing part of our life in old age and this is expected to continue with increased health, wealth, technological advancements and education. The issues and challenges of such large, ageing populations are complex, but becoming increasingly better understood. Although aging individuals appear to age better now than in decades past, ageing still brings a variety of physical, mental and emotional changes that impact people's daily lives. From most of the literature studies, it is evident that there is an increased understanding of ageing, and an ever growing number of older adults but people still have to deal with age related expectations and prejudices. Quality of life in old age is hence to a large extent determined by conditions, events and decisions during childhood and adulthood, including by environment and lifestyle factors. Still there is a need for creating basic prerequisites for a supportive, integrating and friendly environment for the elders. Age-friendly environment and socially cohesive community that offer opportunities for an active life and contacts between generations have crucial impact on maintaining the independence and quality of life of older people. Because ageing is so personal and case specific it is important to monitor the changes of an ageing individual.

This paper is based on the idea that there are significant needs of the elderly people for daily sustenance and it is a challenge to provide congenial environment to them. Hence not only recognizing but approaching complexity as a real and practical problem needs to be realized. We also need to accept that design complexity for the aged population is not something that can be dealt with by the use of approaches and tools aimed at reducing complexity by "borrowing" methods and approaches from the realm of science. It has to be approached through human factor integration, requirement analysis and finally Need Based Design. Design needs to be formulated that respects ageing-related changes and limitations enhance dignity, safety, self-sufficiency and independent living. The literal idea of sustainability through Need Based Design of elderly may lead to new design innovations, recommendations and ultimately opportunities of independence!

ACKNOWLEDGEMENT

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

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