Design for All

PROCESS: Sequential and Consultative process, engaging students & stakeholders
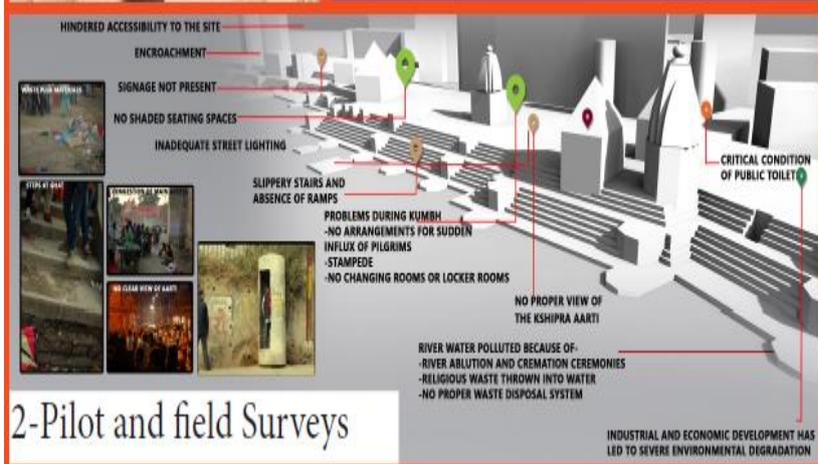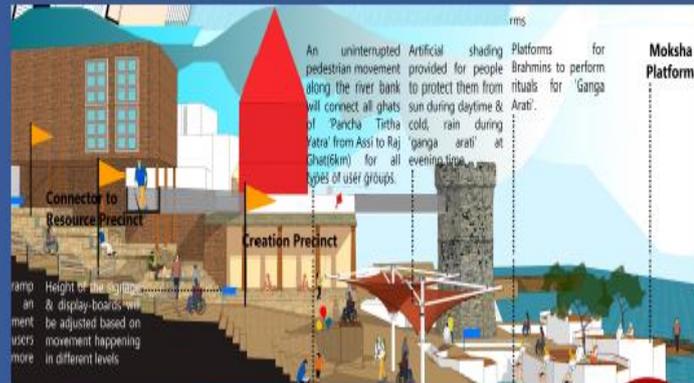

1- Preliminary audit toolkit preparation

3-Prototype development and testing

FINAL PRODUCT
Web-Based Application on 'Universal Design Audit Toolkit with Information on Accessibility and Safety of Heritage Sites'

An uninterrupted pedestrian movement along the river bank will connect all ghats of 'Pancha Tirtha Yatra' from Assi to Raj Ghat(6km) for all types of user groups.

Artificial shading provided for people to protect them from sun during daytime & cold, rain during evening time.

Platforms for Brahmins to perform rituals for 'Ganga Arati'.

Moksha Platform

Connector to Resource Precinct

Creation Precinct

ramp Height of the signage an & display-boards ment be adjusted based on ders movement happening more in different levels

HINDERED ACCESSIBILITY TO THE SITE
ENCROACHMENT
SIGNAGE NOT PRESENT
NO SHADED SEATING SPACES
INADEQUATE STREET LIGHTING
SLIPPERY STAIRS AND ABSENCE OF RAMPS
PROBLEMS DURING KUMBH
-NO ARRANGEMENTS FOR SUDDEN INFLUX OF PILGRIMS
-STAMPEDE
-NO CHANGING ROOMS OR LOCKER ROOMS
CRITICAL CONDITION OF PUBLIC TOILET
NO PROPER VIEW OF THE KSHIPRA AARTI
RIVER WATER POLLUTED BECAUSE OF-
-RIVER ABLUTION AND CREMATION CEREMONIES
-RELIGIOUS WASTE THROWN INTO WATER
-NO PROPER WASTE DISPOSAL SYSTEM
INDUSTRIAL AND ECONOMIC DEVELOPMENT HAS LED TO SEVERE ENVIRONMENTAL DEGRADATION
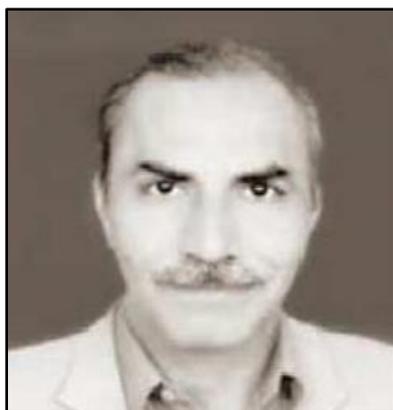
2-Pilot and field Surveys

Guest Editor: Dr. Sandeep Sankat Associate Professor, Department of Architecture, School of Planning & Architecture, Bhopal India

Content of April 2017 Vol-12 No-4

Other Regular features

Letter from the Chairman's Desk
By Sunil Bhatia PhD

A woman gets up in the morning with natural smell of her body but she feels as if carrying something that is unwanted and her foul body smell would create aversion to others who wish to come close to her but at times she lives in confusion about others who are with fixed mind set of their choice of preferences. Her mind is governed by market driven forces and her day begins with overlapping of so called modern but artificial means by cleaning teeth with toothpaste of her choice flavour. Before proper bath she wishes to look presentable to others she cleans her face with face wash of particular fragrance, applies face cream with varied fragrance and combs her dishevelled hairs after applying perfumed hair oil. She prepares herself for performing daily chores by giving extra boost energy drink that also cleanses her inner self by taking green tea with particular flavour along with flavoured coated cream biscuits. She takes bath with particular scented bathing materials. She uses body lotion with scent and does her makeup of lips with lipstick made off with flavour of fruits; talcum powder contains flower scent and other make up materials with various fragrances. Ultimately she uses perfume to mask the fragrance of other products for feeling energetic and mentally prepare to perform her assigned duties. She is walking like a showcase as displaying various fragrances for window shopping for others who are crossing or nearby and cannot avoid her presence and some even enjoy fragrance of her body.   Act of

makeup is anti depressant for woman and she feels people around her like in this avatar and it is the only way for attracting other's attention. It is an activity of intimate expression of confidence and inner self in modern world. Few years back some body parts hairs were never unwanted but commercial world declared unwanted and people shaved or use hair removal cream of particular fragrance. Her choice is market driven and every company is offering her limited options without doing any proper research in preference of fragrance by users and there is no collaborative research by different companies to create in totality a unique fragrance for woman for making her signature style and reflect her true personality.

Why does not role of smell is properly exploited by market forces in all possible manner? Fragrances are part of what has been called nasal nostalgia. Certain people are deprived with smell and nasally challenged. I recall going along with my friend near the open drainage and it was impossible for me to bear that foul smell . Other side he was unaffected and later I learnt that he lost his sense of smell and he is suffering with some nasal challenged. These people learn certain things when someone mentioned where normal person behaved differently in freshly painted house compared to nasally challenge. When someone offer edible item which has natural or artificial flavour and normal person learning triggers his associated memory and reacts in different manner and sometime in excitement and his others hormones secretes and hunger flares up where nasal challenged person misses this behaviour of triggering memory associated with smell. These deprived people have different method of learning experience curve compared to normal. There is theory of recovering nasal challenge by extensive physical exercises but it is not scientific

proven theory. People relish the food by visual inspection and through taste buds where normal person imagination flies as fragrance strike his senses at the distance.

Male voice was wavering while talking on phone and with great difficulty man was able to speak as it appeared he was under such a situation that was beyond his imagination and something was haunting with unusual happening. He informed in broken sentences 'foul smell was coming out of the locked neighbour's house where an old aged deserted person was living. I immediately rushed to the spot with crime investigating team. As we broke the door a gush of foul smell of heavy decomposed body struck our nose and that helped in locating the body that was on floor and foul smell was so strong it was difficult to bear and go near for further investigation. I took the bottle of aerosol fragrance from my kit and sprayed around the body to temporally mask its foul smell and closed our nose and mouth with handkerchief for prevention of foul smell should not strike smell sense. We did the routine procedure for investigation and body was sent for post mortem. That incidence was brought to our notice because of smell. Smell of the air at crime scene helps in unfolding the mystery of the method of criminal mind.

It reminds me the incidence of my college days where my classmate fainted as she smelt scent of incense and doctor diagnosed that her associated past experience with fragrance of incense triggers her specific memory. She informed that her father died and his body odour was mask with number of burning incense sticks.

Smelling is our one of the five senses and it can distinguish bad and good scent that helps the humans to learn a lot from it. It has played silent role in making us modern persons and made us for learning the art of keeping bad smell should not strike sensory organs either by controlling breathing and physically closing our nose and mouth by hand or piece of cloth or masking with other means. Other side we innovate new ways that sweet smell should be always around us. Why do our body feel uncomfortable with bad smell and appreciate good smell and has different impact on us. It is not confined to humans even it is inbuilt system in all living beings even plants or flowers releases specific fragrance for making its presence and animals releases foul smell not to be prey and uses location of decay of dead body for foods or some releases unbearable bad gas as defence mechanism to get the opportunity to run away from the clutches of enemies. Some fragrance appease our body and helps in secretion of certain hormones in performing certain specific work in better manner other side bad smell creates aversion . Sweet smell enhances work productivity.

I recalled washing of dirty clothes by my mother where she enjoyed jasmine/rose fragrance of detergent powder at the time of folding. What was the role of fragrance for cleaning the clothes? It is simply satisfying the psychology of user to feel clothes are no more with odour and properly cleaned. It is worldwide practice while praying we light incense sticks. What is the relation of prayer with fragrance? It is nothing but satisfying the psychology of worshipper with feel good factor and create atmosphere different from rest of the area.

When I cook at times I sprinkle varieties of powder spices for aroma because every spice has unique fragrance and in totality creates particular flavour in the prepared dish. Release of unique smell helps in indicating dish is cooked properly. Market driven forces for commercial gain selling in sealed packed powder claiming of retaining the aroma intact in spices but biggest challenge is once it is open and proper care of storing in air tight container is not handled, natural oil that is volatile and contains the aroma goes into air . It needs proper attention to retain the aroma of spices in every stage. To avoid the volatile oil of spices should not be waste and chances of mishandling in retaining the aroma of spices is high in long chain we designed crusher where whole spices can be freshly crushed to powder for proper aroma while it is cooking . Kitchen has hood to suck the smell of cooking food and it has exhaust fan to throw the unwanted smell out of the kitchen. Design of chimney was for meeting dual objective to allow the smoke go in the air and fire should be kept on with proper supply of air. Presence of smoke can suffocate, may prove reason of death and proper supply of clean air, was reason of design of chimney. When there is leakage of Liquid petroleum gas for cooking stored in iron cylinder, it warned us with unique scent that prompt us to act swiftly to control any eventualities due to fire and do not ignite or use that can produce spark and fire can catch and cylinder might explode. Our taste buds activate with smell of foods, the way it is presented, ambience of the place also enhance our taste and we relish our food more. Role of fragrance is vital for progress of all living beings.

Nature has fragrance of flower for attracting the insects/ birds/ animals / humans for pollination. Even certain animals release pungent gas or urinate that has strong foul smell as to divert the

attention for getting away from the hold of others as defense. Our body has different scent with hormonal changes and it helps in attracting the opposite sex and provides indication about fertility of the person for mating. We generally mask our natural body scent believe odour has negative traits and live under the influence of modern ideas either by using artificial products for cleaning or using synthetic aroma that is commercially viable . Prior to this era, ancient people were using natural products for fragrance and designed garland made of scented flowers or even women were using for decorating their hairs with headgear made of sweet scented flowers. Honeymoon night for married couples should be memorable so room is filled and decorated with different fragrance flowers for creating proper ambience. Natural fragrances were dominating the day to day life in primitive times to feel good with scented smell. Humans understood the role of fragrance in early life and fruits releasing sweet smell generally edible and not harmful where foul smell were unhealthy. They even used this at the time of haunting for killing the live animals that was edible where dead animals with foul smell were unhealthy. Where ever the stale water it releases foul smell and to counter they used watercress perennial, aquatic herb that has character of releasing oxygen and its roots are using sludge for plant food. Fruits release special fragrance to attract the carrier for spreading their seeds for new lease of life. We physically segregate the decayed fruits from the rest of the fruits by locating the foul smell. Fermented cheese or curd is set that is indicated by smelling its unique scent release by bacteria. Proper yeasting also releases unique smell that helps in to control not to allow further growth by storing in refrigeration. Vultures locate the carcasses by smell of decay body for food. Ants were nowhere visible as there some sweet product makes its presence it comes

in group from somewhere because of its spreading fragrance. We designed the air tight containers not only to avoid attack of moisture that can spoil the food but it does not allow fragrance to go out of the container and no signal was sent to its enemies . Role of fragrance has changed the face of the packaging industries those are using it in their products need special packing for retaining it . Fragrance can be arrested with liquid , gas and solid form either in paste or dry form need special technique of packing.

Certain animals are with inbuilt natural character of detecting particular odour and humans trained them as sniffer dogs for detecting explosive that has unique fragrance or criminals leave behind something that has his body fragrance that helps in tracing with sniffer dogs. Sniffer dogs are easy to train for retaining specific smell to trace the criminal by locating its unique smell wherever he has travelled. I have noticed in domestic animals that bull before mating smell the urinating cow that might be possible to find she is not conceived and ready for mating .Even car mechanics or electricians take the help of smell for detecting problems. One day I was facing some problem in electric supply and as I informed there is smell of dead rat electrician immediately spotted the smell from it was coming and changed the burnt wire. He informed me when PVC wire short circuit it burns and release smell of dead rat. Similarly car mechanics requested me to start the engine and as unburned fuel carries unique smell he informed where the problem lies in vehicle. Air fragrance was initially designed with decoration of flower in vase or that act was reason of birth of art of flower decoration and in modern commercial world it took place of flower shop. Next level was extraction of flower fragrance stored by boiling water and we

call rose water and later learnt the art of oil extraction of flower for fragrance. To release its fragrance for longer time we added volatile element like camphor for even spread. Then idea of aerosol product added with perfume for instant and for wider area. Later concept of Gel with perfume was added for even and very slow spread for long time.

I remember an incident where my friend who was fish lover inspite of that he was aware that I am vegetarian, requested me to company him in buying fish from fish market. I could not refuse and as I came close to market I experienced unbearable smell and felt like to vomit. Other side he was relishing that smell and taking every fish that seemed fit for buy close to his nose for quality of freshness. Fragrance enhances our learning and as food burns they release carbon gas that smell warns for quick action to stop further damage of cooking food.

A newly born child recognize mother with unique smell of her and that impression of scent left a special imprints in his mind that never lost even when he loses all the senses of body in accident. Infant refuses to swallow the bitter taste liquid medicines ,so companies add flavour of specific fruits. Some time mother's closes the nose of the child to avoid the fragrance of medicine of not choice of the child. Infants cannot explain their ailments then doctor inquired about status of stools / urine or sweats of body odour to parent that helps in proper diagnose of ailments.

A smell of fermentation of food helps in deciding it is set properly that helps in maintaining proper balance of bacteria in our body. Heavy fermentation spoils the foods and its bacteria creates imbalance and harmful for human body. Curd is the best example,

Wine beer and other liquor releases particular fragrance that helps \in indicating it is best suited for humans and will not harm. Some humans release body odour that is unbearable where his close friends never mind his body smell and enjoy company. A sewer workers mind is set and he goes inside the sewer line to clear the blockage where we cover our nose with handkerchief. As a designer I can understand hardship and to counter we have designed various devises like air or water jet system for clearing blockage. Garbage trucks are designed in different manner to control its foul smell not to leave behind where ever they are travelling for management for disposal. Sewer lines release harmful gas along with heavy foul smell that is harmful for line as well for humans. To release the pressure sewer lines are equipped with chimney that releases gases at height in air. Close room has stale air and it develops harmful effects and fresh air leaves good feelings . We have designed window, ventilators for fresh air. As technology improved we designed air conditioner that not only cool but clean the air by inbuilt filter.

Flavoured condom looks absurd to me but it is in demand. What is the purpose of scent during sex? It is proven scientifically that perfume enhances the hormones and bad smell aversion. A new study suggests that a woman's natural scent may be all she needs. Recent research shows that a man's testosterone levels, which are linked with sexual interest, are significantly higher when they smell the shirt of a woman who is ovulating. Recent scientific findings indicates that Olfactory loss was considered as a signal of increased death risk in middle-aged and elderly people and it helps in mortality risk uniquely predicts by smell loss.It is a practice among ice cream manufacturers around the world to design flavoured ice cream attracts the customers of specific

choice that helps in penetration in market. I remember a childhood incidence where our newly married female teacher took us for city tour and children were playing in the garden and she was drinking tea in earthen pot sitting along roadside tea stall. I noticed after finishing tea she started eating the earthen pot by avoiding no one should notice her absurd act. I failed to understand reason of eating earthen pot that day. Today I can say it was an act under fragrance of her choice that compelled her to eat it. If fragrance has that power to overlap the thought and compel her to act in such a manner why not designers are exploiting such great force and human weakness for designing products that should have fragrance. Car industry is using fragrance concept for selling their vehicles why not other industries are catching up?

Dr Sandeep Sankat is man of commitment and he has shown his dedication for social cause inspite of facing great loss of his mother. His mother expired recently and he is still under huge grief and I appreciate his commitment. I pray to God on the behalf of Design For All team for departed soul.

With regards
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Editorial :

Sandeep Sankat

Associate Professor, School of Planning and Architecture, Bhopal

(PhD, M. Ekistics, B.Arch.)

Increasing urbanization, modernization, commercialization, changing demographics, changing social scenario, depleting joint families and increasing nuclear families have resulted in exclusion of persons with disabilities and elderly. The inaccessible built environments have made persons with disabilities and elderly more vulnerable, and they are restricted to their rooms and residences.

A collective effort on three fronts namely; Politics, Society, Economy can bring a change. Indian government realized the inaccessibility of Indian built environment and launched "Sugamya Bharat Abhiyaan", the "Accessible India Campaign". With Indian growing economy and the political will the two fronts out of the three are ready to take up the challenge of bringing the change and to create accessible built environment. But the third front the Indian society at large needs to be educated through mass awareness and capacity building for the concerns towards disabilities, elderly and accessible built environments. Together with aware society, economic possibilities and political will the challenge of making Indian built environment accessible can be achieved.

Amongst the key components of "Sugamya Bharat Abhiyaan", the two essential components are mass awareness and capacity building. Both the components can be achieved through knowledge which can create mass awareness and build capacities if infused with the education system.

"Universal Design" a worldwide accepted concept for the provision of accessibility has been envision as a solution to

provide mass awareness and capacity building for the creation of accessible built environments in India.

This issue of "Design For All", is focused on "Universal Design Education". The issue is a collection of articles and papers of people working in the area of disability accessibility and universal design. The papers/ articles explain the best practices adopted to spread the knowledge of universal design and achieving accessible built environments through "Universal Design Education" and "Universal Design".

The first article explains about a centre, "CHCR", Centre for Human Centric Research at School of Planning and Architecture Bhopal. School of Planning and Architecture, Bhopal is committed to produce architects and planners, who are socially responsible and becomes built environment creators to design with respect to user need and aspirations. Under this centre few dedicated academicians work together to spread the knowledge of "Universal Design" and concerns towards accessibility and disability. I as head of this center and coordinating together along with the team are working towards the goal to achieve accessible environments through universal design in India.

The second paper explains the work done Under Erasmus + Global mobility programme. It has been attempted to understand how universal design education can bring the change and challenge of making Indian built environments accessible can be achieved through the goals of "Sugamya Bharat Abhiyaan".

Further the papers and articles in this issue are focused on "Universal Design Education". The papers explains few

methodological ways of teaching universal design not only through theoretical classroom based approach but following participatory models by full scale simulation exercises to better understand the built environment and its design with universal design.

I wish to thank the "Design for All Institute, India" for giving me this opportunity to be the guest editor for this issue. I am also thankful to all the contributors for their ideas and the ability to produce papers and articles within a very short span of time frame. A final note of thanks goes to Prof. Lalit Das, editor and Dr. Sunil Bhatia, the chief editor, "Design for all" for providing this opportunity to be the guest editor for the April issue.

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(Phd, M. Ekistiks, B. Arch)
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Rachna Khare,

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Associate Professor, School of Planning and Architecture, Bhopal (PhD, M. Ekistics, B.Arch.)

CENTRE FOR HUMAN CENTRIC RESEARCH (CHCR) at School of Planning and Architecture, Bhopal

Prof Rachna Khare, Dr Sandeep Sankat

Committed to produce socially aware architects and planners, the School of Planning and Architecture, Bhopal, explicitly supports social, cultural and environmental sustenance through the disciplines of architecture, planning and design. Supporting its ethos, a multidisciplinary research and design development hub 'Centre for Human Centric Research' is housed at SPA-Bhopal. The centre practices 'equity by design' for inclusion of vulnerable populations like children, women, elderly, social and ethnic minorities, and persons with disabilities.

The centre was conferred upon NCPEDP-Universal Design Awards 2012 and 2013 at National level, given by then Ministers, Ministry of Social Justice and Empowerment. To attain its objectives, the centre functions in four major areas, 'Identification of Research Priority Areas and Networking', 'Education and Training', 'Research and Design Development' and 'Dissemination'.

I. **Identification of Research Priority Areas and Networking:** CHCR conducts think tanks to brainstorm and identify the areas of research priority with the core resource group with similar interests. It also connects all stakeholders (SPA-faculty and students, other Institutes of higher learning, NGOs, government agencies, consumers, users and service providers) to address these priority areas. The centre regularly organizes special lectures workshops, public exhibitions, conferences and awareness campaigns on the

concerning areas. **In recent past it has organized several national level events in collaboration with national and international organizations like Archaeological Survey of India, National Institute of Orthropaedically Handicapped, Arushi, DRONAH, Ability Unlimited, UNESCO, UC Berkeley etc. The centre provided its expertise in formation of National Centre for Inclusive and Universal Design, MSJE, Govt of India, and represented the country in United Nations ESCAP.**

Activities

- **Connects with stakeholders to address the priority areas.**
- **Collaborated with national and international organizations like Archaeological Survey of India, National Institute of Orthropaedically Handicapped, Arushi, DRONAH, Ability Unlimited, UNESCO, Berkeley Prize etc.**

II. **Education and Training:** CHCR acts as a resource centre to facilitate researches addressing people centric studies in the built environment at local, regional and national level. The centre has resource faculty, human centric lab and offers specialized academic courses in the related subjects. It regularly organizes training workshops and student competitions. Some national level training programme includes hands-on workshops and the annual national student design competitions on the themes 'Inclusive Design', 'Universal Design for Exploring World Heritage Sites' and 'Inclusive Design in Pilgrimage sites'. At international level, the centre conducted an international elective at National Institute of Design on 'Designs for Elderly' and is conducting a design studio on 'Universal Design for Cultural Interface in Sacred Site of Ujjain' under Berkeley Prize endorsed by Department of Architecture, University of California, Berkeley, USA.

Activities

Conducts special courses, training workshops and student competitions

National level training programme includes hands-on workshops and the annual national student design competitions on the themes 'Inclusive Design', 'Universal Design for Exploring World Heritage Sites' and 'Inclusive Design in Pilgrimage sites'.

International training programme includes international elective at National Institute of Design, Ahemedabad on 'Designs for Elderly' and design studio on 'Universal Design for Cultural Interface in Sacred Site of Ujjain' under

Berkeley Prize endorsed by Department of Architecture, University of California, Berkeley, USA.

III. **Research and Design Development:** CHCR Initiates and supports faculty and student projects in the identified priority areas at School of Architecture and Planning, Bhopal. It also supports undergraduate, postgraduate projects/studios and PhD research on the theme and sponsor faculty projects. Some of the ongoing and completed projects include:

- Low-cost disabled friendly toilets in Anganwadi Centres in association with Arushi and UNICEF
- Universal Design India Project in collaboration with NID, Ahmedabad
- Disabled friendly toilets for Raja Shiksha Kendra, Government of M.P.

- **Anganwadis for Government of M.P.**
- **Elderly Housing for Bhopal Development Authority**
- **Universal Access for Persons with Disabilities at Udaipur City Palace Complex**
- **The trained SPA students are working for the accessibility of Persons with Disabilities during 'Simhasta' at Ujjain.**

Some current PhD researches include, 'Working with leftover: Spaces, Material, People', 'Planned evolution of Vernacular Architecture to meet Needs of Urban Poor' etc. Whereas a completed PhD is on the topic, "Creating Inclusive Living Environment in the Urban Residences for Indian Elderly."

IV. **Dissemination: CHCR brings out publications on the subject for information sharing and developing a body of knowledge to help architects, engineers, planners, designers and other stakeholders, who work in this area. The centre has published SPANDREL, an international refereed journal on 'Social Sustenance by Social Equity' to address needs of the vulnerable groups like persons with disabilities, children and elderly. It has also published annual calendars on universal design to disseminate Universal Design India Principles and monthly periodicals for Design for All Institute of India. Another publication of CHCR 'Uniting Differences' is based on winning entries of a Design Competition on Inclusive Design. The centre regularly conducts public exhibitions in and outside SPA-Bhopal.**

Activities:

- *Brings out publications on the subject for developing a body of knowledge*
- *Published SPANDREL, an international refereed journal on 'Social Sustenance by Social Equity'*
- *Published an annual calendar to disseminate Universal Design India Principles*
- *Edited periodicals for Design for All Institute of India based on CHCR work*
- *Published a book 'Uniting Differences' based on winning NSDC entries*
- *Regularly conducts public exhibitions in and outside*
- *SPA-Bhopal.*
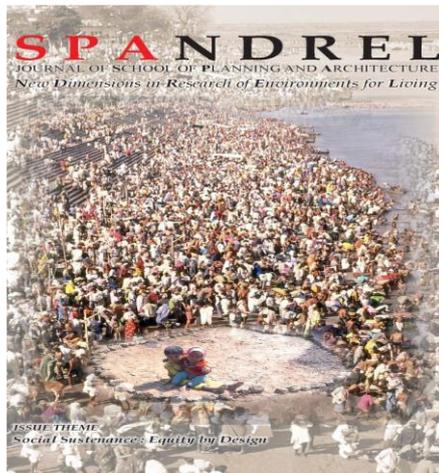
Rachna Khare

Sandeep Sankat

Sandeep Sankat

Associate Professor, School of Planning and Architecture, Bhopal (PhD, M. Ekistics, B.Arch.)

Sandeep Sankat is Associate Professor in the Department of Architecture, School of Planning and Architecture, Bhopal (M.P.) India. Prior to this he was senior lecturer in F/o Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Commencing his career in mid nineties he practiced as Architect at his own office "Design Innovations" at Indore, Madhya Pradesh, India. He has practiced for 7 years in the field and then joined academia. His specializations are in the area of Architecture, Ekistics, Human Centric Design, Universal Design and Elderly and Environment.

The topic of his PhD was "Creating Inclusive Living Environments in Urban Residences for Indian Elderly". He did his PhD from School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi, India and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.) India. He has secured first position and distinction in the Bachelors and Masters Courses. He has been a recipient of Gold Medal for the Masters course of Ekistics from F/O of Architecture and Ekistics, Jamia Millia Islamia, New Delhi.

He is heading the Centre for Human Centric Research (CHCR) which is committed to produce socially aware architects and planners, the multidisciplinary research hub 'Centre for Human Centric Research' is housed at SPA-Bhopal. CHCR propagates inclusive and multidisciplinary problem solving approach to optimize the environment for the population who does not have power to influence the design and planning process. To attain its objectives, the centre functions in four major areas, 'Identification of Research Priority Areas and Networking', 'Education and Training', 'Research and Design Development' and 'Dissemination'.

He is a fellow of prestigious Erasmus programme, he has been a recipient of Erasmus + Global mobility grant in 2016 for his work to explore the possibilities through universal design education for the provision of accessible built environments.

He has been awarded with the prestigious National award "NCPEDP MPHASIS Award 2016" for his work in the area of disability and Universal Design.

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"Sugamya Bharat ka AAdhaar, Universal Design Education in India"

Sandeep Sankat

Abstract:

The Prime Minister, Shri Narendra Modi of India, launched "Sugamya Bharat Abhiyan" (Accessible India Campaign), on 3rd, December 2015. It is a nationwide flagship campaign for achieving universal accessibility for "Persons with Disabilities" and to create an enabling and barrier free environment, with a focus on three verticals: Built Environment; Public Transportation and Information and Communication Technologies (MSJE, 2016).

This study under the Erasmus + Global Mobility Program is an attempt to identify how the " Accessible India Campaign" can made successful through "Universal Design Education" in India. It is a study to first establish the need of universal design education and then an attempt to learn from the best practices from the other country. For which the Norwegian University of Technology and Science, NTNU, Trondheim and Gjovik has been studied along with the universal design based project at Trondheim, Norway.

The Paradigm Change

Figure 1: Linear model of disability Source (Danford & Steinfeld, 1999).

The traditional model of disablement process is the most widely adopted conceptual framework which distinguishes between "impairment", or disturbances at the level of organism; "disabilities" or limitations in activities and "Handicap" or limitations in social participation. The traditional view is that impairment, disability and handicap act like a linear cause and effect process i.e. impairment causes disability and disability leads to limitations in social participation or "Handicap" (Danford & Steinfeld, 1999).

Revised Model of Disability
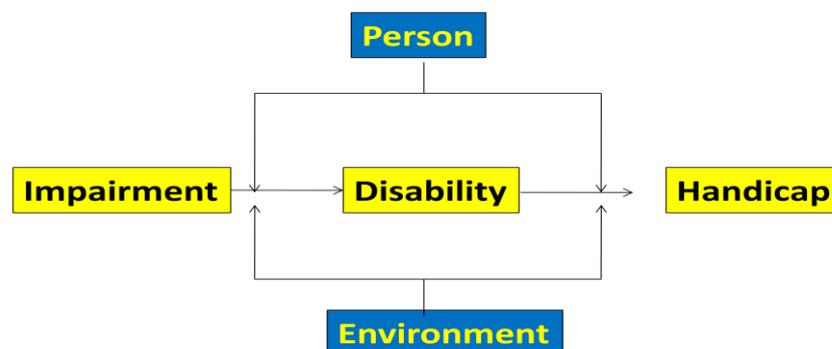
Figure 2: Revised model of the disablement process

Source (Danford & Steinfeld, 1999)

The linear relationship between impairment, disability and handicap is an over simplification. Health conditions do not necessarily result in impairment, but they can result in functional limitations; a good example is pregnancy. Moreover, impairment could result in limitations in social role participation even if it causes no functional limitations; example is result of stigma associated with mental illness (Danford & Steinfeld, 1999). Thus according to the new perspective, the environment is conceptualized as a mediating factor and thus along with the individuals functional ability to assess the level of independence

one must also consider who the person is? What their family resources are? And in what physical environment their everyday activities take place?

Thus disability has to be discussed with reference to the context. The new paradigm implies that the focus should be on abilities and how they are supported or limited by environment, either social or physical (Danford & Steinfeld, 1999).

This emphasizes the need of measure of functional independence with respect to environment and in the absence of good measurement techniques that take account of the effect of environment variables; the ability to monitor outcomes is compromised (Danford & Steinfeld, 1999).

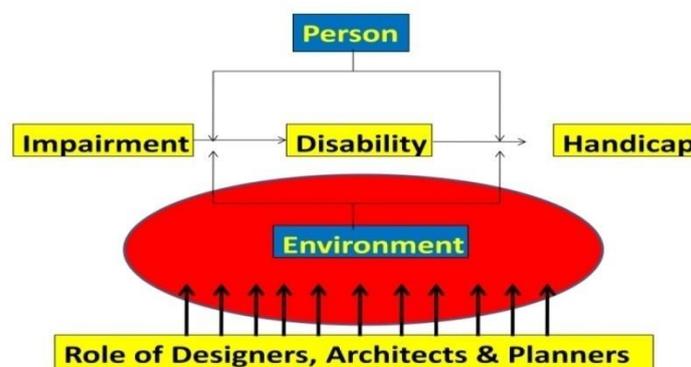Figure 3: Revised model emphasizing the role of environment creators.

Source (Danford & Steinfeld, 1999) Adapted based on revised model of displacement process

The International Classification of Functioning, Disability and Health, known more commonly as ICF (WHO, 2001), is a classification of health and health-related domains and it includes a list of environmental factors. These domains are classified from

body, individual and societal perspectives by means of two lists: a list of body functions and structure, and a list of domains of activity and participation. Since an individual's functioning and disability occurs in a context, the ICF recognizes the impact of the environment on the person's functioning. The International Classification of Functioning, Disability and Health (ICF), has established the role of environmental factors in the creation of disability and the relevance of associated health conditions and their effects (WHO, 2001). The ICF, accepted as one of the United Nation's social classifications, provides an appropriate instrument for the implementation of international human rights mandates and a valuable framework for monitoring aspects of the UN Convention on the Rights of Persons with Disabilities (UNCRPD, 2006). In recent decades disability is no more seen as an individual condition which may be addressed by intervention at individual level through assistive devices etc. This brought a paradigm shift in understanding disability. It looks beyond a human's impairment and defines the problem as social barriers and empowers the disabled people to challenge the society to remove those barriers.

The relationship between the functioning of the body or mind, abilities, social participation, environmental factors and personal factors is very complex. This suggests that there is a need to give more attention to environmental issues but also that these issues are multidisciplinary and of interest and importance to many different professionals (Danford & Steinfeld, 1999).

The paradigm shift emphasizes the importance of the role of designers, architects and planners to create the enabling environments for all users.

What is Universal Design?

The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized deign (Connell, et al., 2008)**.**

Universal Design is a framework for the design of places, things, information, communication and policy to be usable by the widest range of people operating in the widest range of situations without special or separate design. Most simply, Universal Design is human - centered design of everything with everyone in mind (IHCD, 2016)**.**

Thus, It is a framework which can be followed at "ALL" levels of design; namely, at the level of 'Product Design', 'Interior Design', 'Architecture Design', 'Neighbourhood Design' and 'Planning' by the 'Designers', 'Architects' and 'Planners' to achieve the 'Universal Accessibility' and 'Accessible Built Environment' to include "All Users" to the maximum extent possible.

The Seven Principles of Universal Design

1. Equitable Use: The design does not disadvantage or stigmatize any group of users.

2. Flexibility in Use: The design accommodates a wide range of individual preferences and abilities.

3. Simple, Intuitive Use: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

4. Perceptible Information: The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

5. Tolerance for Error: The design minimizes hazards and the adverse consequences of accidental or unintended actions.

6. Low Physical Effort: The design can be used efficiently and comfortably, and with a minimum of fatigue.

7. Size and Space for Approach & Use: Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility (Connell, et al., 2008).

The Indian Principles of Universal Design

1. Equitable/ Saman: The design is fair and non-discriminating to diverse user in Indian context.

2. Usable / Sahaj: The design is operable by all users in the Indian context.

3. Cultural / Sanskritik: The design respects the cultural past and the changing present assist all users in the Indian context.

4. Economic / Sasta: the design respects affordability and cost considerations for the diverse users in the Indian context.

5. Aesthetic / Sundar: The design employs aesthetic to promote social integration among users in Indian context. (Mullick, et al., 2011)

The "Sugamya Bharat Abhiyaan"

The Prime Minister, Shri Narendra Modi of India, launched "Sugamya Bharat Abhiyan" (Accessible India Campaign), on 3rd, December 2015. It is a nationwide flagship campaign for achieving universal accessibility for Persons with Disabilities and to create an enabling and barrier free environment, with a focus

on three verticals: Built Environment; Public Transportation and Information and Communication Technologies (MSJE, 2016).

The Accessible India Campaign comprises of the following key components:-

(i) Create Mass Awareness;(ii) Capacity Building;(iii) Interventions (Technology solutions, Legal framework, Resource generation);(iv) Leverage corporate sector efforts including CSR resources;(v) Leadership endorsements.

Objectives of "Sugamya Bharat Abhiyaan" (Accessible India Campaign)

Part A: Built Environment Accessibility

Objective 1 : Enhancing the proportion of accessible government building

Part B: Transportation System Accessibility

Objective 2 : Enhancing proportion of accessible airports.

Objective 3 : Enhancing the proportion of accessible railway stations.

Objective 4 : Enhancing the proportion of accessible Public Transport

Part C: Information and Communication Eco-System Accessibility

Objective 6: Enhancing the pool of sign language interpreters.

Objective 7: Enhancing the proportion of daily captioning and sign-language interpretation of public television news programmes

(MSJE, 2016).

Aim:

To make the "Sugamya Bharat Abhiyaan", the accessible India campaign a success through "Universal Design Education" in India.

Objectives:

- *To study and identify how Sugamya Bharat Abhiyaan" the "Accessible India Campaign" can be made successful.*
- *To identify how through "Universal Design Education", the "Sugamya Bharat Abhiyaaan" can be made successful.*
- *To establish and validate the need of "Universal Design Education" in making the "Sugamya Bharat Abhiyaan" a success.*
- *To develop an ideology for the curriculum development for the "Universal Design Education" in India.*
- *To study and learn from the practices adopted by the Institutions in western world (NTNU) Trondheim, Norway, for the teaching and learning of Universal Design.*
- *To study and learn through the existing examples of Universal Design in the Trondheim city, the projects completed by Trondheim Kommune.*

Methodology:

The methodology adopted is a stepwise process to achieve the above stated objectives to make the "Sugamya Bharat Abhiyaan" the Accessible India Campaign a success. The work is being explained through the methodology diagram mentioned below.

PRIOR PREPARATION

RESEARCH IDEA

The idea derives its origin from the Government of India's, **"Sugamya Bharat Abhiyaan".**

Proposed models;
Part A: built environment Accessibility
Part Two: Transport System Accessibility
Part three: Information and communication sytem accessibility

Government of India's Sugamya Bharat Abhiyaan

Universal Design as the knowledge base to bring all stake holders at one platform of knowledge and to generate awareness at large amongst people

LITERATUR E REVIEW

History of Universal Design Education.

LITERATURE REVIEW Theoretical and Methodological Foundations

Learning from various Curriculums and courses of Universal Design teaching and learning.

STAGE – I

The curriculum development process

Establishing and Validating the need of Universal Design through the surveys with experts and stakeholders opinion.

A survey with the various stakeholders has been conducted to identify if the universal design can became the knowledge base for the success of the campaign.

Establishment and VALIDATION

STAGE – II

Generating an Ideology by overlapping Ekistics philosophy with Universal Design to create the foundation for development of a curriculum of universal design

The idea is to identify the areas of study through the 5 Elements of Ekistics for the development of Universal design curriculum.

Ideology

STAGE – III

The teachings at NTNU

Learning's from the way Universal Design is taught to the students at NTNU, Trondheim and at NTNU Gjovik

This is to learn from the various existing labs at NTNU Trondheim and Gjovik along with the process of teaching Universal design at NTNU

Learning

STAGE – IV

Existing UD based Projects

Learning's from the case study of the various existing universal design based projects of Trondheim

Finalization process would examine Indian user needs to best achieve a balance between critical needs, environmental demands, available technology and current practices.

Learning

Refinement to suggest the possibilities with respect to Universal Design for the success of " Sugamya Bharat Abhiyaan"

Figure 4: Methodology

The Research Idea

The "Sugamya Bharat Abhiyaan" the Accessible India Campaign aims to make India fully accessible through the provision of universal accessibility. It aims to bring a major change in the Indian situation by making the infrastructure accessible to "All". (MSJE, 2016).

In the key components of "Sugamya Bharat Abhiyaan", two major components are; 1. Mass Awareness and 2. Capacity Building (MSJE, 2016). To achieve both these components, the need is to develop a knowledge base through which people associated with built environment development can be brought at one platform and awareness towards universal accessibility can be created amongst the people at large. To achieve awareness amongst people of a country about any concept, the established method is to provide knowledge to the people and this knowledge can be provided through the education system at all levels for awareness about the concept and specifically in detail to the people responsible for creating the built environment.
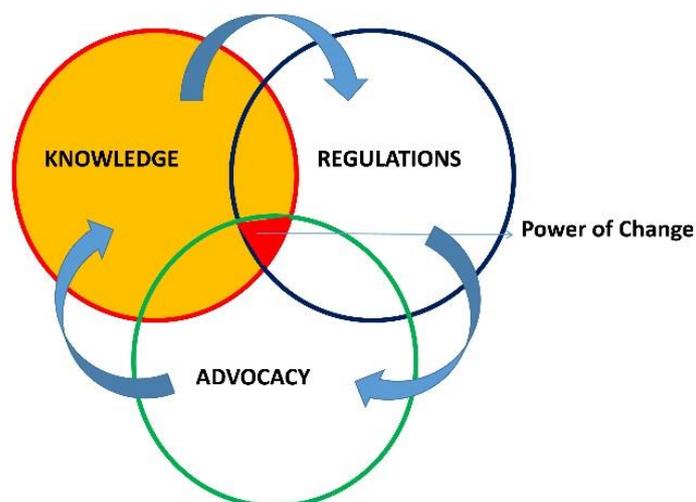
*Figure 5: The Knowledge, regulations and advocacy cycle*

India at present is lacking in administrative measures to enforce accessibility in design of built environment due to lack of stringent byelaws to be followed for the design of built environment. The available standards are in the form of Guidelines. As explained through figure 2, Knowledge about the accessible environments will result in formulations of regulations which will results in advocacy for the formulation of byelaws to be followed for the design of built environment. Thus this study under the Erasmus + Global mobility programme is an attempt to identify the possibilities through evidence based research to make the "Sugamya Bharat Abhiyaan" the "Accessible India Campaign" a success.

Establishing the need of "Universal Design Education"

To establish and validate the need of universal design in creation of built environment, a survey with the stakeholders has been conducted which emphasised the need of the universal design education to be infused in all courses concerning the creation of built environment

To begin with an attempt through a survey with all the stakeholders (59 in number) including, professionals, the architects, the educators, the teachers of architecture, the upcoming professionals of architecture, the students of architecture has been done to establish the need of universal design education in creation of mass awareness and capacity building. The survey envisaged an enquiry through a set of questionnaire which are framed to question the need of " Universal Design Education" in India. It was a query for every question with a linear scale of 1 to 5. Where 1 stands for strongly disagree and 5 for strong agreement to the question. For the

analysis 4 and 5 on linear scale has been considered as agreement to the question 1 and to as disagreement whereas 3 as not sure. The questions and the responses along with the analysis and outcomes are mentioned below along with their analysis to identify the outcomes:-
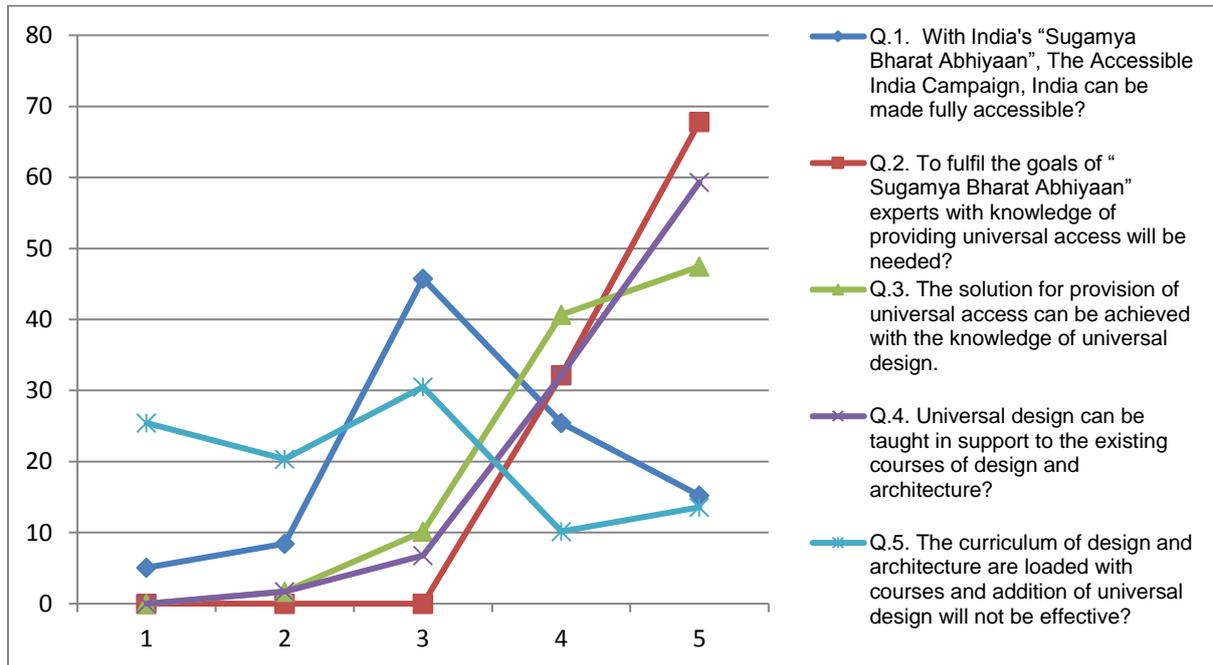
Figure 6: Graph showing responses of Q1 to Q5

Q.1. With India's "Sugamya Bharat Abhiyaan", the accessible India campaign India can be made fully accessible?

- *Only about 15% of the respondents were sure about the success of sugamya Bharat Abhiyaan.*
- *More than 45% of the Respondents were not sure.*
- *About 25 % of the respondents were not sure but of the opinion that it may be possible to achieve success through it.*
- *This implies that 45% people were not sure of 100% success of accessible India campaign. Whereas about 15% were of the opinion that it will not be able to make India fully accessible. This further implies that more than 60% of the people are not sure that "Sugamya Bharat Abhiyaan" can make India fully accessible.*

Q.2. To fullfil the goals of "Sugamya Bharat Abhiyaan", experts with knowledge of providing universal access is needed?

- *About 70% people opined that experts with the knowledge of provision of universal access will needed.*

Q. 3. The solution of provision of universal access can be achieved with the knowledge of universal design?

- *Almost 85% people opined that universal access can be achieved with the knowledge of universal design and it is an essential requirement.*

Q. 4. Universal design can be taught in support to existing courses of design and architecture?

- *Approximately 90% respondents opined that universal design can be taught in support to the existing course of design and architecture, thus infusion of universal design in the existing courses should be the priority.*

Q. 5. The curriculum of Architecture and Design are loaded with courses and addition of universal design will not be effective?

- *About 45% opined that the design and architecture courses are not overloaded, thus there is a possibility of addition of some more in the form of universal design courses and this further strengthens point number 4 that infusion in existing courses should be the priority.*
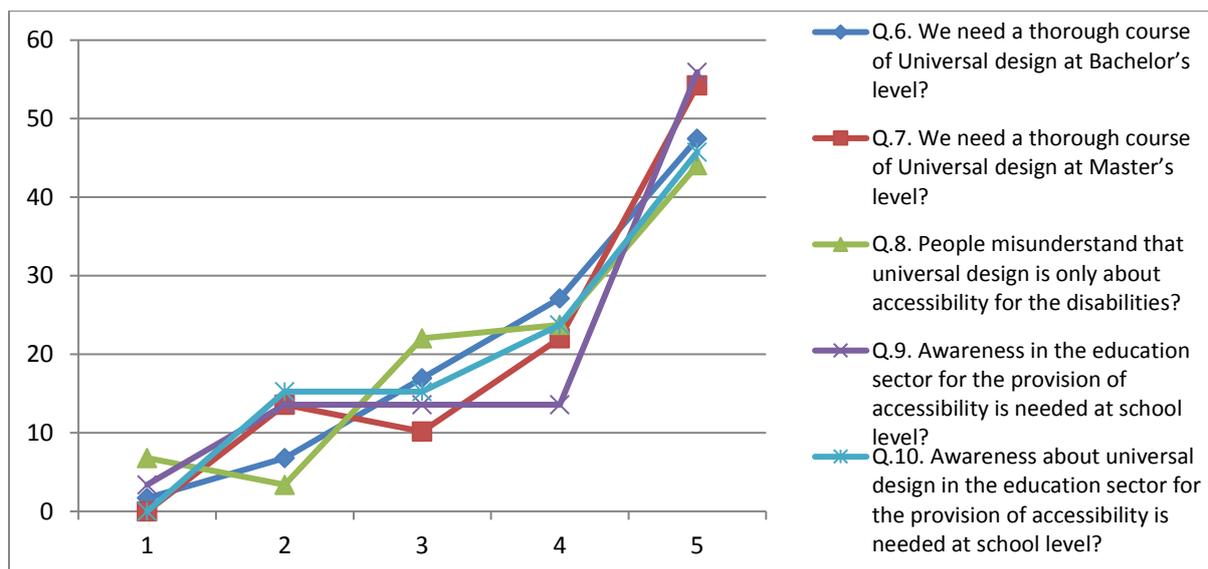
Figure 7: Graph showing responses of Q6 to Q10

Q.6. We need a thorough course of universal design at Bachelor's Architecture level?

- *About 65% respondents opined that a thorough course of universal design at bachelors is needed, but to give knowledge of universal design it is equally important to have knowledge of design and architecture disciplines. This implies that simultaneous knowledge of universal design is a better option, this further strengthens point no 4 that infusion in existing course should be priority.*

Q.7. We need a thorough course of universal design at Mater's level?

- *About 75% people opined that through course of universal design at master's level is needed and no one opined that its not needed, thus creating experts with specialization in universal design is required and this also specifies the need of universal design course at master's level.*

## Q. 8. People misunderstand that universal design is only about accessibility and disability?

- *More than 60% of the respondents opined that people misunderstand that universal design is only about accessibility for the disabilities, thus mass awareness and knowledge of universal design is essential.*

Q. 9. Awareness in education sector for provision of accessibility is needed at school level?

- **About 70% of the respondents opined that awareness in education sector at school level is needed, thus wherever possible, in the curriculum and the courses the awareness about accessibility should be infused, this further strengthen the point no 4 that infusion in existing courses should be the priority.**

Q. 10. Awareness in education sector about universal design for provision of accessibility is needed at school level?

- *About 70% of the respondents opined that awareness about universal design at school level is needed, this farther strengthen the point no 4 to infuse universal design awareness in education sector at school level in curriculum and in courses.*
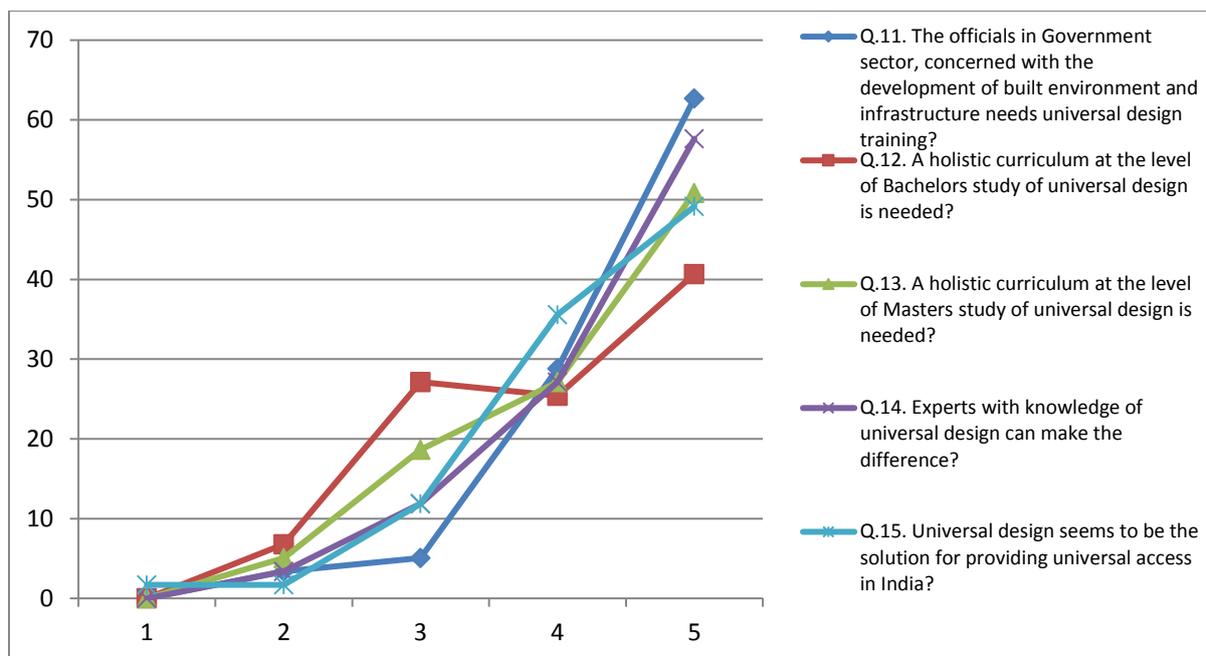
Figure 8: Graph showing responses of Q10 to Q15

Q. 11. The officials in Government sector concerned with the development of built environment and infrastructure needs universal design training?

- *About 90% respondents opined that officials in government sector concerned with the development of built environment and infrastructure need training in universal design. Thus training programs of various duration (i.e. short term and long term) are needed to train officials in universal design.*

Q. 12. A holistic curriculum of at the level of bachelors level of universal design is needed?

- *About 65% of the respondents opined that a holistic curriculum of universal design at bachelors level is needed, this further strengthens point no. 6 and ultimately strengthen's the point no 4 that infusion in existing courses should be the priority.*

Q. 13. A holistic curriculum at the level of Masters study of universal design is needed?

- *About 77% people opined that a wholistic curriculum of universal design at master's level is needed, this further strengthen the point no. 7.*

Q. 14. Experts with knowledge of universal design can make the diference?

- *About 80% of the respondents opined that experts with knowledge of universal design can make the difference, thus strengthen point no. 7, 13 and states that experts with universal design knowledge are needed and to create these experts a specialized course of universal design is required.*
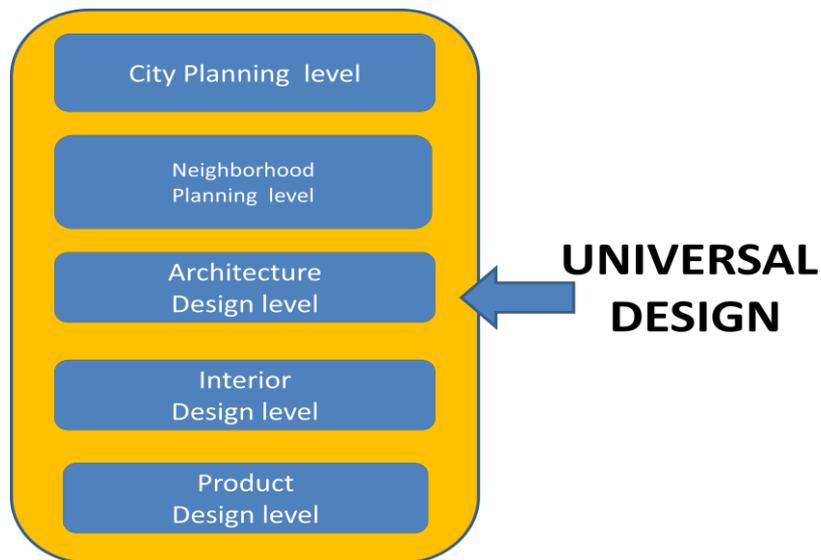
Q. 15. Universal Design seems to be solution for providing universal access in India?

- *About 85% respondents opined that universal design is a solution for the provision of universal access in India, thus knowledge of universal design is essential. Which can create mass awareness and with specialized courses and experts capacity building can be achieved?*

Conclusions of the survey

1. *"Sugamya Bharat Abiyaan" merely the campaign will not result in its success knowledge of universal design will be the basis to achieve mass awareness and capacity building.*
2. *Experts with knowledge of universal design are needed for the success of "Sugamya Bharat Abiyaan".*
3. *Through knowledge of universal design mass awareness and capacity building can be achieved.*
4. *Infusion of universal design in existing course related to creation of built environment is required.*
5. *Experts with knowledge of universal design are required, this expertise can be provided with: 1) infusion of universal*

design in all courses. 2) With masters course of universal design.

6. *Universal design knowledge should be provided at all levels of education for mass awareness and through the courses related to the design of built environment for capacity building.*

7. *Training of government officials concerned with the development of built environment and infrastructure is essential, thus courses of short term and long term durations are to be designed.*

8. *Universal design education is the key for the success of " Sugamya Bharat Abhiyaan" by 1) Infusion, 2) Specialization, 3) Expertization.*

"Ekistics" and "Universal Design"

For "Mass Awareness" and "Capacity Building" the above stated facts and the survey establishes the need to provide knowledge to the people. The best and established mode for knowledge dissemination is through Education. Education of Universal Design at all levels of the education in India and especially to the people associated with the design of Built environment.

*Figure 9: Achieving Mass Awareness and Capacity building*

Figure 10: Universal Design addressing all levels of Design, Architecture and Planning

Why Ekistics?

Ideally speaking it is the earth and its environment existed, it is the human intervention which created the built environment. This built environment has been identified by C.A.Doxiadis in terms of five elements and termed as Ekistics elements and all built environments, external and internal existing on earth can be identified with respect to these five Ekistics elements.
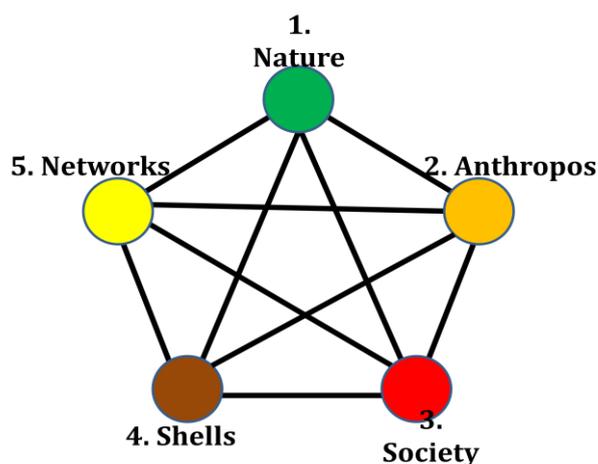
Figure 11: Ekistics Elements

Source: (Doxiadis, 1976)

Ekistics Elements (Doxiadis, 1976)

1. **Nature:**-Nature is almost a million times older than human settlements and human existence. And human settlements are product of nature. The basic parts of nature are in the following order; land, water, air, climate, flora and fauna.

   Land: Without land no settlements exists and no built environment could have possible

   Water: water comes second, understanding water, water resources and its need for the humans.

   Air: The human existence is dependent on air. The oxygen it contents and its movement can easily limits the formation of human settlements.

   Climate: Looking at overall distribution of the global pollution, we see that climate and formulation of land surface are most limiting elements, followed by the availability of air water, flora and fauna.

   Flora and fauna: Existence of flora and fauna enables human to establish human settlements.

2. **Anthropos:** Anthropos is the second elements because, he followed nature. Anthropos first adjusted himself to the total natural environment as did all the animals; then he moved to almost all types of natural environment in many parts of the globe. Anthropos then started intervening with the earth's natural environments. Till it was renewable with the earth's natural process the crisis situations are not evident but the permanent damages by Anthropos are alarming.

3. **Society:** Total network of human relationships among human beings should be considered for society. The quality of human relationships and its operations as a system formulates society.
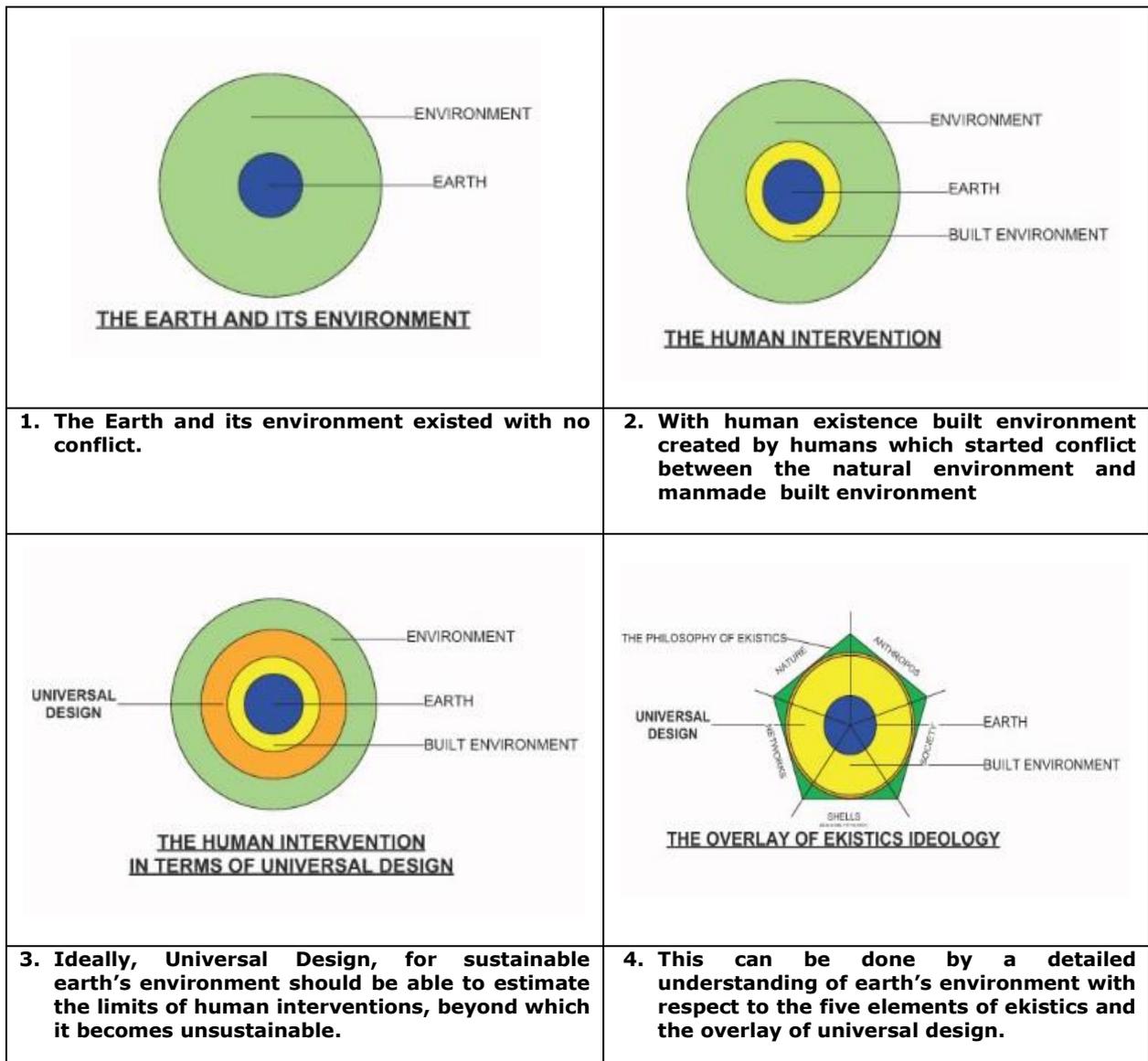
4. *Shells: Shells are all kinds of human shelter ranging from caves to skyscrapers. The quality of shells has value with respect to Nature, society, other shells or networks.*

5. *Networks: All kind of networks made or used by humans belong to these elements. Many types of networks can be divided into following categories.*
   - *Natural human movement (paths, streets, roads, etc.)*
   - *Human and goods transportation on land, water or air.*
   - *Movement of energy of messages. (Electrical and communication networks etc.)*
   - *Network like water supply, drainage, waste water etc.)*

Why "Ekistics" and "Universal Design" overlap?

The ekistics and Universal Design overlap has been suggested because whole earth, the built environment and human (anthropos) can be collectively seen with respect to the five elements. Balanced and sustainable existence of human estimated through ekistics along with universal design can suggest the quality of life for humans in their built environment. It's the balanced utilization of Natural resources and relationships of all five elements together with universal design can result in sustainable and accessible built environments. Understanding each element of ekistics will encompass user and built environment both, the two major components and design accordingly will result in sustainable and accessible built environments. For mass awareness this overlap can ascertain its infusion in all subjects of education system. And for capacity building it will be specially infused with the existing courses which train the built environment creators.
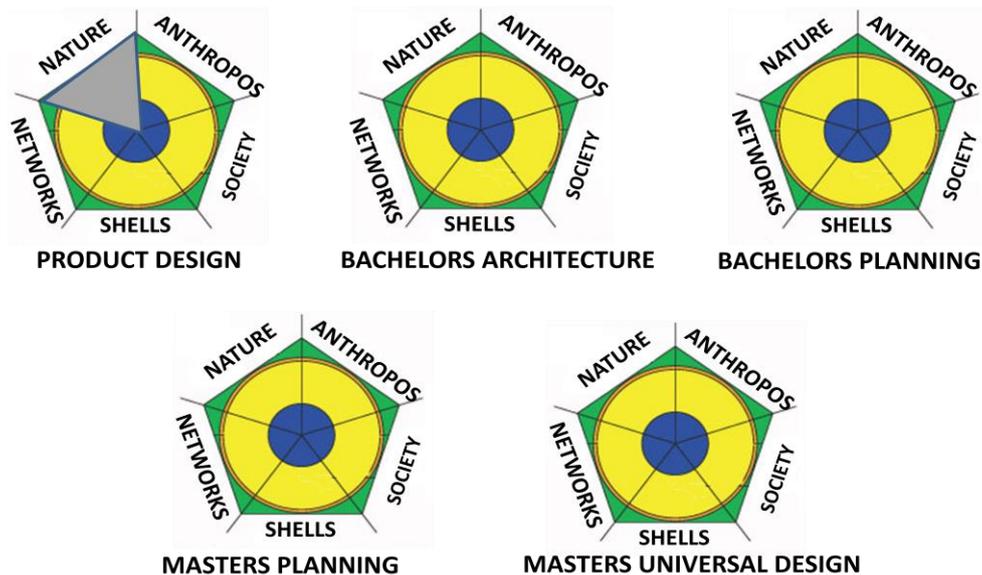
1. The Earth and its environment existed with no conflict.	2. With human existence built environment created by humans which started conflict between the natural environment and manmade built environment
3. Ideally, Universal Design, for sustainable earth's environment should be able to estimate the limits of human interventions, beyond which it becomes unsustainable.	4. This can be done by a detailed understanding of earth's environment with respect to the five elements of ekistics and the overlay of universal design.

Figure 12: the "Ekistics" and "Universal Design" overlap

At present universal design and sustainability are seen as to different concept. But Sustainable but inaccessible or vice versa, both situations are not conducive to human existence. Thus the overlap of ekistics and universal design is an attempt to create sustainable and accessible built environment for "All".
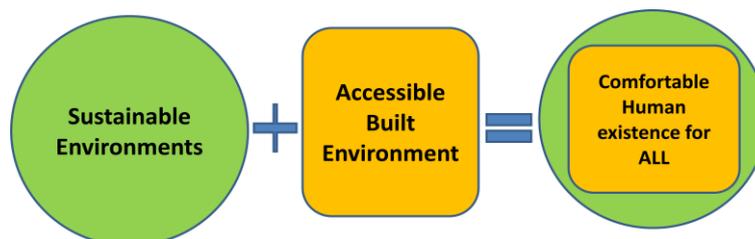
Figure 13: Comfortable human existence for "ALL"

Thus all the subjects of concerns and their infusion for mass awareness in education system can be identified. Even for the curriculum development as a specialized course the knowledge related to all five ekistics elements and the subjects related to them can be identified based on this philosophy of overlap of Ekistics and universal design model.

PRODUCT DESIGN   BACHELORS ARCHITECTURE   BACHELORS PLANNING

MASTERS PLANNING   MASTERS UNIVERSAL DESIGN

Application for various curriculum

Figure 14: Application to various curriculum

Thus ideally speaking the aspects of sustainability with respect to the available land, water, air, flora, fauna, the anthropos, the shells, society and networks can be determined and estimated any deviation from them will result in crisis situations.
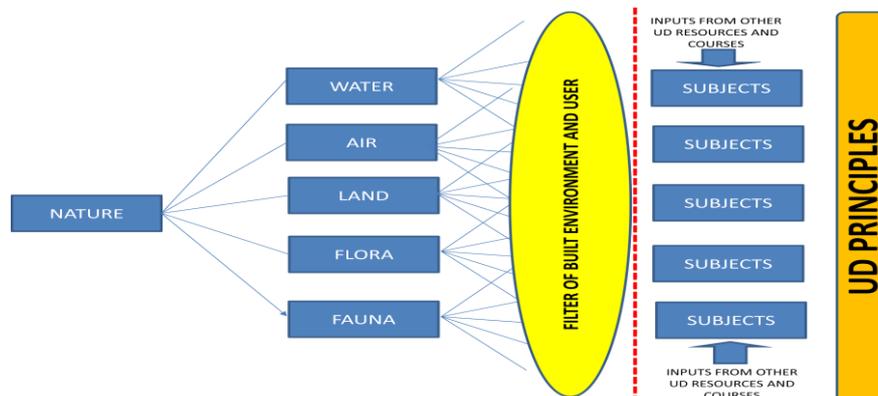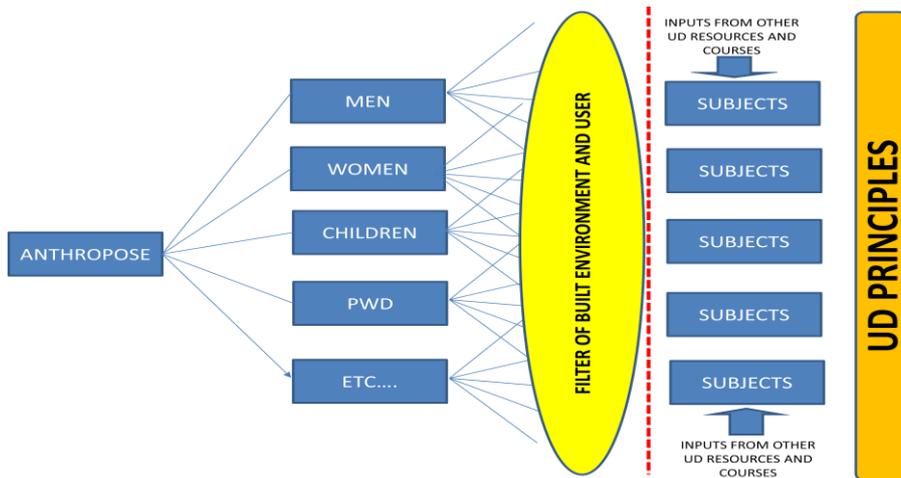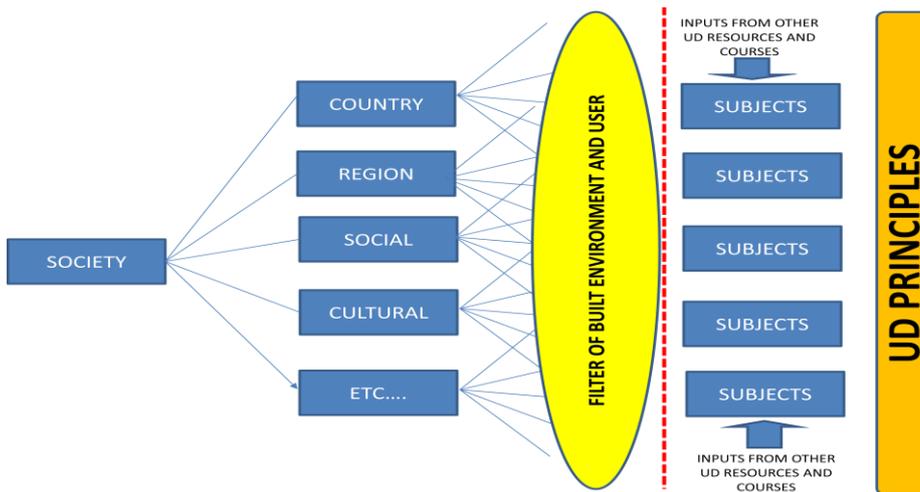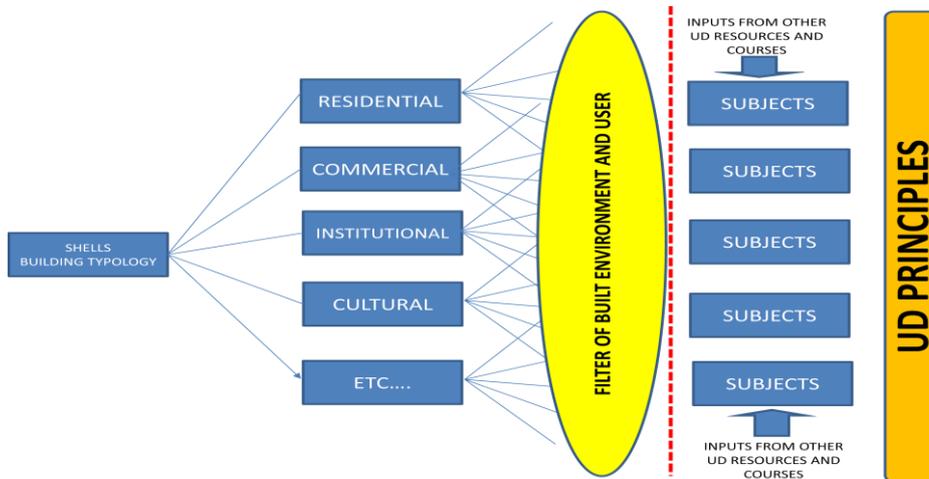

Figure 15: Subjects of concern derived from Nature
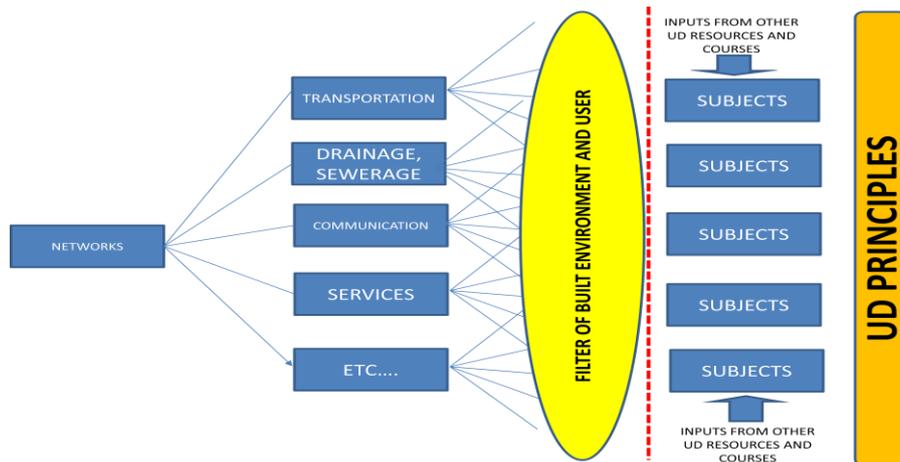
Figure 16: Subjects of concern derived from Anthropose

Figure 17: Subjects of concern derived from Society

Figure 18: Subjects of concern derived from Shells

Figure19: Subjects of concern derived from Networks

The study thus attempted to develop a course curriculum on universal design and two years masters course under the larger umbrella of architecture has been prepared. (this exercise of preparation has been dealt separately and is not a part of this paper)

Thus the "Universal Design Education" can be included in education system in two ways:

1. *By including the aspects of "Universal Design" in the curriculum and in the content of all subjects.*

2. *By developing a Masters Programme in the umbrella of architecture and design with a specialization in "Universal Design".*

Left vertical band: **Universal Design Principles** — **Shells** — **Nature** — **Networks** — **Anthropos** — **Society** — **Universal Design Principles**

Top spanning headers: **Built Environment** | **User**

Understanding Building Typologies	Understanding Nature	Understanding Networks	Understanding User	Understanding Society
Residential	**Water**	**Transportation**	Man	Sociology
Hut	Water Resources	Transportation and infrastructure development	Woman	Economics and Urban Sociology
Unit	human water needs	Transport planning	Children	Public Policies
House	Water supply	Accessible Transport hubs	Elderly	Public policy analysis
Bunglow	Water management	Designing infrastructure for transport		Politics Society and economics
Villa				Settlement sociology
Townhouse				Urban Governance
Duplex				Urban Finance
Apartment				
Condominium				
Dormitory				
Hostels				
Educational	**Air**	**Electricity**	**Disabilities**	
School — Pre-school	Air Quality	Electrical Services	Mobility Impairement	
School — Primary	Air Pollution	Electrical Service design inside	Vision Impairement	
School — Middle	Climatology	Electrical supply	Hearing Impairement	
School — Senior Secondary	Environmental impact assessment		Cognitive impairement	
School — Secondary	Environment policies and legislation			
College	Environment economics and finance			
Library	Environment monitering		Human Diversity	
University	climate change			
Museum				
Art Gallery			User engagement – from individual to community	
Theater				
Amphi- theater			User centered tools and techniques	
Concert hall			Designing for as many people as possible	
Cinema	**Land**	**Drainage and Sewarage**		
Opera house	Study of land	Building Services	Designing for Disabilities	
Boarding Schools	land economics	Drainage and Sewarage network		
	Site planning and development	Utilities and services planning		
Commercial	lanndscapes for different building typologies			
Shop	Natural Resource Management			
Shopping mall	Planning for tourism			
Hotel	Settlement Geography			
Market				
Supermarket				
Hotel				
Restaurent				
Warehouse				
Office Building				
Skyscraper		**Communication**		
Car wash		Communication Network		
Gas station				
Convention Center				
Automobile repair				
Government Building	**Flora and Fauna**			
City hall	landscape design			
Consulate	Plant Identification and ecology			
Courthouse	Green Infrastructure			
Embassy	Biodiversity	**Solid Waste**		
Fire station	Eco tourism	Management of solid waste		
Meeting house	Forestry	Landfill sites		
Palace	Forest Management			
Parliament				
Police station				
Post office				
Prison				
Hospitals				
Transport buildings				
Airport terminal				
Railway station				
Bus station				
Metro , Subway, Underground station		**Water supply**		
Taxi station		Managing water resources		
Parking		Urban water supply		
Religious Buildings				
Temples				
Church				
Basilica				
Cathedral				
Chapel				
Mosque				
Gurdwara		**Other Services**		
Monastery				
Shrine				
Synagogue				
Parking Structure and storage				
Boathouse				
Garage				
Hangar, aircraft or spacecraft				

Figure20: Subjects Identified with respect to "Ekistics Elements".

The education at all levels of education comprises of a number of varied subjects with varied contents. If the inclusion of universal design education is envisaged at all levels of education then it

should be included in terms of these varied subjects. Inclusion in these varied subject contents requires a systematic approach following which it can be incorporated at all levels and in to the maximum extent possible in all varied subjects.

Now for the development of concerns towards disabilities, universal access and universal design the categorization can be done in three categories;

1. *People need to be made aware about disabilities, accessibility and universal design i.e. Inclusion in courses and subjects at school levels for awareness.*

2. *Inclusion of universal design education for awareness and capacity building in all courses of design, architecture and planning which are responsible for the creation of Built environment.*

3. *People need to be made aware along with building their capacity to understand disabilities, accessibility and universal design for the creation of inclusive and enabling environments i.e. a specialized course at masters level in Universal Design.*

The field of education is a vast field with its verticals and horizontals encompassing varied subjects of knowledge gain. To cover this vast range a systematic approach is needed which can cover this wide range. Therefore overlay of the philosophy of "Ekistics" with the concepts of ekistics has been envisioned to cover the complete spectrum of varied courses as explained through the schematic diagram of overlay of the ekistics ideology and the concepts of Universal Design.

Existing Architecture Design courses,
It will be an addition and support in
Terms of Universal Design.

• Infusing Universal Design into an existing course;
• Infusing Universal Design into a studio problem;
• Infusing Universal Design into the entire curriculum.
(Welch and Jones, 2001; Morrow, 2001a,b; Afacan, 2006):

But for a Masters Universal Design Programme, It will be a holistic Curriculum focused on Universal Design.

Figure 21: Infusion and masters universal design course

"Universal Design Education" in Norway

If the courses of universal design needs to be infused and to be developed for the upcoming situations, it is equally important to learn how to infuse universal design in the existing curriculums and teach universal design with the various courses. Thus the programme focussed on knowledge sharing and learning from the way universal design is taught at NTNU Trondheim and NTNU Gjovik. This resulted in learning from the way of imparting knowledge of universal design through the exercises and the various labs at NTNU Trondheim and Gjovik. The various labs like the full scale simulation labs, the daylight study labs, the colour perception labs, the sensory labs at Trondheim and Gjovik are an eye opener in terms of the practical knowledge they impart and the working environment they provide is commendable.

The universal design education in the various streams related to built environment are provided by infusing it along with the

various courses following are the points of approach followed to educate students with universal design;

- *The teaching approach is more like systems and methods which are focused on understanding the user needs and creating user friendly built environment.*

- *To achieve this, application of creative ideas, newer solutions, research based approach; advanced technological solutions and user centric design are the encouraged and induced through universal design education.*

- *The education system promotes usage of guidelines and standards as mandatory but enforces to broaden the understanding through user perspectives. Therefore the methodology focuses is a cyclic process as shown in figure.*
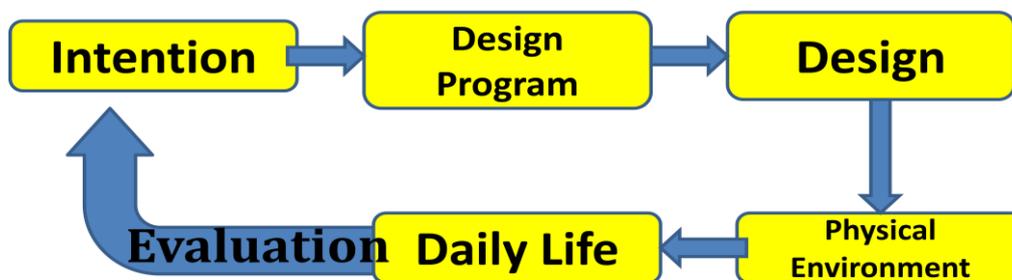
Figure 22: The Design and evaluation cycle

- *The teaching philosophy enforces inclusion of "All" in all built environments and states that quality in design can be increased through user centric designs.*

- *Thus along with learning design it states the quality in design can be achieved with:*
  - *Method to learn usability.*
  - *What is the role of built environment?*
  - *How the built environment helps the user.*

- *Learning programming and evaluation of design is the important aspects of design education.*

- *Learning process of design is the focus of design teaching instead of typology based design teaching.*

- *It is opined that if the students learn the process of design any typology can be attempted following the methodological process of design.*

- *An overlay of various tools like; talking, discussing, mapping, interviews, observations etc are part of learning to better understand the user.*

- *Apart from theoretical classroom teaching, experiential learning through simulation labs and one is to one practical experience through practical research are the methods used for teaching in various labs.*

- *The design exercises are focused to give practical experiences to the students through the simulation labs, simulation exercises in the field and in the city built environment.*

- *On site construction of selected design solutions implemented with sponsors support but constructed by the students gives an excellent real time experience of design project realised on ground.*

- *A real time feel with advanced virtual experience in virtual reality labs where students can be part of the virtual environment are the newer areas to give realistic experiences.*

Collectively, with such real time , simulated and realistic virtual experiences infusion of universal design teaching is the key for the development of experts who are concerned, sensitized and

responsible towards the creation of user friendly, inclusive and enabling built environments.

(Glimpses in the form of photographs of the full scale simulation labs of NTNU, Trondheim, Norway and NTNU, Gjovik are added whereas detailed description of the operations of these labs has been kept out of the scope of this paper and dealt separately)

Full scale simulation labs at NTNU Trondheim

The various Day light labs to study sun light by creating sky conditions

The Full scale simulation lab

The accessible toilet

The Simulation lab for Nursing Training

The colour perception lab

The study of ramps with different gradients, varying surfaces with different materials and varying heights of handrails.

Metal Ramp with possibilities of change in gradient at different ratios and material

The workshop at NTNU Gjovik

Universal Design Projects at Trondheim, Norway

The success of the various built environment projects lies in the tie up between the educators and the people from Trondheim kommune (municipal body at Trondheim, Norway). The academic institution and the Trondheim kommune work in tandem and support each other. Thus the academic support for the various projects has been provide by the people from academia in the form of design programming methods, multi modal evaluation methods, research based approaches, advanced technological possibilities etc. collaborating with each other the successful, accessible, inclusive and enabling environments have been created in the city of Trondheim, Norway.

It is equally important to learn from the existing examples. The people from the Trondheim Kommune and the professors of NTNU played a key role to introduce to various sites for case studies and for the explanations of the achievement of accessible environments through universal design. It is the dedicated effort in planning and design of these project which are an excellent examples to achieve accessible environments through universal design.

Thus with an exemplary support of the partner faculties of NTNU, it is a very fruitful learning experience which resulted in outcomes through which the knowledge base and the universal design learning enriched. Following such methodical approaches to teach and to design the built environment for the people with a focus on user centric approach are the key to achieve accessible built environments and will result in making the "Accessible India Campaign" a success.

(Glimpses of the projects in the form of photographs has been added to this paper whereas a detail study and learning from these projects has been kept out of the scope of this paper and dealt separately.)

Dalen Hedgeby , The bus stand designed for All.

Gassa Parken, A small park designed for ALL at Trondheim, Norway

Byosen Skole, A school at Byosen, Trondheim, Norway
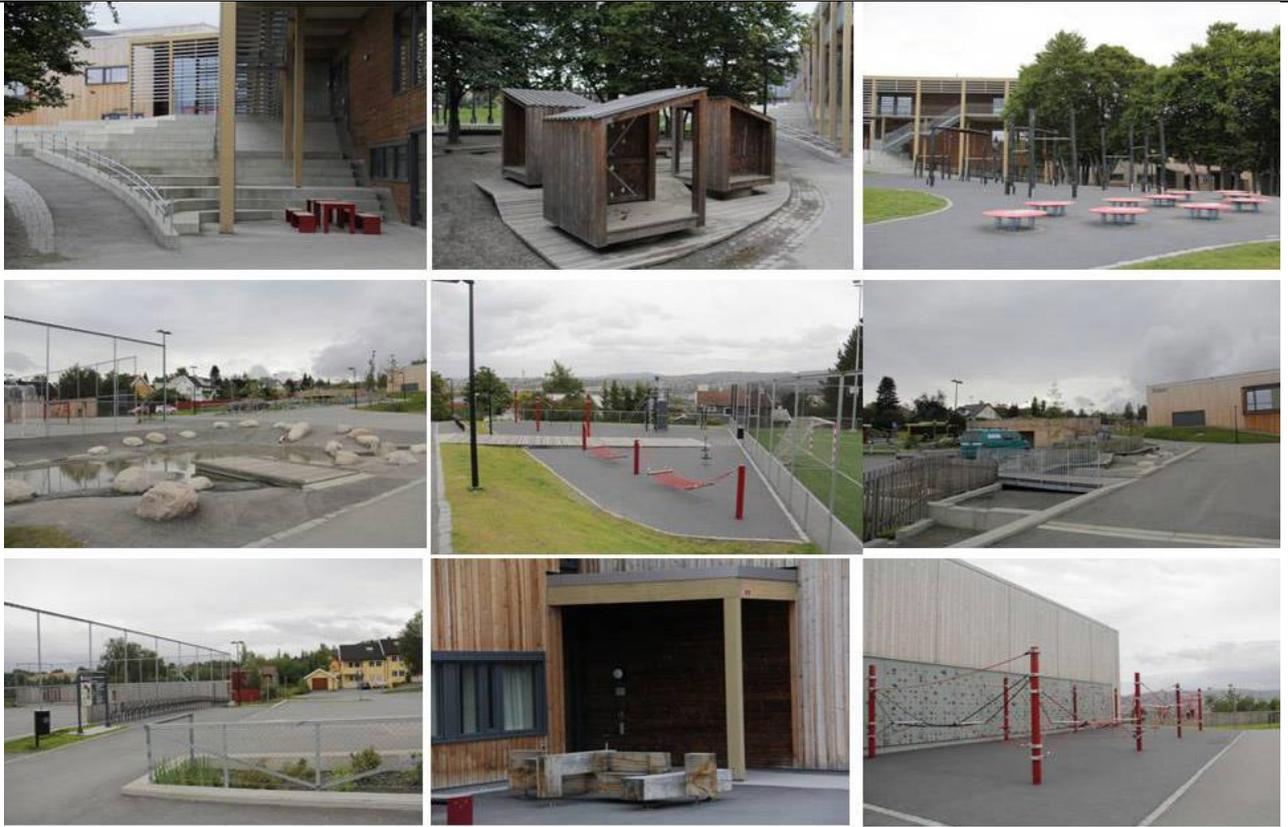
Aasvein Skole, a school at Trondheim, Norway
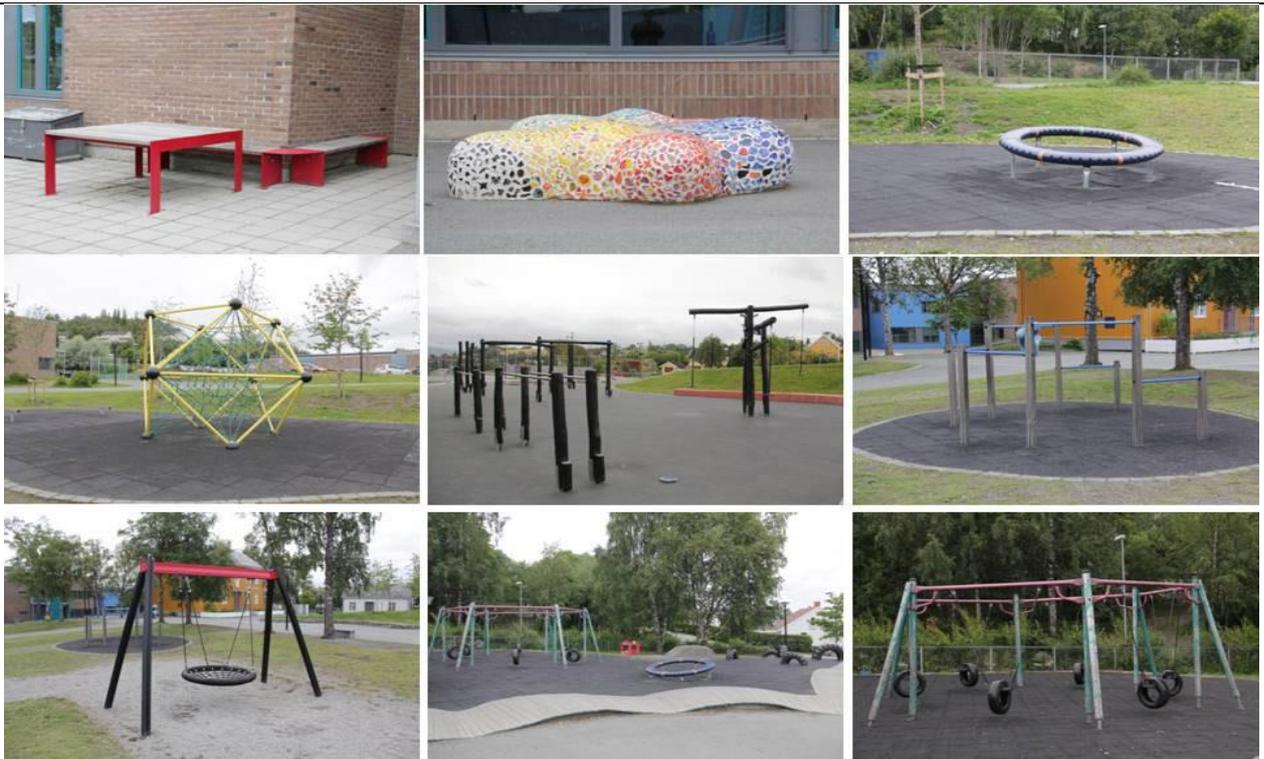
Play equipments for children designed for ALL.

Conclusions:

- *To make "Sugamya Bharat Abhiyaan" a success, there is a need of, "Mass Awareness" and "Capacity Building". And the two can be achieved through Knowledge.*

- *The knowledge of how universal accessibility can be achieved is to be provided to all the future generations through education at all levels.*

- *There is a need to establish what can be the possible knowledge basis and how it should be included in the education system of India.*

- *Universal Design can be the possible knowledge base for the provision of universal accessibility.*

- *Infusion of the knowledge of universal design in all streams of education concerning with the development of built environment should be the prime focus.*

- *A Master's course in universal design can be the second priority to create experts in universal design.*

- *Preparation of a thorough Master's curriculum for universal design.*

- *Existing courses of universal design and their ways and means of teaching universal design can set the precedence and examples.*

- *The existing examples of the laboratories, case studies of the upcoming and running projects of universal design are excellent examples of the achieved accessibility in built environment.*

- *Thus with the Mass Awareness through Knowledge and Capacity building through focused application of*

"Universal Design", the "Sugamya Bharat Abhiyaan" can achieve success.

Acknowledgements:

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She is a full time Professor and former Head of the Architecture Department at School of Planning and Architecture, Bhopal. Prior to this, she was a Senior Research Fellow with Jamsetji Tata Universal Design Research Chair at National Institute of Design, Ahmedabad and taught at Birla Institute of Technology, Mesra. Starting her career in early nineties as Exhibition Officer cum Designer in Jawahar Kala Kendra, Jaipur, she practiced for eight years in the field and then joined academia. She is a dedicated teacher and keen researcher from last seventeen years. In 2016, she has been recognized as 'Inspired Teacher' by Hon'ble President of India and stayed Scholar-in-Residence at Rashtrapati Bhavan.

Rachna is a mother of an adult with autism and work in the area of 'Social Equity by Design'. Her research interests in the field of 'Universal Design', Design for Disabilities' and 'Design for Autism' have earned her grants and awards nationally and internationally. She is a recipient of the prestigious Fulbright Fellowship and was affiliated with Georgia Institute of Technology, Atlanta, USA during her PhD. Apart from Fulbright award, she is recipient of IMFAR-2009, Professionals from Developing Country Award, Chicago; Friends of Fulbright India Grant-2008, Lewisburg; Universal Design Award for Working professional-2011 by

NEPEDP-MPhasiS, India and R&D projects from All India Council of Technical Education and University Grants Commission in India. She works closely with United Nations and consults internationally on disability issues and public access.

She has lectured extensively on Inclusive Design all over the world and has many papers in various National and International journals and conferences to her credit. Her papers appeared in the publications like Taylor and Francis, Sage, HFES, EDRA, RESNA and Archnet MIT. Her book 'Designing Inclusive Educational Spaces for Autism' published by Institute of Human Centred Design, Boston, USA was released in 2010 at 'Build Boston', the book received 'Certificate of Merit' in ArchiDesign Award-2010. She has also edited special issues of internationally refereed journals called 'SPANDREL'on 'Social sustenance' in 2012 and 'ABACUS' on 'Architecture for All' in 2007. Some major events organized by her are 'Universal Design Workshop' and National Student Design Competition (NSDC-211) on 'Universal Design/Design for All'-2011 in collaboration with National Institute of Orthropaedically Handicapped, Kolkata and NSDC-2012 on 'Universal Design for Exploring World Heritage Sites in India' in collaboration with Archaeological Survey of India and UNESCO. She is one of the authors of Universal Design India Principles developed at National Institute of design, Ahmedabad in 2011. She serves as reviewer in many publications like EDRA, HFES, The Design Journal, and was also a jury member of Berkeley Prize Essay Competition-2013, endorsed by UC Berkeley, USA.

Rachna is well known as an activist and is a founder member of an NGO called 'Movement for Intervention, Training and Rehabilitation of Children with Autism' (MITRA). She also stayed convener of Kislaya Vidya Mandir for several years, a school for underprivileged children supported by 'Asha' Stanford. She is

currently Member Secretary of DRONAH Foundation, Development and Research Organization for Nature Arts and Heritage in India.

At School of Planning and Architecture, other than her regular teaching and research, Rachna is founder member of Centre for Human Centric Research (CHCR) that aims to build a body of knowledge that responds to the design needs of diverse human population otherwise marginalized in the past design practices.

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He is Associate Professor in the Department of Architecture, School of Planning and Architecture, Bhopal (M.P.) India. Prior to this he was senior lecturer in F/o Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Commencing his career in mid nineties he practiced as Architect at his own office "Design Innovations" at Indore. He has practiced for 7 years in the field and then joined academia. His specializations are in the area of Architecture, Ekistics, Human Centric Design, Universal Design and Elderly and Environment.

The topic of his PhD was "Creating Inclusive Living Environments in Urban Residences for Indian Elderly". He did his PhD from School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi, India and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.) India.

He works for the Centre for Human Centric Research (CHCR). Committed to produce socially aware architects and planners, the multidisciplinary research hub 'Center for Human Centric

Research' is housed at SPA-Bhopal. CHCR propagates inclusive and multidisciplinary problem solving approach to optimize the environment for the population who does not have power to influence the design and planning process. To attain its objectives, the center functions in four major areas, 'Identification of Research Priority Areas and Networking', 'Education and Training', 'Research and Design Development' and 'Dissemination'.

For his proposal for the concerns towards success of "Sugamya Bharat Abhiyaan" through Universal Design Education, he has been a recipient of Eramus + Global mobility funding in 2016. He has been awarded with the prestigious National award "NCPEDP MPHASIS Award 2016" for his work in the area of disability and Universal Design. He has secured first position and distinction in the Bachelors and Masters Courses. He has been a recipient of Gold Medal for the Masters course of Ekistics from F/O of Architecture and Ekistics, Jamia Millia Islamia, New Delhi.

Abstract

Accessibility for persons with disabilities (PwDs) and elderly has always been a concern in Indian cities due to lack of Inclusive environments. The other vulnerable populations who face difficulties are children, women, and families with rural background, poor and unschooled. The new legislation Rights for Persons with Disabilities Act 2016 and United Nations Mandate of UNCRPD casts responsibility on member Nations to provide equal participation of Persons with Disabilities in all aspects life in urban and rural environments. The aim of this Design Innovation Centre project at School of Planning and Architecture, Bhopal, under Ministry of Human Resource Development, Government of India, is to develop a GIS based web-toolkit to help improve accessibility for persons with disabilities in historic cities, heritage sites and monuments.

Background

The Ministry of Human Resource Development, Government of India, has launched a project "Design Innovation Centre (DIC)" with the objective of (i) inculcating design thinking among students and (ii) taking the innovations to the end user through distribution and marketing channels. The innovations would have to be in products or processes which would significantly impact society at large. Under this project, SPA Delhi is a DIC hub institute with a focus on Architecture and Planning and SPA Bhopal is one of three spoke institutes. Each spoke institute has their own thrust areas of work within this broad domain. The two thrust themes of SPA Bhopal are "Universal design innovation for Heritage" and "Shelter for All". Various student activities such as electives, projects, research work addressing aspects of in ovation

are included within the DIC project. The overall objective of the Design Innovation Centre Project is to encourage student projects mentored by faculty to culminate in specific products or processes, which can be up-scaled and disseminated/marketed at mass scale. Thus each theme intends to undertake research projects to help develop these products by the end of the project period.

Universal Design Innovation Centre for Heritage

Prof Rachna Khare, Dr Sandeep Sankat

Introduction

India, rich in cultural, historic desired and religious landscape, is a group of heritage cities and sites. Most of these heritage sites are vibrant and inhabited urban landscapes imbibed with rich values. Besides hosting local population, these heritage destinations are the frequent visiting places by large number of national and international tourists, however, accessibility for persons with disabilities (PwDs) and elderly has always been a major concern in these sites due to lack of Inclusive environments. It requires a comprehensive understanding of historic environment by urban planners, transport planners, infrastructure planners and managers, urban designers, landscape experts, architects, conservationists, local administration and all stakeholders to develop appropriate universal design solutions for such sites. Making the heritage cities inclusive and universally accessible in an appropriate and sensitive manner can increase awareness and appreciation of its cultural, social and economic value. Also equal participation of PwDs in arts and cultural life is United Nations Mandate of UNCRPD casts responsibilities on member Nations, as India is its signatory.

The aim of this Design Innovation Center is to develop products and processes to improve accessibility for PwDs in historic cities, heritage sites and monuments across disciplines of planning and architecture.

Objectives

This is an academic cum research project where a research project would enrich academic environment and help connect academics with the industry. The tangible and intangible objectives of this universal design innovation proposal are to:

- *Identify the environmental challenges for persons with disabilities, elderly, women, children and other vulnerable populations visiting and living in heritage sites and cities of India.*

- *Create enabling design innovations at macro, meso and micro level for social equity.*

- *Conduct universal design education through relevant teaching material and instruction.*

- *Explore contextual research methods for universal design investigation in India.*

- *Disseminate achieved processes and outcomes of universal design for heritage cities in India, through publications and outreach workshops.*

Develop following universal design innovation products:

- *Innovative and contextual accessibility and safety audit toolkit to foster social inclusion.*

- *A web-based application tool to provide information regarding accessibility and safety for heritage destinations*

- *An online multidisciplinary certificate course on universal design in heritage sites.*

Methodology

The project follows a sequential consultative process (Please refer figure-1and table 1) to develop the final product engaging students and stakeholders. Following steps are taken up since

2016 and the process would continue till 2018. This is the second year of the project and to engage students studios and elective subjects are floated to create interest amongst the students about the theme. In the beginning it was more like throwing ideas and seeking interest and in later stages research outcomes/product/process development would be modified based on the studio/elective outcomes.

Preliminary accessibility and safety audit toolkit preparation-Ongoing

Pilot and field Surveys for data collection- Ongoing

Prototype development: Started

Prototype testing with users and stakeholders: Not yet started

Final Product and sharing with stake Holders and Beneficiaries: Not yet started

Figure1- Process

Table 1- Activities and time schedule

Activities / Cumulative Time	Time Plan					
	First Year		**Second Year**		**Third Year**	
	6	12	18	24	30	36
Literature Survey, Diagnostic Field Survey and Brainstorming of Various Stakeholders (Discussion with Visiting Experts)	▓▓					
Preliminary Audit Toolkit Preparation		▓				
Pilot Survey with Preliminary Toolkit (3 Heritage Sites)		▓	▓			
Finalization of Toolkit and Web-Based Application Preparation (Softwares and Simulation Equipments Procurement)			▓	▓		
Prototype Development of Web-Based Application (plus Workshop for Product Feedback)				🔴 ▓		
Prototype Testing for 5 Heritage Sites					▓	
Launch of Final Web-Based Application (and Sharing through Industry- Institute Workshop)					🔴 🟢	
Preparation of Online Course and Launch						▓ 🟢
• **Augmentation of Application with Phase Wise Collection of Audit Data** • **Running Online-course**	**Will continue after project period**					

🔴 **Workshops**

🟢 **Product and Online Course Delivery**

Strengths of SPA Bhopal to take up this project

School of Planning and Architecture is established as "Institute of National Importance" under MHRD, Government of India by an Act of Parliament. The School is committed to produce best Architects and Planners for the Nation to take up the challenges of physical and socio-environmental development of global standards. This is being developed as 'University of imagination", where a sense of enquiry prevails amongst all stakeholders/ students, researchers, professors, and society at large. School of Planning and Architecture strives for social sustenance by Universal Design through the discipline of Architecture, Planning and Design. Following strengths of SPA Bhopal helped take up this project:

- *Center for Human Centric Research Lab- A multidisciplinary research hub 'Center for Human Centric Research' is housed at SPA-Bhopal. The center supports human-centric approach as a multidisciplinary problem solving approach that tries to optimize the environment with extensive attention to the intended users. The center has conducted several research and practice based projects other than academic dissemination. The center has a unique human centered lab which has different assistive devices for persons with disabilities and full scale simulation models.*

- *A state of art GIS lab -The institute has developed state of the art facilities in graphics and GIS laboratories which are extensively used in all projects, academic and professional. This lab would help in mapping of the historic sites and cities and help explore unique opportunities in the sites.*

- *Architecture Workshop- The institute has a workshop with equipments for carpentry, smithy, acrylic models and laser cutter.*

- *Established undergraduate and postgraduate programmes required to do this project (Architecture and Planning-Maters of Urban and Reginal Planning, Masters of Environmental Planning, Masters of Urban Design, Masters of Landscape Architecture, Masters of Architectural Conservation)*
- *Committed qualified faculty to conduct the project.*
- *Connect with the 'CHARTER' of SPA Bhopal (Environmental, Cultural and Social Sustenance)*

Activities till now

The work progress till now includes literature survey, brainstorming of various stakeholders through preliminary diagnostic field survey (conducted at heritage sites in Ujjain during Kumbh 2016), simulation lab equipments procurement, identification of visiting experts and online resource collection. The 2016-17 semester work is integrated with DIC theme (Please refer table 2) which targets preliminary audit toolkit preparation, conduction of field surveys and explore prototype development. Various academic activities are planned around the core objectives of the project to bring innovation by voluntary engagement of students, stakeholders and experts though special electives, design studios and research seminars at undergraduate and postgraduate level. One inhouse student competition "Ankeshan' was also conducted in December 2016 to consolidate the work.

	Table 2-Integration of DIC project theme in regular semester academics/activities in Session 2016-2017		
	Academic Activities-DIC project–Universal Design	**Detail**	**Time**
1	**B.Arch. Design V- BARC 0501**	**Inclusive Public Building in the historic context of Bhopal (as per syllabus)**	**July-November 2016**
2	**B.Arch. Design IV- BARC 0401**	**Inclusive Public Building in a historic context (as per syllabus)**	**January 2017-May 2017**
3	**Elective- II BARC- 0906**	**B.Arch. 5th Year Elective- Barrier free Environment: Universal Design Standard Innovation**	**July-November 2016**
4	**Seminar-I BARC-0608**	**Exploration of research area related with DIC project (choice based)**	**January 2017-May 2017**
5	**Seminar-II BARC-0708**	**Exploration of research area related with DIC project (choice based)**	**July-November 2016**
6	**Seminar-III BARC-0907**	**Seminar leading to thesis: Exploration of research area related with DIC project (choice based)**	**July-November 2016**
7	**Seminar-IV BARC-1004**	**Thesis Seminar: Exploration of research area related with DIC project (choice based)**	**January 2017-May 2017**
8	**CHCR-0101 Common Pool Elective for all PG (Arch. and Planning) students**	**Elective Enabling Environments (already existing elective)**	**July-November 2016**
9	**Conservation Studio MACO-0108**	**DIC Theme would be incorporated in existing studio on Jantar Mantar, Jaipur**	**July-November 2016**
10	**MURP Studio-III Sem**	**DIC Theme would be incorporated in existing studio Urban Planning Studio at Shimla**	**July-November 2016**
11	**Planning Legislation BPLN- 0504**	**Legislative Framework for Accessibility in India (One module)**	**July-November 2016**
12	Some more studios/courses would be identified, across UG and PG programmes of architecture and planning, after initial implementation, for the January 2017-May 2017 semester. The PI would seek separate approval afterwards.		
13	**Thesis BARC- 1001 BPLAN 0801 All PG Programme thesis**	**Final Year Project- Select support, if connected with the theme**	**January 2017-May 2017**
14	**National/International Student Design Competition**	**Universal Design innovation at Heritage-supported by DIC funding**	**October 2016-February 2017**
15	**Summer Award for Select Students**	**Supported by DIC funding**	**May-June 2017**

Expected Outcomes: Product

As mentioned before, to complete this project, a multidisciplinary studio and workshop on 'Universal Design Innovation in Historic Sites' are carried out. Other than the products and sub-products, the project enriches educational values through social innovation to benefit community by design. Once the products are developed, an industry institute workshop on 'Universal Design Audit in Historic Sites' will be organized to seek interest of the industry and for inclusive design community building. The final product is expected to be a web-based, Innovative and contextual toolkit to provide information regarding accessibility for heritage destinations and foster social inclusion. The details of products and sub-products would be as follows.

1. Universal Design Audit Toolkit in Heritage Sites: This Access audit toolkit intends to document the barriers which can cause difficulties for people with disabilities and elderly. The toolkit would also deliver action plan, site specific and case specific, thus retaining the ambience of the site. It would include an assessment of the complete journey to the site, following a normal journey sequence from city level to individual heritage site.

2. This toolkit would be shared online and through handy published booklets with all stakeholders for improvement of accessibility and safety in historic cities.

3. Web-Based Application on 'Universal Design Audit Toolkit with Information on Accessibility of Heritage Sites': The Access Audit Toolkit intends to document the barriers which can cause difficulties for people with disabilities and elderly at heritage sites. It would include an assessment of the complete journey to the site, following a normal journey

sequence from city level to individual heritage site. The web based product intends to develop a user friendly application that would analyze data generated by Audit Toolkit on the extent of physical accessibility and safety of various heritage destinations of a place. The application would include data of different type "layered" on a spatial GIS platform over a physical map. Different thematic database may include but are not limited to accessible infrastructure, accessible transportation, accommodation types, risk assessments (e.g., accessibility, social safety), universal route choices, inclusive facilities at sites, facilitation of comfort for elderly users, accessible networking (attraction magnets and linkages) of heritage sites, etc. The application would combine more than one such thematic layers on GIS platform to respond to various queries of specific nature. The application may both be accessed on a computer platform as well as run on tabs or smart-phones.

4. Online Course on 'Enhancing liveability thru' Universal Design Innovation in Heritage Sites': This course would train professionals, and develop innovative and contextual research methods for universal design investigation in heritage site. After doing this course the future architects and planners would be able to develop research based contextual universal design innovation for heritage sites and cities in India.

Faculty Team:

Following multidisciplinary team steers the project at SPA – Bhopal.

1. Dr. Rachna Khare (PI)
2. Dr. Sandeep Sankat (Co-PI)

3. **Dr. Ajay Khare**

4. **Dr. Nikhil Ranjan Mandal**

5. **Dr. Devrishi Chaurasia**

6. **Sanmarga Mitra**

7. **Parama Mitra**

8. **Sushil Solanki**

9. **Shweta Vardiya**

10. **Poonam khan**

11. **Kakoli Roy**

Rachna Khare,

Sandeep Sankat

Rachna Khare,

Professor, School of Planning and Architecture, Bhopal

Rachna Khare is a full time Professor and former Head of the Architecture Department at School of Planning and Architecture, Bhopal. Prior to this, she was a Senior Research Fellow with Jamsetji Tata Universal Design Research Chair at National Institute of Design, Ahmedabad and taught at Birla Institute of Technology, Mesra. Starting her career in early nineties as Exhibition Officer cum Designer in Jawahar Kala Kendra, Jaipur, she practiced for eight years in the field and then joined academia. She is a dedicated teacher and keen researcher from last seventeen years. In 2016, she has been recognized as 'Inspired Teacher' by Hon'ble President of India and stayed Scholar-in-Residence at Rashtrapati Bhavan.

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The topic of his PhD was "Creating Inclusive Living Environments in Urban Residences for Indian Elderly". He did his PhD from School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi, India and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.) India.

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Universal Design Education in Architecture: An Experiential and Simulation Exercise

Rachna Khare, Sandeep Sankat , Sushil Kumar Solanki

Abstract:

This short paper is an effort of authors to appreciate Universal Design model of teaching in architecture education, during a workshop conducted for Architectural students, participated from various parts of the country. This workshop was organized by Center for Human Centric Research at School of Planning and Architecture, Bhopal, India in association of Ministry of Social Justice, Govt. of India (2016). Aim of the paper is to device an efficient universal design teaching model to educate architecture student. Two important methods have been covered here, 1. Understanding users is important through onsite study and 2. Scientific method of measurements is essential to assess any universal design built environment. The result of the exercise was appreciated by the participated students in the workshop. It was concluded that experiential and simulation exercises enrich the knowledge base of architecture students for designing an inclusive environment and considered beyond accessibility as it is universal design.

1. Background:

Universal Design is defined as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptations or specialized design" (NCSU, 1997). This concept is generally applicable to people with disabilities or elderly as they are considered to be most prone to inequality in the society. Students of architecture education are often unaware of the level of disability in society as the user

groups are often an invisible population in society. A contributory factor to this poor level of participation is the design of the physical environment. This type of invisibility creates inaccessible physical environment (WHO). Engaging the students with user groups particularly within their own age bracket, through design projects or research, will increase their understanding of the challenge of designing for all. (Harisson, Busby, Horgan,2015) Architectural education is a unique branch of education that requires creative education system to enhance performance of the students. In any academic institution that offers a professional degree in architecture, the question of the relationship between the design education provided and the skill required for the successful practice is of prime importance. Therefore, the design studio and overall philosophy of architectural curriculum requires efficient model of teaching which is purely based on onsite work and application of social science, spatial arrangement skills, technology etc.

The current study employed a sequential model of teaching universal design to understand physical environment focusing on usability goals, user characteristics, environment, tasks, and workflow in design needs and demands, for better understanding of design.

Exploiting built environment and underestimating various users creates barriers in the environment. The reason behind this is because of non understanding environmental users. Crutches in our soft underarms, strength required to move the wheels of the manual wheel chair, the stick of an old man, walkers when used by someone with mobility limitations, when met with their usage in the built environment are very painful situations in an

inaccessible environment. The assistive devices and their usage itself is an issue, which needs to be understood by the designers. It is difficult to understand the problems and issues associated with the assistive device usage, unless we our self use it. Through various onsite exercises, one could have an opportunity to feel the pain of the person who uses them and gives a practical experience of their usage.

On the other hand, there is several functional assessment measures used to assess the built environment which are claimed as accessible. The Environmental Functional Independence Measure [E-FIM] is a series of subscales that measure basic functional abilities of an individual. Each subscale uses a 7 point scale from complete dependence to complete independence. The E-FIM instrument measures the disability in terms of functional limitation. For example, individuals can obtain the top score of 7 on a subscale if they bathe themselves without assistance. However, if individuals cannot take bathe themselves and require some assistance then score would be lowered and built environment can be called inaccessible. In this fashion an environment can be measured and would declare as accessible built environment.

2. Intent:

The aim of this research paper is to appreciate and familiarize students with an efficient universal design model of teaching in architecture education.

3. Objectives:

- *To understand various users of physical environment while using the built environment.*
- *To make the designers learn about how the assistive devices are used in the built environment.*

- *To identify the areas of difficulty and inaccessibility in the physical environment.*
- *To understand how the tools of measuring the independence and performance of users in built environment.*
- *To evaluate and measure the physical environment through a scientific tool [toilet and kitchen environment] with simulation exercise..*
- *To critically examine the measured built environment [toilet and kitchen environment] to establish its accessibility for various users.*

4. Methodology:

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┌──────────────────────────────────────────────────────────────────────┐
│   • Literature review to understand the scope of Universal Design     │
│     education in Architecture                                          │
└──────────────────────────────────────────────────────────────────────┘
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┌──────────────────────────────────────────────────────────────────────┐
│   • Identification of problems and prospects of Universal Design       │
│     model of teaching in Architecture education                        │
└──────────────────────────────────────────────────────────────────────┘
                                    │
                                    ▼
┌──────────────────────────────────────────────────────────────────────┐
│   • Establishing the method of Universal Design model of teaching      │
│     model Architecture Education                                       │
└──────────────────────────────────────────────────────────────────────┘
                                    │
                                    ▼
┌──────────────────────────────────────────────────────────────────────┐
│ Part:01                                                                │
│   • Understanding the Users and the use of assistive devices in built  │
│     environment                                                        │
│   • Hands on exercise for detail understanding of interface between    │
│     users and assistive devices.                                       │
│ Part: 02                                                               │
│   • Establishing full scale model for assessing built environment      │
│   • Establishing protocol for hand on exercise (toilet area)           │
│   • Using Scientific method of assessment of universal design physical │
│     environment (E-FIM)                                                │
│   • Data collection through hands on exercise (Scientific method of    │
│     collection)                                                        │
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┌──────────────────────────────────────────────────────────────────────┐
│                    • Conclusion and Recommendation                     │
└──────────────────────────────────────────────────────────────────────┘
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Why Universal Design?

It is obvious question that why Universal Design concept is essential for creating a physical environment? Universal Design is a term coined by late Ronald Mace in the 1980's. The concept was developed to facilitate maximum users through any design in the society. However, universal design has found inclusive in the environment as it interacts with all type of users and meanwhile facilitate them. Moreover, it is equitable, flexible in use, simple, perceptible, tolerance in error, with low physical effort and approach of use as its principle elaborates. This infers that universal design concepts takes physical environment one step ahead in the society and facilitate maximum without discrimination.

5. Universal Design in Architecture Education:

Welch (2002) emphasis the importance of differentiating between universal design and accessibility in "Strategies in Teaching Universal Design". Accessibility is only provides individual solution to each problem, while universal design integrate the design concept and supported the informed details. One learning approach i.e 'carrot and stick' approach can be considered as a step ahead in the architecture profession. Legislation are setup in the society to comply the specification and standard of the built environment. This could be considered as 'stick' element consist of legislation and 'deemed-to-satisfy' standards, to which the designer must adhere. However, in India standards are either not mandatory or some time impossible to evaluate its actual execution on the site. Therefore, element of 'carrot' which should be used in the education plays a significant role for building knowledge to the architecture students. Educating students about universal design, its principle and its advantages is certainly

spread awareness and obligation in the architecture profession after the completion of course.

6. Universal Designing through understanding others:

Crutches in our soft underarms, strength required to move the wheels of the manual wheel chair, the stick of an old man, walkers when used by someone with mobility limitations, when met with their usage in the built environment are very painful situations in an inaccessible environment. The assistive devices and their usage itself is an issue, which needs to be understood by the designers. It is difficult to understand the problems and issues associated with the assistive device usage, unless we our self use it. It is therefore, student must see the built environment with both 'critical' and 'appreciative eye' to learn about which not to do and which has to do respectively. To understand this important concept, authors had organized a simulation exercise during the workshop. This simulation exercise involves the placing of participants into situations where they have to face barriers and inconvenience at first-hand, by equipping and restricting their ways by various means. During this exercise, following steps were undertaken:

Intent of exercise and a protocol of built environment movement were explained along with the description of assistive devices and its use.

| Fig. 01 | Fig.02 |

1. Participants enacted various users as a role play (visually impaired, physically impaired, speech impaired etc.) to investigate the particular need of their allotted individuals and the way that the built environment may help, hinder or endanger them.

| Fig.03 | Fig.04 |

| Fig.05 | Fig.06 |

2. Participants presented findings from the simulation exercise.

| Fig.07 | Fig.08 |

7. Key findings from Simulation exercise:

The use of simulation exercise gave the participants a personal experience of what it is likely to have a physical or sensory impairment. It is an effort to understand problem and barrier faced by the impaired in an environment. This has given an extra insight to the participants to understand the physical barriers as a designer and it was found out that generally architects and designer overlooked the users while designing any physical environment.

7. Universal Design measurement learning:

Measurement of physical environment in conjunction to people behavior can enable the diagnosis of disabling or enabling environment and utmost prove to be universally designed. The diagnosis of environment can accomplished by people interview, detail provided by them, recording of activities and by traces as well. There are several functional assessment measures used to assess the built environment which are claimed as universal designed. This exercise was planned to quick demonstration of how any measures are employed to understand the efficiency of physical environment in context to universal design.

The Environmental Functional Independence Measure [E-FIM] is a derivative of the 7-point Functional Independence measure instrument, which is widely employed in rehabilitation medicine. This instrument was deigned to be used to identify, at a global level enabling and disabling influence of physical environments on the functional independence of person with impairment during performance of an activity under varying conditions of environmental demand.

This instrument was explained to the participants of workshop and encouraged them to test efficiency of a physical environment under the umbrella of the E-FIM. For successful execution of this exercise, authors had used one of their in-house instrument to assess the environment i.e Full scale simulation tool. It is difficult to understand and comprehend the physical environment while designing at full scale. The developed fully dismantlable full scale simulation tool provided an opportunity to the designers to visualize and experience their design ideas in actual physical form in 1:1 scale. The fully dismantlable full scale simulation tool also provided an opportunity to create physical environment flexible enough to dismantle and erect easily; and to place design elements in the spaces with ease and convenience; as per desired placement in the 3 Dimensional environments. Further to this development, authors have framed a protocol for the completion of exercise as follow:

1. *Establishing a protocol for a toilet block which is assessed during the exercise.*
2. *Referring the Indian building standards of accessibility and identifying the measures of accessibility regarding the exercise.*
3. *Designing and setting up the TOILET modules as per collected data.*
4. *In acting as user's by using assistive device and other equipments.*
5. *Analyzing the data of simulation exercise.*
6. *Evaluation of the resulting data.*

Photographs from step-1 to step-6:

Step-1

Flowchart — TOILET - PROTOCOL:

Process steps: ENTRY → WASHBASIN → WATER CLOSET → BATH → DRYING → EXIT

- **ENTRY:**
  - OPEN THE LATCH
  - OPEN THE DOOR
  - GET IN THE TOILET
  - CLOSE DOOR

- **WASHBASIN:**
  - REACH THE BASIN
  - OPEN THE FAUCET
  - WASH YOUR HANDS
  - USE SOAP
  - WASH YOUR FACE
  - CLOSE FAUCET
  - USE TOWEL

- **WATER CLOSET:**
  - REACH THE WC
  - SIT/TRANSFER ON WC
  - USE TISSUE PAPER
  - USE FLEXIBLE FAUCET
  - FLUSH THE WC
  - STAND / TRANSFER ON THE WHEEL CHAIR
  - EXIT

- **BATH / DRYING:**
  - REACH THE BATHING SPACE
  - OPEN FAUCET FOR BATH / OPEN SHOWER
  - USE SOAP/SHAMPOO
  - USE TOWEL
  - EXIT

Step:2

Step:3

Step:4

TOILET ASSESMENT

■ EFIM SCORE W.C   ■ EFIM SCORE BASIN   ■ EFIM SCORE SHOWER

	NORMAL	ELECTRIC WHEEL CHAIR	CRUTCHES	P.B	BLIND
EFIM SCORE W.C	10	9	7	8	6
EFIM SCORE BASIN	7	10	7	7	7
EFIM SCORE SHOWER	10	7	7	6	6
	20+	20+	20+	20+	20+
	ARJAV	ANKUR	KRANTHI	NANDINI	SAI DEEPA
	1	2	3	4	5
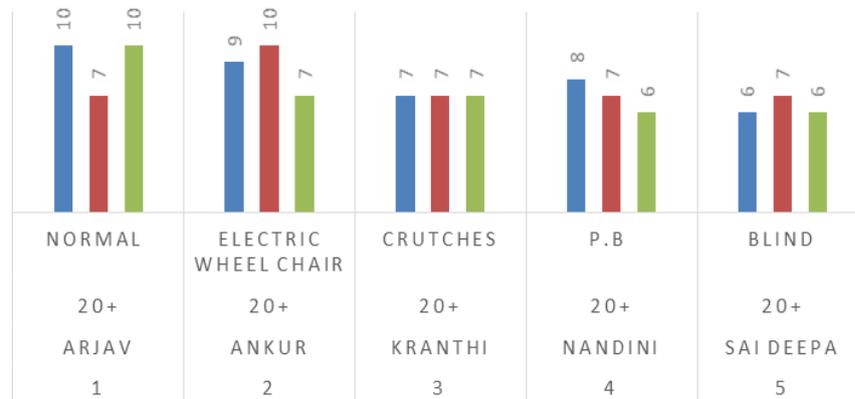
Step:5

7. Key findings from Toilet assessment through E-FIM:

While applying E-FIM on full scale simulation tool, to assess the toilet area; it was found out that, the toilet area was not fully accessible to all type of users. The users were four types (Able bodied, Person on wheel chair, Person with crutches, partially visually impaired and visual impaired) and the measurement shows that not a single user were scored significantly during the exercise. It shows that, the toilet area which was assessed is not universally designed and need redesigning efforts.

This method convinced the participants, to measure any physical environment for the checking of its efficiency in the terms of universal design concept.

Results:

Universal Design learning are enriched by developing new frame work, as above and approaching intent through systematic method of teaching with the user experiences with assistive device and simulation exercise. Architecture educators should adopt the new dimension of teaching methodology to engage the students in learning process. Learning activity using simulation exercise and measurement techniques with the application of full scale modelling as tools; would certainly increase the retention and comprehension of intended subject. Universal design teaching model along with proposed tools are tested in this paper and finds that this pedagogical technique and exercise revitalize the energy of designing as it is not only stimulating the interest of students but also justify the design.

This studio exercise provided an intense and experiential design understanding to the students for the designing of a toilet area. However, universal design teaching model along with its tools for effective execution viz. full scale model approach can be applied for design, teaching and learning of other an efficient physical environment.

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EXISTENTIAL DESIGN APPLIED IN UNIVERSAL DESIGN SETTINGS

Dr. Anne Britt Torkildsby

Abstract. The critical design method aims to discuss ways of opening up the (design) brief when planning, designing, building, operating and maintaining the future of the built environment – public as well as private, indoor as well as outdoor. Focusing on "designials" (fundamental forms of design being), the methodology intends to illustrate the fact that objects; including buildings, parks, transportation systems, etc. may directly encroach upon certain "existentials" (fundamental forms of human being) – thus shed light on how a design process is normally conducted, and furthermore, how that affects people's existential well-being.

Keywords. Existential design, Critical design, Universal design, Industrial design, Architecture, The build environment, Existential well-being.

1. Introduction

Universal design is all about producing buildings, environments, technology, products, services, etc. that are inherently accessible to everyone. In fact, UN made a convention ten years ago about the matter: stating that parties to the convention are required "to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities" [1]. No matter the various parties' attempt to comply with their obligations, it only takes a brief conversation with a person who are dyslectic, or someone having trouble with walking

– in any of the UN member states – to discover that this is not yet true.

2. EXISTENTIAL DESIGN

Let us go back to the late 19th- and 20th-century, when the existentialist stated that for human beings "existence precedes essence" [2], and furthermore that the essence of what an object – such as a bench – will be, exists before the actual bench itself. Now consider an automatic soap-dispenser, and the inevitable fact that human beings in a certain way or fashion produce it. That is, the soap-dispenser has its own method of construction; it comes with an outline saying that its essence, in functional terms, is for example to give someone a small portion of soap without using touch input. This 'fundamental nature' [3, pp. 28] is given even before the soap-dispenser exists, so that designers can bring another copy into life by making it according to this specific plan. However, there is a dilemma with this way of thinking: since none of us really knows "*when*, *where*, *why*, by *whom* and most importantly, *how*" [ibid] the soap-dispenser is going to be used, its designer will not be able to fully determine its intended use, purpose and goals in any situations concerning human beings (if any at all). In other words, there is no way to prevent for example a blind person from experiencing that his/her sweater sleeves get half soaked in water just because the automatic soap-dispenser is placed – somewhere – next to the automatic water faucet sensor in the public toilet, right?

- How do soap-dispensers exist as (universal) design; in fact, how can anything be fundamentally universal, inclusive and "for all", if not so intendedly designed?

This is where existential design comes in, i.e. "to have an existential outlook on the design work" [ibid, pp. 21], thus demonstrate the paradox of (universal) design. The existential designial analysis (EDA) was developed as a tool for designers, architects, engineers, etc. to better ensure the existential well-being [4] of humans undergoing care in future hospitals and prisons. Instead of analysing the functionality of a design in use, e.g. by performing a functional analysis, the EDA enables designers to shift focus and so analyse the form of being human that a design in use defines" [3, pp. 30]. To make a long story short, the EDA is shaped and formed into a critical design method (CDM), which in turn is defined and illustrated in a functional design manual – ready for use.

3. CRITICAL DESIGN METHOD

To criticise something in order to make change happen may seem absurd and much like an upside-down way of looking at things; especially regarding the "problem solving" approach typical for designers, architects, etc. but as Karlström points out we treat this way of thinking as the only option and therefore "We stand to lose meaning and commitment, and find ourselves in a passionless, reflective way of being" [5]. Dunne & Raby, who coined the term 'critical design' back in 1999 [Hertzian Tales], claim there are two categories used to describe design: 'affirmative design' and 'critical design'. Affirmative design, which fits most design, "reinforces how things are now, it conforms to cultural, social, technical, and economic expectations" – while as the latter term "rejects how things are now as being the only possibility, it provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical

or economic values" [6]. Existential design belongs to the latter category.

The CDM consists of three steps [3, pp. 31] and results in critical design examples [Ibid, pp. 21], i.e. artefacts that embody critique or commentary on current paradigms, and furthermore "challenge narrow assumptions, preconceptions and givens about the role products play in everyday life" [7]. The critical design examples have its functions primarily towards the prospectors, but by implementing the method per se already in the initiation phase of a product and/or system development project, the involved, i.e. facility planners, architects, engineers, designers, etc. is somewhat enforced to adopt user focus.

When executed correctly, this way of thinking design evokes reflection, discussion and promotes critical awareness in everyone involved – and down the road "affect an improvement in the 'way things are'" [8] to quote Bowen. Just as with critical- design research, or architecture, etc. the intention with the CDM is to question the unknown; enable people to take on a critical point of view and so comply with Gaver and Dunne's Cultural Probes and "shift current perceptions of technology functionally, aesthetically, culturally and even politically" [9]. Putting the CDM to work would, indeed, oblige us to always stay on our toes and never stop asking critical questions, thus stimulate a non-stop debate about *what does it mean to be human in the built environment?* [3, pp. 31].

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Rachna is a mother of an adult with autism and work in the area of 'Social Equity by Design'. Her research interests in the field of 'Universal Design', Design for Disabilities' and 'Design for Autism' have earned her grants and awards nationally and internationally. She is a recipient of the prestigious Fulbright Fellowship and was affiliated with Georgia Institute of Technology, Atlanta, USA during her PhD. Apart from Fulbright award, she is recipient of IMFAR-2009, Professionals from Developing Country Award, Chicago; Friends of Fulbright India Grant-2008, Lewisburg; Universal Design Award for Working professional-2011 by

NEPEDP-MPhasiS, India and R&D projects from All India Council of Technical Education and University Grants Commission in India. She works closely with United Nations and consults internationally on disability issues and public access.

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currently Member Secretary of DRONAH Foundation, Development and Research Organization for Nature Arts and Heritage in India.

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He is Associate Professor in the Department of Architecture, School of Planning and Architecture, Bhopal (M.P.) India. Prior to this he was senior lecturer in F/o Architecture and Ekistics, Jamia Millia Islamia, New Delhi. Commencing his career in mid nineties he practiced as Architect at his own office "Design Innovations" at Indore. He has practiced for 7 years in the field and then joined academia. His specializations are in the area of Architecture, Ekistics, Human Centric Design, Universal Design and Elderly and Environment.

The topic of his PhD was "Creating Inclusive Living Environments in Urban Residences for Indian Elderly". He did his PhD from School of Planning and Architecture, Bhopal, Masters in Ekistics from Faculty of Architecture and Ekistics, Jamia Millia Islamia, New Delhi, India and Bachelors of Architecture from Madhav Institute of Technology and Science, Gwalior, (M.P.) India.

He works for the Centre for Human Centric Research (CHCR). Committed to produce socially aware architects and planners, the multidisciplinary research hub 'Center for Human Centric Research' is housed at SPA-Bhopal. CHCR propagates inclusive and multidisciplinary problem solving approach to optimize the

environment for the population who does not have power to influence the design and planning process. To attain its objectives, the center functions in four major areas, 'Identification of Research Priority Areas and Networking', 'Education and Training', 'Research and Design Development' and 'Dissemination'.

For his proposal for the concerns towards success of "Sugamya Bharat Abhiyaan" through Universal Design Education, he has been a recipient of Eramus + Global mobility funding in 2016. He has been awarded with the prestigious National award "NCPEDP MPHASIS Award 2016" for his work in the area of disability and Universal Design. He has secured first position and distinction in the Bachelors and Masters Courses. He has been a recipient of Gold Medal for the Masters course of Ekistics from F/O of Architecture and Ekistics, Jamia Millia Islamia, New Delhi.

Abstract

Accessibility for persons with disabilities (PwDs) and elderly has always been a concern in Indian cities due to lack of Inclusive environments. The other vulnerable populations who face difficulties are children, women, and families with rural background, poor and unschooled. The new legislation Rights for Persons with Disabilities Act 2016 and United Nations Mandate of UNCRPD casts responsibility on member Nations to provide equal participation of Persons with Disabilities in all aspects life in urban and rural environments. The aim of this Design Innovation Centre project at School of Planning and Architecture, Bhopal, under Ministry of Human Resource Development, Government of India, is to develop a GIS based web-toolkit to help improve accessibility for persons with disabilities in historic cities, heritage sites and monuments.

Background

The Ministry of Human Resource Development, Government of India, has launched a project "Design Innovation Centre (DIC)" with the objective of (i) inculcating design thinking among students and (ii) taking the innovations to the end user through distribution and marketing channels. The innovations would have to be in products or processes which would significantly impact society at large. Under this project, SPA Delhi is a DIC hub institute with a focus on Architecture and Planning and SPA Bhopal is one of three spoke institutes. Each spoke institute has their own thrust areas of work within this broad domain. The two thrust themes of SPA Bhopal are "Universal design innovation for Heritage" and "Shelter for All". Various student activities such as electives, projects, research work addressing aspects of in ovation are included within the DIC project. The overall objective of the Design Innovation Centre Project is to encourage student projects mentored by faculty to culminate in specific products or processes, which can be up-scaled and disseminated/marketed at mass scale. Thus each theme intends to undertake research projects to help develop these products by the end of the project period.

Exploration of Issues for Indian Elderly through User Centric Design Studio

Prof Rachna Khare, Dr Sandeep Sankat

Introduction

This short paper presents universal design studio conducted for multidisciplinary design students at National Institute of Design, Ahmadabad, India. The studio was conducted by School of Planning and Architecture, Bhopal under an overall theme of inclusive design for elderly. The studio aimed to design for elderly through exploration of issues which elderly face while using their environment and then based on the issues to produce inclusive deigns in varied design disciplines.

Background

In broad terms, user-centric approach is a multi-stage problem solving process in design, in which the needs, wants, and limitations of people/users in an environment are given extensive attention at each stage of the design process. This approach tries to optimize the environment for intended users' rather than forcing them to change their behavior to accommodate their needs [1, 2]. As this approach relates to demographic and ethnographic aspects, it has tremendous application and potential in the developing countries, where majority of user population does not have power to influence the design and planning process [3-6]. Center for Human Centric Research in School of Planning and Architecture, Bhopal has organized a user-centric, multi-disciplinary intense studio course [7, 8] on 'Design for Elderly' to

explore creative ways to offer universal design to the students of diverse design disciplines. This short paper presents this academic event in brief and summarizes the lessons learnt for contextual application of user centric design for non-standard users in developing countries.

Objectives

The overall aim of the exercise was to focus on 'User Centered Approach' with objectives to-

• *Identify the challenges Indian Elderly face related with their environment in the Urban Residential Setups.*
• *Identify design opportunities for creation of Inclusive, enabling environments that enhance quality of living for Indian Elderly in the Urban Residential Setups.*
• *Design for 'Leisure with a Purpose' based on the identified issues.*

Methodology

This 12 days studio was conducted to enrich the young professionals of design discipline with the concerns for the user. The elderly and then through them to reconfirm. Multidisciplinary teams of different design disciplines participated together in the studio. The teams worked for two weeks and a grand jury and exhibition was scheduled on the last day. There were lectures, interactions and discussions on inclusive design during the studio. The students were provided with resource material, official documents, books, print and online journals, articles, reports, websites and readings for literature and precedence study. The students conducted user study and analyzed the information in teams. They further refined the user data for design connect. After

a sensitization process and undergoing a complete process of user centric approach to design for the specific user, the elderly the student's identifications have added 3 more issues to the identified enabling environmental issues which we have identified through the survey. With this enrichment the list has become 26 in number. The sensitized students then rated this list of issues and reconfirmed the importance of the identified enabling environmental issues for the Indian elderly. Due to this exercise there was an addition of 3 more issues namely;

1. *Technology connect*
2. *Functional / usable environment*
3. *Loneliness*

The proposals were then evaluated based on the two criterions, universal design criteria [6] and physical design criteria. Universal design criterions were based on the international Universal Design Principles [5] and Universal Design India Principles [3, 4], whereas the physical design criterions were other good design criteria as per the design brief and the context. With the help of quantitative rating tool the students then rated all the issues. The whole process enriches the list of identified issues and reconfirmed the importance of these issues.

Methodology

Initialization of the Idea

Situations in home
Situations in Family
Situations in Society
Situations in Neighborhood
Situations in city
Situations in metropolitan city

Elderly concerns

Design learning
Learning Product Design
Learning Universal Design
Changing Urban Scenario
Changing Social Scenario
Changing demographics

Knowing Elderly

Sensitizing Students towards the situations of Indian Elderly by
1. Showing and discussing the issues of Elderly problems through Movies.
2. Through already done similar kind of work, the Preliminary diagnostic survey.
3. Through already completed work of similar kind by Ar. Gaurab Kar & Ms. Pushplata

Problem identification

1. **Field Survey** to identify the design challenges faced by Elderly in Activities of Daily Living.

2. **Analysis and synthesis of the** survey results to identify the challenges Elderly face.

3. **Framing of Design area/ issue/ problem based on the identified challenges.**

Design Solutions:
To create enabling environment/ environmental fit/ Inclusive environment
FOR THE INDEPENDENT LIVING OF INDIAN ELDERLY IN THE RESIDENTIAL NEIGHBOURHOOD

Reconfirmation of the List of enabling environmental issues through a rating tool.

A Few Exemplary Design Solutions

Students explaining their design	The come along companion, students design	Students explaining their designs to the Elderly whom they interacted and interviewed	Tourist Information Brochure with information's related to Elderly, student design.
The time line, a student's design to remember past through photographs	Students explaining their designs to the jury.	Students explaining their designs to jury	The final exhibition of students work

Conclusion

1. **Increasing urbanization, modernization, commercialization, changing demographics, changing social scenario, depleting joint families and increasing numbers of nuclear families have resulted in exclusion of the Indian elderly.**

2. **This course provided a systematic understanding of the Indian elderly and investigated how enabling environments for them can be achieved through evidence based user centric methodological process.**

3. **This course not only provided an intense and experiential universal design understanding to the students, but also provided an opportunity to explore intense user centric studios**

as a pedagogical tool to meet educational objectives of Universal Design.

4. The students were sensitized towards the concerns for the user and for the "User Centric Approach".

5. The studio exercise provided a systematic understanding of the Indian elderly and investigated how enabling environments for them can be achieved through evidence based user centric methodological process.

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He is a faculty member in the Architecture discipline at School of planning and Architecture, Bhopal. At the institute, he takes courses in Building design, Building construction and Building services. Sushil, who graduated in Architecture from M.I.T.S, Gwalior and attained post graduation in Building engineering & management from S.P.A, New Delhi , worked in the construction industry for two years before he joined as faculty. Sushil has worked with various multinational companies as a design co-ordinator to execute different high-end projects in India. He is also recipient of G.A.TE. Scholarship in the year 2008. Currently, he is a member of various consultancy and research projects focusing on human centric design, teaching models etc. He is also pursuing his Phd on project performance enhancement techniques at S.P.A, Bhopal.

Understanding Measurement of Universal Design Building Standard: An Indian Case Study

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Introduction:

Standard is a technical definition for the designers, manufacturers and users in order to provide safe and healthy product or an environment. Some are considered as voluntary as they are not enforceable by the law and others are mandatory to comply. In building construction industry; standards are considered as a regulatory or controlling frame work to provide a safe and healthy habitat. Most often standards are set of rules that specify the minimum standards of product or facility in technical terms. Buildings are the essential need of human society, where it protect health of well being and provides comfort respectively. To achieve these objectives, often laws are being framed by the respective legislatures and implemented as an act. Codes and Standards are the essential tools to implement those acts by specifying the details of code of conduct, specification and techniques.

In India, standards are the key guiding tool for the design, control and execution of a building. It has rich historical background which starts from the ancient period to the modern era. The 'Samarangana   Sutradhara'   written by Paramara King Bhoja of Dhar (1000–1055 AD) is one of the great examples of ancient Indian building standard. However, modern Indian building standards has its wide influence of British

Building standards. *'In India; each municipality and urban development authority has its own building code, which is mandatory for all construction within their jurisdiction.'* To provide uniformity to all the local Indian building byelaws, Indian Government has published *National Building Code (NBC)* for India in 1970 with the objective of specific oriented and performance oriented. 'It lays down a set of minimum provisions designed to protect the safety of the public with regards to structural sufficiency, fire hazards and health aspects of buildings; so long as these basic requirements are met, the choice of materials and method of design and construction is left to the ingenuity of the building professionals'. [NBC] NBC was prepared though paneled members with the expertise of different field; and then public conferences was organized for the suggestions and its implementation. Each Indian Building standards have been framed in the line of NBC, which suggest all measures of construction.

However, a new chapter in NBC [*Special Requirements for Planning of Public Buildings Meant for Use of Physically Challenged*] was added in 1987 and *Indian Standard IS 4963 (1987): Recommendations for Buildings and Facilities for the Physically Handicapped* was framed to regulate and control the physical environment to facilitate people with disabilities. Government of India had been regularly updating and advancing the code and standards as per the society- human rights demand, modern technologies and required innovation. Although, the present standard for people with disabilities has been newly formed by the Ministry of Urban Development, Govt. of India in 2016 ['Harmonized Guidelines and Space Standards for Barrier-

Free Built Environment for persons with Disability and Elderly Persons'.] for the following reasons:

- *To involve the modern concepts of Universal Design.*
- *To harmonize all other codes and standard with the same objectives.*
- *To effectively implement the building regulations for barrier free environment.*

Although, this standard has been widely accepted by the Architects, Designer, Developers and Contractors as it recognize Universal Design [U.D] concepts and adoption of UD Principles. However, various scholars like, a team of academicians at Center for Human Centric and Research (CHCR) at S.P.A, Bhopal finds various shortcomings in the same. A workshop organized at SPA, Bhopal on the topic of 'Accessibility Training Workshop for Future professionals' in Dec-2016; identified that it lacks in performance of expected end user experience and failed to comply with the Universal Design concept. It was concluded that the standard lacked in scientific method of development or perhaps measurement techniques for the physical environment was not adopted.

Background:

Consensus based standards are always welcomed by the society and academicians as they considered to be more dependable, credible and authoritative. [UD B_6.3] Standard development authority's take inputs from public and private parties and then technical committees are ratify or reject the same for public use. Standards for the construction of physical environment where accessibility or universal design are major concern need

significant attention for the development. Here, objective is to reduce the handicap and consequently ensure societal participation through environmental design. [EE3] Consensus based standards are generally under question as it fails to answer about reliability and validity of method used where measurement methodology of physical environment is unknown. Since, there has been so little scientific discussion about measurement methodology; standards on physical environment with the focus of accessibility are debatable. [EE3] Indian Accessibility standards are framed as consensus based but failed in reliability and validity. This is so because measurement techniques for physical environment have not been used while developing the standard. It is clear that without good measurement techniques that take account of the effect of environment variables, the ability to monitor outcome is compromised. [EE4]

Aim of the study:

To understand quantitative measurement tools; to assess performance of Universal Design Standards.

Objectives of the study:

1. *To study quantitative tools available to measure Universal Design.*
2. *To measure the built environment with select tools through field exercises.*
3. *To critically examine the available tools to measure universal design standards.*

Methodology:

Establishing Aim, objectives of the study

Data Collection from various organizations

Study of various books and research paper

LITERATURE STUDY

Quantitative measurement

Study of measurement tools pertaining to physical environment for accessible built environment

Pilot study of any one measuring tool to understand way of collecting samples

Data collection and synthesis of samples as per field study

Identification of statistical models to understand measurement tools in scientific ways

Conclusion and Recommendations

Quantitative Measurement tools:

There are four quantitative tools, identified in this research paper. They all are argued that, performance of universal design can assessed through these tools for any built environment. However, the case studies of them are directly applicable to the foreign

countries and still not tested in Indian perspective. The following tools were first identified by the author and then a field survey was conducted to test their performance.

1. *Usability rating scale (URS)*
2. *Functional Independence Measure (FIM)*
3. *Environ-Functional Independence Measure (E-FIM)*
4. *Functional performance Measure*

These four tools were studied through literature and authors have setup a field study to understand them in Indian perspective. The field study was also conducted to check the efficiency of these tools at real world. The following steps were taken during the field survey:

Step :1

To conduct the field study, two members were selected. A shopping mall disabled toilet was selected as the study area. Following members were selected for the field survey:

Field study:

•Name: Kamal
•Age: 16
•Type of disability: Visually impaired
•Tools where interview recorded:
        - URS
        - FIM
        - E-FIM
        - FPM

•Name: Ramu
•Age: 28
•Type of disability: Physically impaired
•Tools where interview recorded:
        - URS
        - FIM
        - E-FIM
        - FPM

Step :2

Further, Ramu and Kamal were asked to access the toilet area for its basic use and try to identify the merits and demerits of it.

During the whole activity, authors have asked about performance of the toilet area through URS, FIM, E-FIM and FPM.

Field study : Validity of tools on Physical Environment   -Intervention needed in Grab bar, Door [using URS, FIM]

Field study : Validity of tools on Physical Environment   -Intervention needed in Door [using URS, FIM]
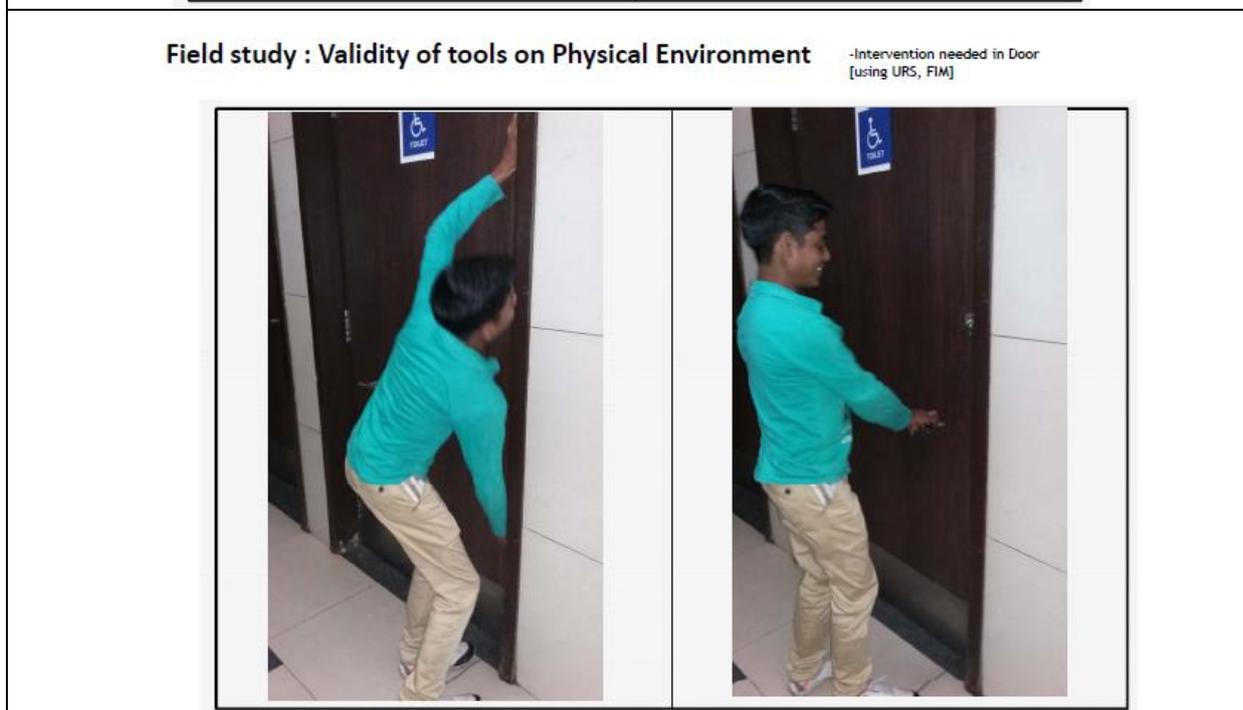
Step:3

After collecting all samples and user interpretations of the field study. The following points from all four tools were inferred:

Field study : Validity of tools on Physical Environment

URS	FIM
• To evaluate the level of demand from the perspective of person with impairment or not.	• It measures disability in terms of functional limitation.
• Easiest way to process as limited no. of rating choice at a time.	• It does not provide information on environmental as it is considered as constant in the whole process.
• Avoid biasness as both numerical and descriptive points.	
• Can not be considered for detail task as seems very superficial.	

E-FIM	FPM
• Activity based instrument and specify environment to be upgraded.	• Instead of rating level of effort or assistance observed: FPM rates the assistance provided for every task.
• It can be used for the identification of problems in the physical environment.	• It permits the identification of specific design characteristics in physical environments responsible for problematic task performance by individual.
• Demonstrate the high level of complete agreement and disagreement.	• It can be used to identify needed design changes in the specific task environments that will improve the performance.
• Outcome measure provides a means for determine if a mismatch exists between an environment demand character and subject level.	

Step: 4

The inferences have given certain indicators to setup a sequential model of measurement.

The three measures can be very effectively used together:

URS
• URS can be used to quickly flag potential in an environment and identify for whom they are most serious.

E-FIM
• E-FIM can then be used to determine the impact of those problems on various aspects of independent function.

FPM
• Once problem is identified and then impact on behavior is known, the FPM instrument can then be used for fine grain analysis and identification of solution.

Conclusion:

There are various quantitative models available for the identification of strength –weaknesses of any physical environment. However, it is identified that quantitative tools could be effectively used for the development of Universal Design Standard. It is Identified that strength of measures and pilot studies have created high level of credibility for the universal design standard development. The outcomes collected through these measures are considered reliable and could be used independently or in combination.

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Architect Ankit Kumar is a Doctoral research scholar at School of Planning and Architecture, Bhopal, India. He has key interest is in the field of Concept design and development. He has worked in the industry for more than 6 years before shifting his focus on academics. His subject interests include Disaster management, Universal Design, and Community participation in Disaster Mitigation and Planning. He is currently working on the area of Elderly & People with disability and Disaster Management.

PRATYOOSH MADHAVI

Phd Research Scholar – School of Planning and Architecture, Bhopal. Co-Author

Pratyoosh Madhavi is an Architect- Planner and is pursuing her Phd from School of Planning and Architecture, Bhopal, India. She holds her Masters Degree in Planning and public policy from C.E.P.T. Ahmedabad. She is currently working in the area of Industrial Clusters and Economic Development.

Universal Design in Disaster Preparedness for Elderly and Persons with Disabilities

Architect Ankit Kumar, Pratyoosh Madhavi Architect- Planner

Introduction

The medical advancement in the 21st Century has increased peoples longevity and has made people to live beyond 60 years. Population aging reflects success story of humans. One in eight people in the world are aged over 60 or more (UNFPA, 2012). Moreover population aging is progressing fastest in developing countries, including those with more youth populations. In developing countries, where 80% of older people live, the proportion will increase from 7% to 12 %.

Similarly 15% of the world population lives with a disability (WHO, 2011). According to census 2011 of India the absolute number of people with disabilities is as high as 26.8 million and that around 70% of all people with disabilities live in rural areas. Although the absolute number of men with disabilities is higher than the absolute number of women with disabilities, this gender gap disappears and even reverses at older ages (Saikia, Bora, Jasilionis, & Shkolnikov, 2016).

This article presents a concern over the above two groups being most vulnerable during disasters. Disasters result in unavoidable loss of life and property; older people are the one whose vulnerabilities and capabilities are often overlooked by emergency planners and professionals. Evidences prove that elderly are among those most likely to be injured and perish in case of a disaster. The death rates of elderly and persons with disabilities

were immensely high during 2004 Indian Ocean Tsunami, Hurricane Katrina and the March 2011 Tsunami. The fatality rate among persons with disabilities was twice that the rest of the population during the 2011 Japan earthquake and tsunami. This calls for professionals to draft a management plan for elderly and persons with disabilities during disaster. The paper outlines the challenges elderly and persons with disabilities face in the wake of disasters and describes the benefits to all members of society using a disability-inclusive disaster risk reduction approach. Further, the article seeks strategy to raise awareness amongst older people and persons with disabilities during emergency, as well as recommends various practices for prevention, preparedness and rescue strategies for the same. This can be done by following principles of Universal Design and developing applications or any other communication medium which can be useful for the concerned group during disaster.

Need for an Inclusive Disaster Management Practices

Persons with disabilities face unique challenges during every stage of emergency and disaster management due to inaccessible warnings, evacuation, response (including shelters, camps, and food distribution), and long-term recovery efforts. Additionally, disruption to physical, social, economic, and environmental networks and support systems affect people with disabilities in greater proportions. Common experiences reveal that people with disabilities are more likely to be left behind or abandoned during evacuation in disasters and conflicts. (Raja & Narasimhan, 2013).DRR aims to reduce the damage caused by natural hazards like earthquakes, floods, droughts and cyclones. (CBM, 2013)

Common perception is that inclusion and accessibility only matter to a small percentage of the population and thus are not cost effective. Leaving aside the fact that persons with disabilities are not a small and irrelevant percentage, accessible and disability inclusive approaches in fact benefit many others. Elderly persons are also one of the most affected groups in a disaster or emergency situation. Aging and disability are linked with each other, and many persons develop disabling conditions as they age including limited mobility, low vision, and hearing difficulties. They will significantly benefit from physical and communication accessibility in disaster preparedness, evacuation, relief, and recovery. Similarly, providing information in multiple formats beyond text such as graphical and oral formats can make this important information available and accessible to people with low or no literacy as well as children.

A survey (United Nations Office for Disaster Risk Reduction, 2013) amongst 5,450 respondents with disabilities from 126 countries illustrates why people with disabilities are injured or lose their lives at disproportionately high rates during disaster: they are rarely consulted about their needs in terms of preparedness, relief and recovery efforts fail to take these needs into account.

The survey also illustrates that in the event of a sudden disaster, only 20% of respondents could evacuate immediately without

71%
of respondents have no personal preparedness plan for disasters

31%
always have someone to help them evacuate.

13%
never have anyone to help them evacuate.
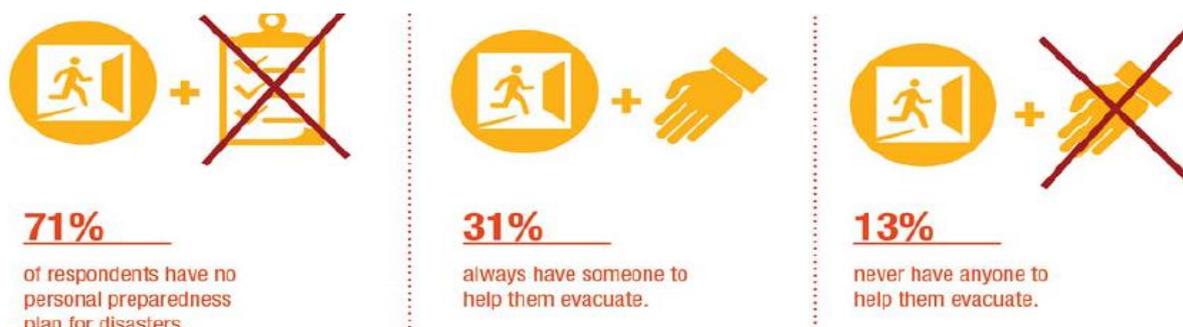
Figure 1: Response of person with disability during disaster. Source: United Nations Office of Disaster Risk Reduction

or not be able to evacuate at all. If sufficient time was given to evacuate, 38% say they could evacuate without difficulty - still a minority of all respondents. The survey also highlights that 71% of respondents have no personal preparedness plan.

Special needs of Senior Citizens and person with disability in Disaster

For elderly and persons with disability surviving a disaster can be just a beginning of a greater struggle. They are most vulnerable and hostile during and after and emergency. Elderly people due to their various disabilities with age have reduced ability to go to accessible exits, may encounter communication barriers of disaster which are crucial for survival and safety. The critical needs of old age populations and persons with disability should be properly addressed while working for Disaster Risk Reduction strategies.

There are a number of ways in which senior citizens and persons with disability face exclusion or receive inadequate support in the event of a disaster. Persons with visual or hearing impairments fail to respond to warning messages which rely on these senses and similarly persons with intellectual or mental impairments often do not understand what warning messages mean. These people fail to evacuate quickly without assistance. There are chances of them being over-looked or ignored by search and rescue teams. Lack of carrying techniques by rescue teams sometimes cause additional injury or make existing impairments worse. Post-disaster relief measures like shelters, essential facilities (such as water and sanitation), relief items may get inaccessible to them due to distance, queues and insufficient

communication. They lack resources and assets to recover from disaster and face greater vulnerability to future shocks and disasters as a result (Technical Resources Division, 2012). These groups seek more attention as they are more exposed to physical and sexual abuse.

Global Initiatives in Inclusive Disaster Risk Reduction

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyze and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment, and improving preparedness and early warning for adverse events are all examples of disaster risk reduction (UNISDR). There were strong commitments made by various countries in promoting disaster risk reduction from 1990s.
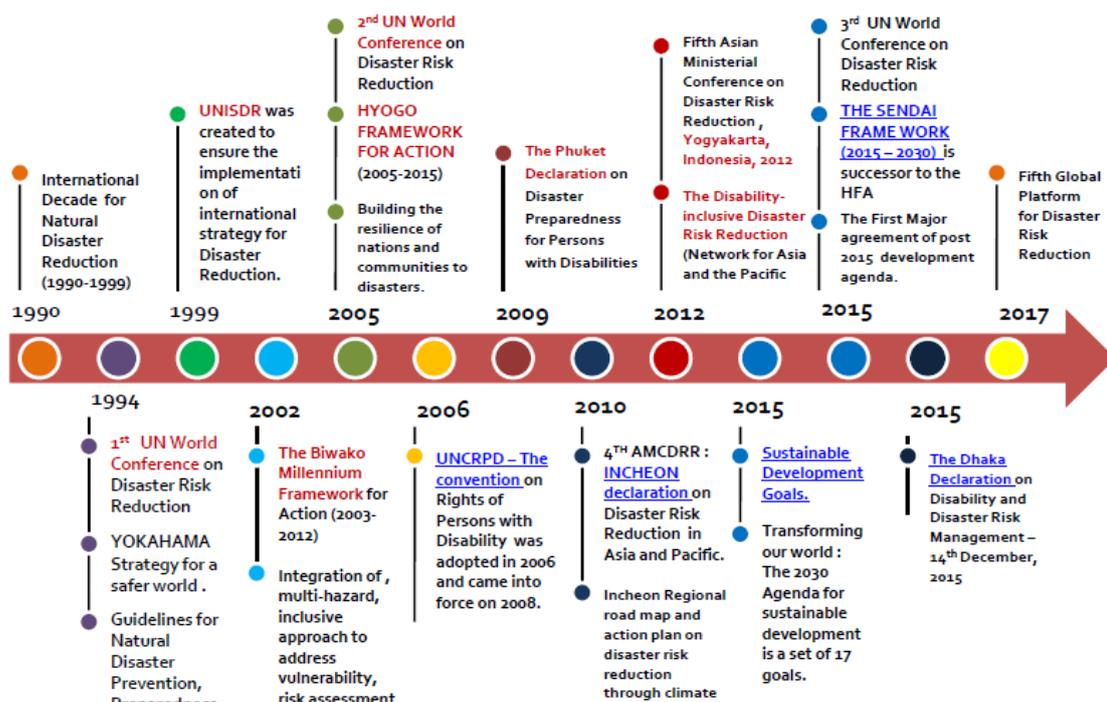
Figure 2: Time line showing various initiatives at the global level in disaster

The first step in this regard was Hyogo Framework for Action 2005 -2015 (HFA) was adopted in 2005 provided a comprehensive approach to disaster risk reduction but fails to include people with disability in the framework. Following the Hyogo framework, the Sendai Framework for Disaster Risk Reduction (SFDRR 2015-2030) was adopted by the UN General Assembly in March 2015 where it mentions that disaster risk reduction must be inclusive. It states that "Governments should engage with relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners, and older persons in the design and implementation of policies, plans and standards." India has also signed and stratified the Sendai Framework for Disaster risk Reduction (United Nations. General Assembly, 2015). Apart from this there were other initiatives at the global level which talks about the Disability inclusive disaster risk reduction. The Convention on Rights of Persons with Disability is the first international human rights treaty that addresses the rights of person with disability. It was adopted by the General Assembly in 2006. Article 11 and 32 also mentions that person with disabilities should be included in the disaster relief and emergency operations (United Nations.General Assembly, 2006). The Incheon Strategy for Persons with Disabilities in Asia and the Pacific also ensures disability inclusive disaster risk reduction and management. The connection between disability and disaster is further enhanced in the recently endorsed Sustainable Developmental Goals (SDGs) where Goal no 9, 11 and 13 talks about the various perspectives of persons with disabilities particularly in areas affected by disasters. Further it commits and promotes inclusive societies for safety of everyone in disasters (United Nations, 2015). A comparative timeline of

various frameworks in disaster risk reduction are shown in the Universal Design in Disaster Risk Reduction: Safety For all Augmenting principles of "Universal Design" to maximum buildings can to some extent cater to Inclusive Disaster Risk Reduction. This term was coined by Ronald Mace to describe the concept of designing all products and the built environment to be aesthetic and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life. He was also a devoted advocate for the rights of people with disabilities which are reflected in his work (NC state university, 2008). The seven principles of Universal Design are : 1) Equitable Use 2) Flexibility in Use 3) Simple and Intuitive 4) Perceptible Information 5)Tolerance for Error 6) Low physical effort 7) Size and space for approach and use. The developed countries like U.S.A have shown great concern for the aging population and people with disabilities and developed the newly built houses on the basis of Universal Design. As earlier said, principles of Universal design can be helpful in the Disaster Risk Reduction (DRR) in many ways. Universal Design can be applied in the buildings to facilitate the evacuation of people with disability and the elderly population. This can be achieved by devising user friendly communication system and designing evacuation routes which are accessible to all. Ensure that warning systems are disability-friendly, i.e., meet universal design principles. The Sendai Framework also talks about the inclusion of all segments of population in DRR. Further SFDRR in Paragraph 36(d) states that risk, hazard and disaster information should be disseminated "...in a simple, transparent, easy-to-understand and accessible manner." This can be achieved by providing information about all the activities related to disaster like access to restrooms and shelters (United Nations. General Assembly, 2015).

Active involvement of members with disabilities is required in governance, including them at policy-making initiatives at all levels, to ensure that their right to participate is not violated. Training and communications play a vital role in the disaster preparedness and warning the people most likely to be affected. The emergency managers must be equipped enough to understand the various needs of person with disability. Partnership with various NGOs and Disability community can also be helpful. Also person with disability can be informed about the precautions that are required during disaster and make necessary arrangement to save them.

The inclusion of universal design and accessibility principles into post-disaster response work contributes towards a barrier-free environment and an inclusive society.

CONCLUSION

Despite so many laws and regulations for elderly and persons with disabilities, they are still the most vulnerable group during disaster. This calls for development standards and guidelines for these people. Though concept of Universal Design, Inclusivity and Accessibility has been discussed in the world for over 50 years, this has been ignored in the area of disaster preparedness. Even India's new Rights of Persons with Disabilities (RPD) Bill alludes to disaster preparedness superficially, and makes no specific mention of accessibility in early warning systems, although it states the needs of people with disabilities must be considered in relief, rehabilitation and recovery. The absence of professionals in inclusive disaster preparedness especially at the policy and

planning level is another challenge. Prime Minister Narendra Modi unveiled India's first National Disaster Management Plan (NDMP) in June 2016. It also fails to include guidelines and systems to ensure that the government's disaster response, mitigation and recovery especially target most vulnerable sections amongst the disaster-impacted population. The Sendai Framework only theoretically contributes to the disability related concepts in the disaster-risk reduction and is just an acknowledgement that persons with disabilities are worthy of considerations in disaster situations. Thus, International Standards needs to be developed for disaster preparedness based on Universal Design principles.

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Forthcoming Issues

May 2017 Vol-12 no-5

Ravishankar is a Sr. Faculty member, Coordinator, M Des Universal Design Program at National Institute of Design, Bangalore and has authored the curriculum and the course modules. He offers courses in Design Methodology, Universal Design Thinking, Experience Design and mentors design projects in Product design, Digital Interfaces & Media and Retail. He has co-authored the Universal Design India Principles UDIP.

He also coordinates the NID-MSME Design Clinic Scheme for the South Zone. He is a recipient of the Business World - Design excellence award in 2006. He has been a Jury member of the India Design mark 2015& 2016 of the India Design Council, Mahindra Rise Design Challenge 2015 and has been aproactive enthusiast in promoting Design Thinking among Industry and academia through various workshops and will be guest Editor.

June 2017 Vol-12 No-6

Dr. Gaurav Raheja Associate Professor, Department of Architecture & Planning Joint Faculty, Centre for Excellence in Transportation Systems Indian Institute Of Technology (IIT) Roorkee, Uttarakhand State, India will be the Guest Editor
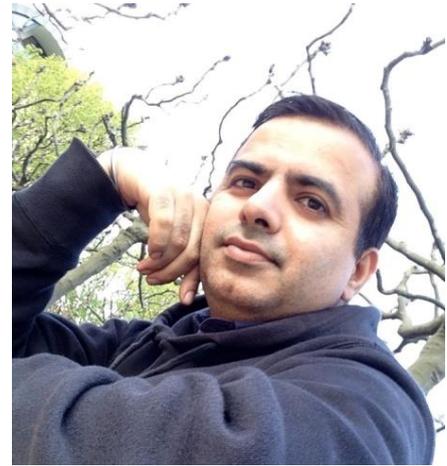
July 2017 Vol-12 No-7

Mark Watson was chosen from an international field of Designers to participate in the International Society of Councils of Industrial Design Interdesign Workshop, a two week workshop looking at Smart City solutions to social, environmental and economic problems in Mumbai .

Mark has a 15 year long engagement with Design in India presenting at leading Design Conferences on Design Thinking and Experience Design and is currently adviser to the Indian Design Festival.

Mark Watson MDIA Managing Director Design Providence http://www.designprovidence.com.au Lead Partner Design Thinkers Group Australia http://www.designthinkersgroup.com/ Co-Founder Indo Australian Design Research Alliance https://www.

September 2017 Vol-12 No-9

Prof Lalita Sen, Ph.D. Department of Urban Planning & Environmental Policy Texas Southern University Houston, Tx 77004 will be the Guest Editor.

October 2017 Vol-12 No-10

Dr. Sushma Goel, Associate Professor at department of Resource Management and Design Application, Lady Irwin College, Delhi University has been teaching from past more than three decades. She has authored subject manuals, modules for distance education, text book, etc. She has several publications in national and international journals to her credit. She has been supervisor for 60 masters' dissertations and 9 doctoral researches (some ongoing). She had been principal coordinator for projects with DDA slum wing, DST, Ministry of health and family welfare, Ministry of social Justice and empowerment and Delhi University Innovation projects.

New Books

Universal Design in Higher Education:

"Fresh, comprehensive, and engaging, *Universal Design in Higher Education* is expertly written, thoughtfully crafted, and a 'must-add' to your resource collection."

—STEPHAN J. SMITH, EXECUTIVE DIRECTOR, ASSOCIATION ON HIGHER EDUCATION AND DISABILITY

Harvard Education Press

UNIVERSAL DESIGN IN HIGHER EDUCATION
From Principles to Practice, Second Edition
EDITED BY SHERYL E. BURGSTAHLER • FOREWORD BY MICHAEL K. YOUNG

This second edition of the classic *Universal Design in Higher Education* is a comprehensive, up-to-the-minute guide for creating fully accessible college and university programs. The second edition has been thoroughly revised and expanded, and it addresses major recent changes in universities and colleges, the law, and technology.

As larger numbers of people with disabilities attend postsecondary educational institutions, there have been increased efforts to make the full array of classes, services, and programs accessible to all students. This revised edition provides both a full survey of those measures and practical guidance for schools as they work to turn the goal of universal accessibility into a reality. As such, it makes an indispensable contribution to the growing body of literature on special education and universal design. This book will be of particular value to university and college administrators, and to special education researchers, teachers, and activists.

SHERYL E. BURGSTAHLER is an affiliate professor in the College of Education at the University of Washington in Seattle, and founder and director of the university's Disabilities, Opportunities, Internetworking, and Technology (DO-IT) and Access Technology Centers.

"Sheryl Burgstahler has assembled a great set of chapters and authors on universal design in higher education. It's a must-have book for all universities, as it covers universal design of instruction, physical spaces, student services, technology, and provides examples of best practices."

—JONATHAN LAZAR, PROFESSOR OF COMPUTER AND INFORMATION SCIENCES, TOWSON UNIVERSITY, AND CO-AUTHOR OF *ENSURING DIGITAL ACCESSIBILITY THROUGH PROCESS AND POLICY*

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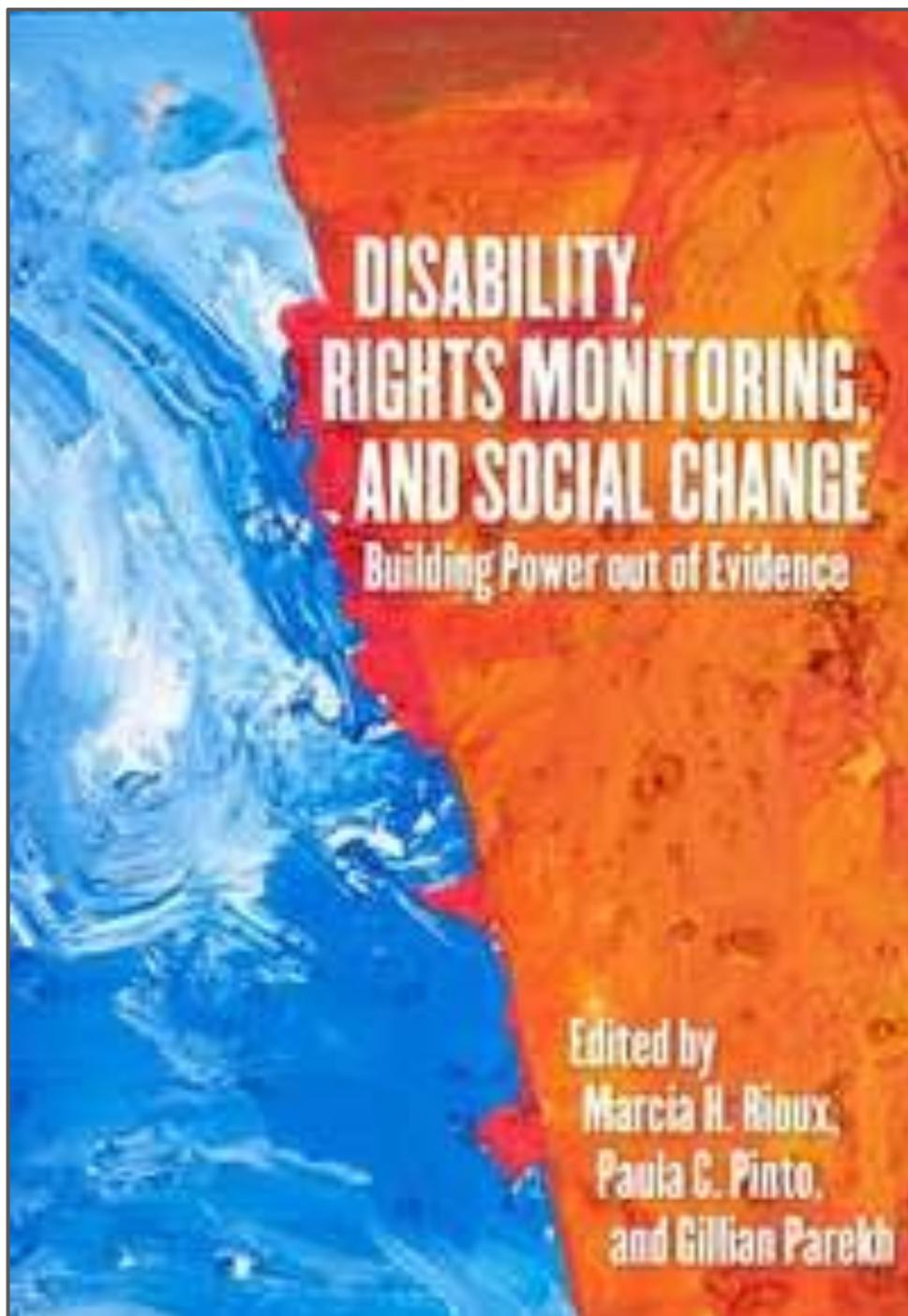
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Product Description

In this book, Elivio Bonollo takes us on a 'learning journey' about design including a scholarly explanation of the characteristics and power of the design process. It provides valuable insights into the attitudes, knowledge and skills that underpin the design discipline at an introductory level of expertise, and has been developed to meet the needs of aspiring designers in many areas including industrial design, design and technology, art and design and architecture. Elivio uses an operational model of the design process - along with related educational strategies, learning outcomes and an ordered set of design briefs - to develop a systematic, problem-based method for learning design from a first principles viewpoint. The beauty of this approach is that it brings structured learning to aspiring designers whilst being mindful of diverse cultures and backgrounds. Each part of this book encourages self-expression, self-confidence and exploration: it is has been carefully designed to take the reader on a highly motivating journey of design thinking and creativity, supported by excellent sample solutions to design problems, lucid discussions and extensive references. These solutions, developed by design students, serve as novel examples of how to solve real problems through innovative design without restraining creative freedom and individual personality. The design learning method and strategies in this book will greatly assist design and technology teachers, students of design, aspiring designers and any individual with an interest in professional design practice.

I cannot recommend this book highly enough, it was a complete lifesaver throughout my undergraduate studies and honours degree and now continues to serve me well as I move into industry practice. The content is easy to understand and follow, providing a practical guide to understanding design principles and every aspect of the design process. It includes great project examples and reflects the wealth of knowledge and experience possessed by this accomplished educator. I have purchased multiple copies of this book for peers and would suggest any student who is studying a design discipline to pick up their own copy as this has quickly become the most useful book in my design collection.

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⭐⭐⭐⭐⭐ **A 'Must Have'.**
By Amazon Customer on 7 April 2016

As a Design Education professional of many years standing, I endorse this book without reservation. It is comprehensive, lucid and above all, useful in a very accessible level at the coalface. Professor Bonolo has an enorrnous cache of experience as an engineer, designer and design educator and his experience is well demonstrated in this book. A 'must have' for anyone in the business of educating or being educated in the product design arena.

TAPPING INTO
HIDDEN
Human Capital

How Leading Global Companies Improve their
Bottom Line by Employing Persons with Disabilities

DIS **ABILITY**

DEBRA RUH
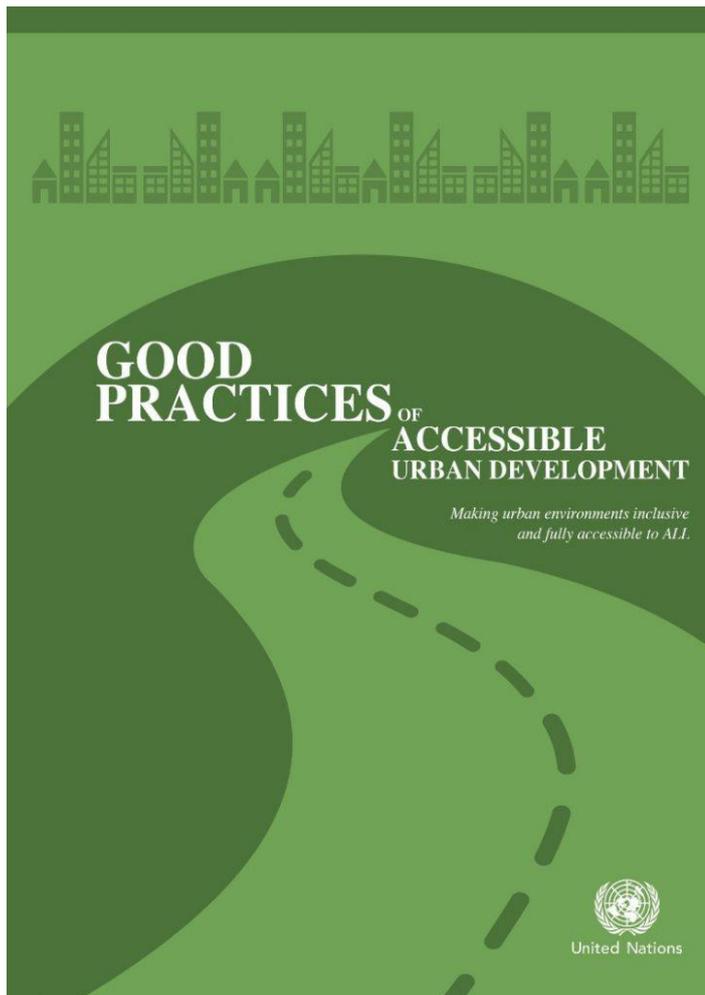
In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: "Good practices of accessible urban development".

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development.

The advance unedited text is available at:http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf

Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, _A Primer on the Design and Science of Complex Systems_.

This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).

The book is available at URL:

http://complexityprimer.eng.cam.ac.uk

Changing Paradigms: Designing for a Sustainable Future

Editors:
Peter Stebbing
Ursula Tischner

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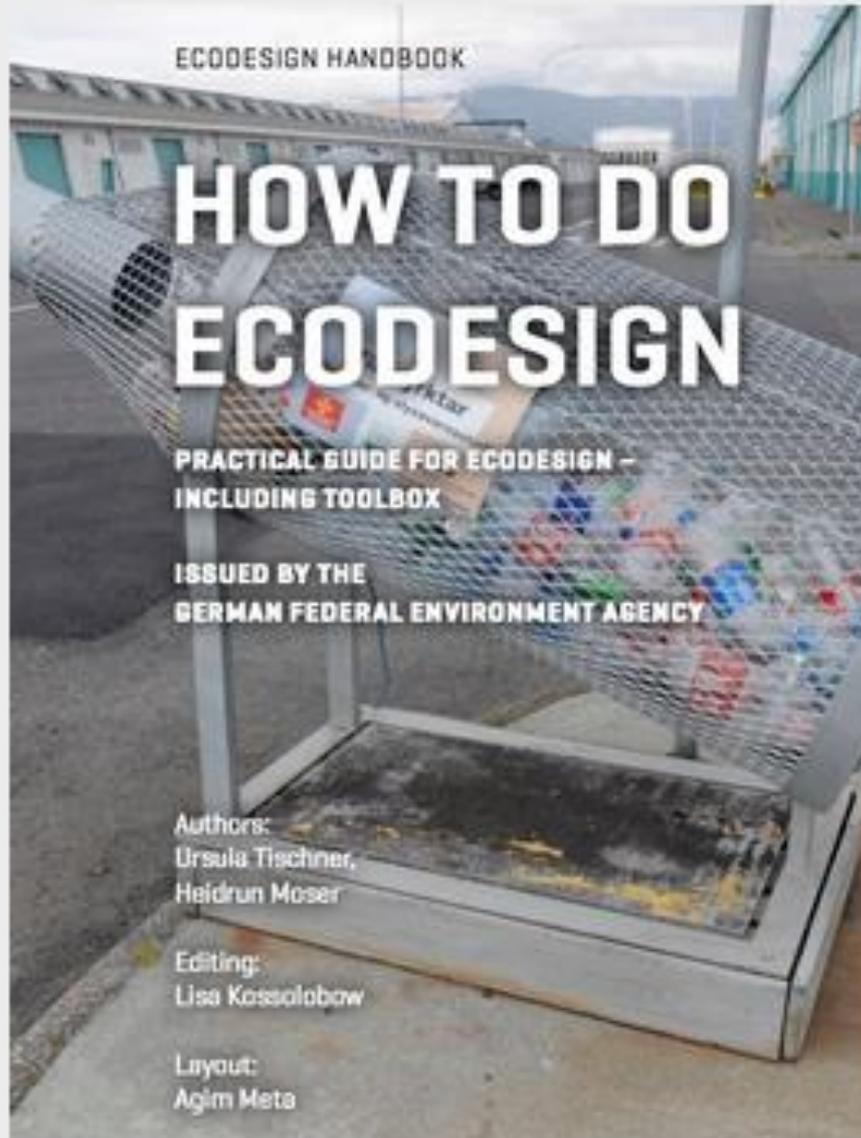
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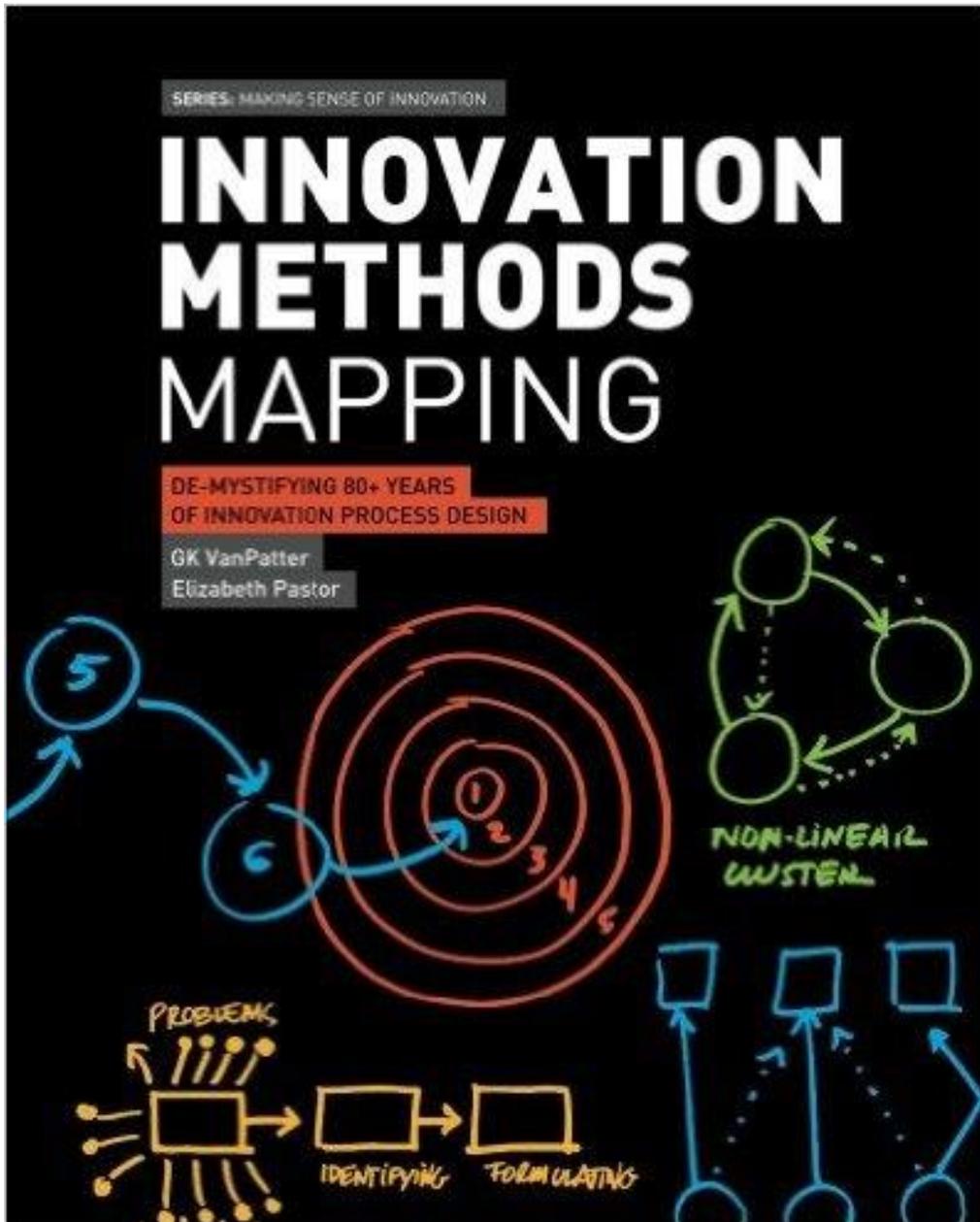
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INTERNATIONAL CALL FOR IDEAS
Rebranding and corporate identity design for Università degli Studi della Campania Luigi Vanvitelli

The call is open to studios, agencies and professionals working in the areas of graphic, visual and communication design. Participants may be individuals, groups or temporary joint ventures of studios/agencies.

The winner will receive a prize of EUR 15,000.
The second and third prizes will be as follows: an overall EUR 8,000, an overall EUR 6,000.
The University reserves the right to ask the winner to develop a handbook with guidelines on how to apply the visual identity system properly. Should this additional task be actually assigned, an additional fee of EUR 10,000 shall be paid.
The jury, appointed by Università degli Studi della Campania Luigi Vanvitelli, will be made up of five members:

- Ruedi Baur
  Creative Director of Intégral, AGI member, Designer
- Astrid Stavro
  Creative Director of Atlas, AGI member, Designer
- Giuseppe Paolisso
  Rector, Università degli Studi della Campania Luigi Vanvitelli
- Patrizia Ranzo
  Full Professor, Department of Design and Civil, Construction and Environmental Engineering
- Cinzia Ferrara
  Aiap President, Designer.

Deadline for entry submissions is 12th May 2017.
The present call and related annexes have been published on the websites of Università degli Studi della Campania Luigi Vanvitelli
www.unina2.it
and of Aiap
www.aiap.it
or downloadable from this link

News

1.

Sugatsune America's LIN-X1000 Wins Red Dot Award for High Quality Design

Over 5500 products submitted from 54 countries, Sugatsune lateral opening system recognized by the jury for groundbreaking design in 2017

After several days of assessing thousands of products from all over the world, Sugatsune's Lateral Door Opening System, the LIN-X1000, received the "Red Dot Award" recognizing it as one of the most outstanding product designs of the year. The Red Dot Award: Product Design 2017 will culminate in Essen, Germany on July 3rd, 2017 bringing together the best to receive their trophies during the Red Dot Gala award ceremony.

"The Red Dot winners are pursuing the right design strategy. They have recognized that good design and economic success go hand in hand." Professor Dr. Peter Zec, founder and CEO of the Red Dot Award. "The award by the critical Red Dot jury documents their high design quality and is indicative of their successful design policy."

Sugatsune's award winning LIN-X1000 lateral door opening system.

Sugatsune's LIN-X1000 Lateral Door Opening System is designed to provide smooth movement with a soft-close feature that operates on large doors weighing up to 200-lbs. Providing 4-way adjustability to ensure a flush, clean look when closed, the LIN-X-1000 allows doors up to 43 5/16" wide to swing open in a small radius making it a great application for custom pantry doors, storage rooms or other applications where space may be a constraint. The LIN-X1000 system features a clip-on system and has fewer parts compared to conventional systems, so it much easier to install.

Established in 1955, the Red Dot Award is one of the biggest design awards in the world and is decided by the *Design Zentrum Nordrhein Westfalen* in Essen, Germany. The award features products that are recognized for functionality, innovativeness and quality. This year, over 5500 products were submitted from 54 different countries.

 (SOURCE Sugatsune)

2.

Westmeath team devise way of making houses work for different generations

From left, Patrick Henderson, executive architect, Paul Hogan, senior executive architect, and Eoghan Lynch, executive planner, with Westmeath County Council.

A Westmeath team that has come up with a concept that could help different generations from families live together but separately, has made it through to the shortlist in an international challenge set by the Department of Housing, Planning, Community and Local Government.

Architects Paul Hogan and Patrick Henderson and planner Eoghan Lynch have devised a way of future-proofing houses, so that families can more easily extend later if they want to accommodate another generational tier.

In essence, installation of a €750 support beam at construction stage; the use of concrete as a flooring material between storeys, and opting for dormer-style trusses at attic level could slash thousands off the cost of a conversion or extension down the line, explains Mr Hogan, who is team leader with the Westmeath County Council Capital Housing Design Team.

The team's plan is one of five that have made it to the shortlist for the final round of the Rebuilding Ireland Homes for Smart Ageing Universal Design Challenge.

In total, some 63 proposals were submitted and the five shortlisted projects now each receive €10,000 towards the cost of working further on their proposals.

Paul Hogan, Pat Henderson and Eoghan Lynch were employed recently by Westmeath County Council's Capital Housing team in order to accelerate the delivery of social and affordable housing throughout the county in accordance with Rebuilding Ireland.

Both Paul and Pat have 20 years of experience in the private sector, the majority of that time working in the area of housing. Eoghan worked with Offaly County Council for 11 years.

Their competition entry was one they did outside office hours and at weekends, employing the experience accumulated in both the private and public sectors, but Mr Hogan stresses that there was extremely valuable input from their council work colleagues Leo Noone, Helena Heffernan, Mark Kerrigan, Thomas Flynn, Veronica O'Boyle and Micheál Gaffney.

Damien English TD, Minister for Housing and Urban Renewal announced the five commended entries.

He explained that government policy is to support older people to live with dignity and independence in their own homes and communities for as long as possible.

"Adaptable and smart homes are the future with advantages from saving energy to creating homes suitable for a lifetime," he stated, adding that the shortlisted entrants superbly demonstrated the potential to create homes suitable for lifetime living and to create economic and social benefits for the community at large.

The Mullingar team's proposal is for what are termed 'Multi-Generational Adaptable Homes', a design concept that would allow families to live within their community over many generations.

Another of the shortlisted ideas, 'The Abhaile Project' has been submitted by a team of which TV architect Dermot Bannon is a member.

The five commended entrants will now be asked to develop their ideas further in round two of the challenge.

During this stage the commended entrants will be required to build substantive proof that the principles of Universal Design have been considered and that the idea is feasible, cost effective and has the potential for mainstreaming. Round two entrants will also be required to make an in-person presentation to the judging panel.

These presentations will take place during the week beginning June 19, and the winners will be announced during an awards ceremony in Dublin Castle on June 28. The winners will receive a further €50,000 to help deliver on their solution.

(Source: Westmeath Examiner)

Programme and Events

Photo: Delfino Sisto Legnani. Graphic Design: Groupa Ee

FARAWAY, SO CLOSE
25th Biennial of Design
Ljubljana, Slovenia
25. 5.–29. 10. 2017

The 25th edition of the Biennial of Design in Ljubljana is set to strengthen its role as an interdisciplinary collaborative platform where design is employed as a catalyst for change.

BIO 25, under the title *Faraway, So Close*, will be curated by **Angela Rui**, a Milan- and Rotterdam-based design critic and curator, and **Maja Vardjan**, curator of Museum of Architecture and Design (MAO).

In line with their focus on the humanistic side and expression of design, they will use the Biennial **to decode through design the effects** of environmental changes, asset migration, and reactions to the systemic crises.

In the face of the total failure of the theory of Positivism, we are now forced t**o confront the crucial and still largely hidden meaning** of the consequences of "post-modernization", for which the city seems to have lost its authority as the territory where we look to find the source of quality existence.

Small changes are already taking place and gaining ground, and new inputs are slowly modifying our urban and rural environments. New frictions emerge out of the co-habitation of remote meanings and contemporary habits, as we look for new territories to signify, places to re-inhabit, ancient relations to re-enact, basic coexistences to re-imagine. **Can this friction between distant conditions produce new scenarios for a different present time?**

Along with the main subject-themes of the biennial, BIO 25 will de-centralize and will be interpreted as **a shift towards new territories** to be seduced by research and discourse, as well as by the idea of an event with which to produce knowledge. In the age of super information consumed in real time, the challenge of a biennial becomes increasingly closer to real conditions of everyday systems; **to provoke and challenge the paradigms** related to design and architecture through their pragmatic application, acting as a "permanent work in progress".

Slovenia, in accordance with its geographical conditions, will perform as a paradigm to stimulate, discuss and test the status of this global shift.

SAVE THE DATE FOR THE 25TH BIENNIAL OF DESIGN

Open Call	12 May - 5 July 2016
Kick-off event	15 September 2016
Process	Autumn 2016 – Spring 2017
Exhibition	25 May – 29 October 2017

DESIGN EXPERIENCE is an initiative conceived by designers, made possible through designers and directed to designers.

We organize **a one-week intense seminar in Barcelona** where we explore the main concepts of Office Management, Project Management, Teamwork, Customer and Space Psychology, Creative Process, Sustainable and Ethic Design.

Important Barcelona designers will open the doors of their offices for us, will show us their construction sites and will tell us about the way they work.

We organize visits and round trips in the most important factories, showrooms, retails, places and sites in the area of Barcelona.
We discuss in a design environment about the most advanced topic about the design process

6th IFIP TC.13 International Conference on Human-Computer Interaction - INTERACT 2017
Theme: Global Thoughts, Local Designs
at IDC, IIT Bombay25-29 September, 2017http://interact2017.org/

30 September - 2016

UIA Awards 2017

The UIA Launch the 'Friendly and Inclusive Spaces' Awards 2017

FRIENDLY AND INCLUSIVE SPACES AWARDS

ENTER

RIAI Awards Administrator

THE BERKELEY PRIZE 2017

Essay Competition
Travel Fellowship Competition

ARCHITECTURE REVEALS COMMUNITIES

ARCHITECTURE IS A SOCIAL ART

The BERKELEY PRIZE supports the study and teaching of the social art of architecture. The online, two-stage Essay Competition (in English) is open to undergraduate architecture majors in accredited schools of architecture throughout the world. The Travel Fellowship Competition is open to the Essay Competition semifinalists.

PURSE

Essay Competition: 25,000 USD; 5,750 USD first prize; Multiple prizes
Travel Fellowship Competition: Stipend and airfare; Multiple prizes

2017 JURORS

Sangeeta Bagga-Mehta
Architect; Professor, Chandigarh College of Architecture, Chandigarh, India where she has conducted multiple collaborative student workshops focused on the examination of urban landscapes, environmental design and social issues; Internationally-recognized figure in modern heritage conservation and urban social history studies of Chandigarh; and Member, BERKELEY PRIZE Committee.

Mark L. Gillem
Architect (FAIA) and Planner; Professor, architecture and urban design, University of Oregon, Eugene, U.S.A.; Director, School of Architecture's Ph.D. Program and the Urban Design Lab; Director of the International Association for the Study of Traditional Environments (IASTE); Principal of The Urban Collaborative, LLC, Eugene, and author of America Town: Building the Outposts of Empire.

Omar Khattab
Architect; Dean, College of Architecture and Chair of the Department of Architecture, Kuwait University; Responsible for major design projects including the Care Centre for the Mentally Disabled and the Kuwait Autism Centre; elected representative on the managing board of the RIBA Gulf Chapter; and co-author of Cities in Transition: Transforming the Global Built Environment.

Faiq Mari
Architect; Former student, teacher and BERKELEY PRIZE Associate Teaching Fellow, Birzeit University, Palestine; current Fulbright scholar at the University of Michigan, Ann Arbor, U.S.A., studying the role of the built environment under settler colonialism in Palestine; Second Prize, 2013 BERKELEY PRIZE Essay competition; and Member, BERKELEY PRIZE Committee.

PLORE ONLINE: WWW.BERKELEYPRIZE.ORG

INTERNATIONAL VISUAL METHODS CONFERENCE 5
VISUALISING THE CITY

16 - 18 AUGUST 2017
SINGAPORE
WWW.VISUALMETHODS.INFO

The phenomenon of cities is an increasingly important aspect of the everyday life of individuals. The United Nations reports that as of 2014, 54 percent of the world's population live in urban areas, with that proportion rising to 66 percent by 2050. Asia and Africa are projected to contribute the most to this growth. Cities come in, and are engaged with, on a variety of scales, shapes and interactions. From global cities to urban neighbourhoods to the bedrooms of our informants, from walking to sensing to mapping the city – the ways in which we have seen, experienced and documented cities are myriad.

In this 5th instalment of the International Visual Methods Conference, we seek papers, presentations and performances that critically examine the city through visual methods. However, we also welcome proposals for topics not directly related to urban life, but nonetheless encompass visual methods.

CALL FOR PANELS, PAPERS AND OTHER CONTRIBUTIONS

Hosted in Singapore, itself a unique blend of city and state, we welcome presenters from a wide range of disciplines, from the arts to social sciences to STEM subjects – and particularly encourage interdisciplinary dialogues. Specific themes include, but are not limited to the following

- Critical Perspectives on Visual Methods
- Visual Methods for Urban Areas
- Walking, Sensing and Experiencing the City and other Spaces
- The Science and Technology of Visual Methods
- Mapping Everyday Life
- Visualising the Unseen
- Visual methods as an Agent of Change in the City
- Visual Methods in Teaching and Learning
- Open Stream

SUBMIT ONLINE BY JAN 2017 AT
WWW.VISUALMETHODS.INFO/CFP

IVMC 5
VISUALISING THE CITY
16 - 18 AUGUST 2017
SINGAPORE

Visual Methods

HOSTED BY
SIT

22-26 MAY, 2017 | CANCUN, MEXICO
2017 GLOBAL PLATFORM
FOR DISASTER RISK REDUCTION

FROM COMMITMENT TO ACTION

Call for Papers - COINs17
7th International Conference on Collaborative Innovation Networks
"Resilience through COINs"

COINs17 takes place September 14-17 in Detroit, Michigan.
This year's topic is "Resilience through COINs".
We invite you to submit your papers, posters, and proposals for workshops.

10th session of the Conference of States Parties to the CRPD, 13 to 15 June 2017

Quicklinks:

- Theme and sub-themes
- Bureau of the COSP10
- Key dates:
  - COSP10: **13-15 June**
  - CRPD Civil Society Foru: **12 June**
  - DESA Forum; IASC Task Team (UNICEF): **16 June**
  - Registration for NGOs: **OPEN** : **15 March to 2 June**
  - Application for new NGO accreditation: **OPEN** : **1 April to 5 May**

International Design For All Foundation Good Practices Awards

The 8th edition of the International Design for All Foundation Good Practices Awards recognise achievements in the field of design for all, great and small, by governments, businesses, not-for-profit organisations and professionals from all over the world. In so doing, they aim to demonstrate that the implementation of design for all/universal design in any form contributes towards improving quality of life for everyone.

At the Design for All Foundation we believe that our awards should not be a competition, but that we should recognise all examples of good practice which arise from identifying a need or problem and satisfying user requirements and expectations. Hence from this edition onwards we will honour all "Good Practices" which meet the criteria for excellence.

However, each year an international jury will select the 5 "Best Practices" out of all the Good Practices submitted to be presented with the International Design for All Foundation Award. These will be the examples which stand out in terms of their impact and which indicate the way ahead for better implementation of design for all/universal design.

Key dates

- The "Best Practices awarded" selected by the Jury, will be announced during the ceremony of the Design for All Foundation Awards 2017, that will take place on **May 18 at 21pm** in 1st International Congress of Active Tourism for All, en **Sant Antoni de Calonge (Girona)**. At the same event, all Good Practices will receive the corresponding diploma.

THE INTERNATIONAL UNDERGRADUATE PRIZE FOR ARCHITECTURAL DESIGN EXCELLENCE
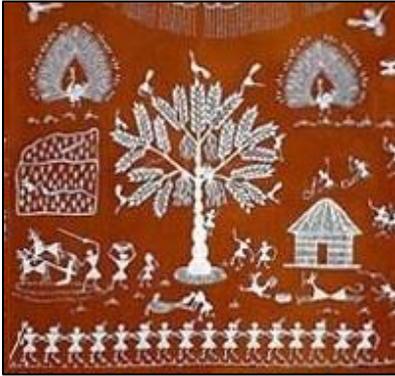
berkeley prize

Visit the BERKELEY PRIZE

Find us on Facebook

The BERKELEY PRIZE Committee is pleased to announce the 2017 Essay Competition Winners and Travel Fellows.

LINK HERE FOR ALL OF THE RESULTS.

Thank you to all who participated!

Job Openings

1.Job Opening

looking for local artists(students or professionals) who will take up wall art painting for office spaces in Bangalore.

Any pointers? Email me @manishpi@gmail.com

2.Job Opening

a design studio called story design. He is looking for product designers. Interested people can send their portfolio and resume at reetesh@storydesign.in

3.Job Opening

Tata Elxsi is looking for Lead Design Researcher.
TATA Elxsi looking Lead Design Researchers, with relevant industry experience, to handle diverse range of design research projects.
Responsibilities:
- **Lead research programs to understand user/ stakeholder needs, goals, expectations, motivations, and experiences**
- **Lead iterative research touchpoints to evaluate concept value, utility, and usability**
- **Work closely and collaboratively with designers and engineers**
· **Ability to handle a team and ensure successful project completion**
· **Lead and facilitate client presentations and workshops**
Requirements:
· **Superior qualitative research skills and superior analytical abilities in order to effectively translate field insights into actionable insights**

· **Strategic thinking and ability to conceptualize innovative solutions based on user needs and challenges**

· **Understanding of trends with an ability to analyse and ensure design translations**

· **Ability to moderate and engage participants in workshops**

· **Excellent writing skills for preparing good quality reports (ppt format), assisting in proposal writing, and writing blog entries**

· **Very strong communication skill is a must. The candidate will be expected to respond to clients and will be expected to make client presentations.**

· **Foresight, ability to collate and refine data with a strong planning and implementation capability**

· **Ability to handle a team and ensure successful project completion**

· **Flexibility to work on projects with varying scopes in different sectors**

· **Excellent interpersonal skills and a collaborative management style**

· **Ability and willingness to work under pressure**

· **Willingness to travel**

TATA ELXSI
Tel +91 80 22979993 Cell +91 9901989597

4.Job Opening

We have 2 openings for UX designers in SAP Labs ,Bangalore.

ABOUT SAP

User experience is of vital importance to the success of all SAP products, and therefore, SAP constantly evaluates and improves its products to ensure that the end users get the best user experience possible. User Experience at SAP covers all activities from conception and design of future SAP products to maintenance and improvements of existing applications.

The S/4HANA User Experience Team is setup globally with people working in Germany, India, China and Canada. The team in India is growing, and we are looking for one Senior User Experience Design Specialist and one User Experience Design Specialist.

 As a User Experience Designer in the S/4HANA UX Team you will work together with a highly motivated and creative team of international interaction designers, user researchers and visual designers. The team is responsible to drive all application design activities for the S/4HANA business areas. You will closely collaborate with product owners and development colleagues to enable users to do their business in the most effective and efficient manner.

EXPECTATIONS AND TASKS:
● You are a strong interaction designer with empathy for the user
● You feel responsible for your work and accompany your designs throughout the design driven development process
● Gathering end-user requirements by organizing, executing, and moderating end-user research and synthesising the results
● Creating user interface designs using various prototyping techniques and at the same time following the UI guidelines
● Verification of designs through reviews, validations and formal usability testing with end users

 EDUCATION AND QUALIFICATION:

Bachelor's / Master's with Art/ Bachelor's Science Degree in Human-Computer Interaction, Media or Industrial Design from a reputed design institute like NID, IDC, Srishti, etc., preferred or with relevant work experience

DESIRED SKILLS:
• You have advanced skills in interaction design (ideally application design or design concepts)
• Experience with tools such as Axure, Photoshop and Balsamiq
• Basic Knowledge of HTML5, CSS3 and Javascript
• Experience in software development is advantageous

WORK EXPERIENCE:

• 3+ Years' experience in User Experience Designing for User Experience Design Specialist

• 7+ Years' experience in User Experience Designing for Senior User Experience Design Specialist

• Background in web and application design
• Strong communication skills and the ability to effectively engage and convey ideas to cross-functional technical and non-technical teams
• Excellent written and verbal communication skills in English
• Creative and analytical thinking is required
• Demonstrated ability to learn complex technology
• Must be a solid team player

Please drop in a mail with CV and portfolio link to kalyani.dhone@sap.com

5. Job Opening

Videocon Industries Limited , a large diversified business group is looking for creative and passionate Industrial Designers for its Consumer Electronics and Home Appliances segment at Corporate office ,Gurgaon with 2-5 years of experience.

Interested candidates can share their resume and portfolio with the following:

varun@vgmail.in   dhruv.parmar@vgmail.in

6. Job Opening

A client of ours, a multinational, with an office presence in Gurgaon, is looking for a designer who can convert market research data they accumulate into info-graphics/business presentation. This would surely need a good understanding of their domain over a period. This candidate would work in coordination with a business analyst who has already been hired.

This is an urgent need. People from any stream can apply if they have a knack for business information/analysis. Prior exposure would be helpful. Please send in a short note about yourself with a portfolio link to manoj at turianlabs dot com. Or call me for clarifications.

7. Job Opening

We have an urgent requirement for an UX intern with Philips Healthcare, Pune.Find the attached requirement below.You may contact Prachi(HR rep) directly for any further clarification.

| Healthcare Innovation Center |
| Internship

8. Job Opening

Senior Communication Designer

Job Description Document

Company: Reliance Brands Limited

Location: Maker Tower 'E', Maker Arcade, Cuffe Parade, Mumbai, Maharashtra 400005

Requirement Timeline: Immediate

Employment Type: Full Time

Key Result Areas: Retail Communication

Essential Education: Graduation/ Post Graduation in Graphic or Communication Design

Essential Experience: Minimum 8 years across Graphic Design, Advertising & Branding

Salary: Based on candidate's profile

Role

The Senior Communication Designer shall lead a core team and be committed to contemporary design and best practices in the domain of Retail. S/he should have work experience in an advertising agency or design studio (independently or within a Company) and have worked with Brands. This role presents an opportunity to engage with standards and frameworks of global retail practices and wider communication strategies that create an impact at the organizational level.

Operating Network

Internal: CEO, Design and Business Heads, Heads or teams from Marketing, Visual Merchandising, Projects (retail interiors), Training, etc.

External: International Brand representatives, Consultants/ Agencies, Freelance design consultants, Vendors, etc.

Key Personal Attributes

- Excellent communication skills and command over both spoken and written English with ability to write/ produce content.

- Self-motivated and resourceful; both a creative leader and a collaborator.

- Excellent project planning, organisation, implementation, presentation and time-management skills.

- Values quality at all levels– from an eye for detail to seeing the entire picture.

- A critical thinker and resolute doer.

Knowledge, Skills, Competencies, Abilities

- Expert knowledge of methods, processes and techniques in graphic design (including Typography, Infographics, Interface, Signage, Print Design, Product Packaging, etc.)

- Strong conceptual and creative skills with a broad understanding of Design across various domains.

- Competently use research and documentation as a part of the Design Process.

- Strong analytical capabilities and ability to think about design at a Systems level.

- Ability to work across multiple brands and identities (design, brand guidelines, specifications, etc.) in various retail formats and settings.

- Ability to understand, develop and execute projects directed at enhancing customer experience.

- Ability to adapt and represent the brand and its objectives in the Indian context and be able to translate business objectives into consumer facing creatives.

- Understand and be able to execute social media campaigns with knowledge of communication tools and methods used in different platforms like: Facebook, Instagram, etc.

Responsibilities

- Interface with individuals and/or teams from the Operating Network (above) on a regular basis for strategic planning or project specific requirements. Understand varied and heterogeneous requirements from functions like marketing, internal communications, HR, Training and corporate and translate them into creative solutions either independently or through the team.

- Envision and support the creation of all visual content, material, media, presentations, brochures, etc. including graphic design solutions for various promotional materials, brand communications, labels, collaterals, etc.

- Work in sync with various marketing teams and develop campaigns, launches, advertisements with inputs on both design and content.

- Act as a liaison between junior designers and other teams for all communication design requirements of the company.

- Lead various in-house communication design needs.

- Build and foster creative practices. Along with the Design Heads, mentor design within the organisation.

Software skills (should include but not be limited to)

Adobe Creative Suite: Photoshop, InDesign, Illustrator, etc./ Corel Draw, Microsoft Office.

Additional Software Skills (preferred)

- Video-editing software.

- Interaction Design software.

Application Process

Interested applicants should email the following (in a pdf format) to giritra.garg@ril.com

1) Cover letter

2) CV or Resumé

3) Two referrals

4) Portfolio (An online portfolio link will be preferred)

Junior Graphic Designer

Job Description Document

Company: Reliance Brands Limited

Location: Maker Tower 'E', Maker Arcade, Cuffe Parade, Mumbai, Maharashtra 400005

Requirement Timeline: Immediate

Employment Type: Full Time

Key Result Areas: Retail Communication

Essential Education: Graduation/ Post Graduation in Graphic or Communication Design

Essential Experience: Minimum 2 years

Salary: Based on candidate's profile

Role

The Junior Communication Designer shall be a learning team member exposed to contemporary design and best practices in the domain of Retail. S/he should have an interest in retail based communication and must favour working with Brands. This role presents an opportunity for discovery and growth within the standards and frameworks of global retail practices.

Operating Network

Internal: Senior Communication Designer, Design Heads, Heads or teams from Marketing, Visual Merchandising, Projects (Retail Interiors), Training, etc.

Key Personal Attributes

- Good communication skills and command over both spoken and written English.

- Self-motivated, collaborative and open to learning.

- Excellent time-management skills.

- Quality conscious and an eye for detail.

Knowledge, Skills, Orientation:

- Domain knowledge of methods, processes and techniques in graphic design (including Typography, Infographics, Interface, Signage, Print Design, Product Packaging, etc.)

- Conceptual and creative skills. Design awareness.

- Interest in working across multiple brands and identities (design, brand guidelines, specifications, etc.) in various retail formats and settings.

Responsibilities

- Work in sync with various individuals or teams in the Operating Network (as above) to realise campaigns, launches, advertisements, etc.

- Interpret creative briefs, conceptualise and create visual content, material, presentations, brochures, promotional materials, labels, collaterals, etc. for various brands

- Execute various in-house communication design needs.

Software skills (should include but not be limited to)

Adobe Creative Suite: Photoshop, InDesign, Illustrator, etc./ Corel Draw, Microsoft Office.

Application Process

Interested applicants should email the following (in a pdf format) to giritra.garg@ril.com

1) Cover letter

2) CV/ Resumé

3) Portfolio (An online portfolio link will be preferred)

9.Job Opening

Looking for a user-experience designer/Analyst who will be responsible for user research, market research and translating them into concept wire-frames and prototypes. Also ensure that the overall functionality of the product leads to a great user experience.
Minimum 3 years of experience in User Experience domain. ● Identify design problems and devise elegant solutions. ● Make strategic design and user-experience decisions related to core, and new, functions and features. ● Preference will be given to candidates who have experience designing complex solutions for complete digital environments. ● Expertise in UX software such as InVision, UXPin, Balsamiq is a must. ● A deep understanding of mobile-first and responsive design. ● A solid grasp of user-centered design and testing methodologies, subsystems, usability and accessibility concerns. Interested Candidate may share their details to me

Please drop in a mail with CV and portfolio link to
ashwini.solanki@mind-infotech.com

10. Job Opening

We are looking for :

1. ACCOUNT DIRECTOR

JOB SUMMARY

We are looking for account directors who can get things done and make a difference   to   our   partner   brands.

JOB DETAIL

As an account manager we not only expect you to perceive and analyze client requirements but also build an open and positive culture within the team. You are expected to be the accelerator who can bring in a quick transformation into the system by being cognizant to the perspectives of our creative team and translating them effectively for our clients. We require you to be empathetic,

wise and efficient while being the bridge between our partner brands and the creative team.

Your primary roles would be

- To get into the crux of a client brief and break down problem statements.
- To identify the right talent for a job and allocate responsibilities.
- To communicate constantly with the clients and ensure that all their requirements are met.
- To deliver quality work to clients by meeting deadlines.
- To efficiently handle the team and resolve all internal conflicts.

EXPERIENCE 6+ Years

LOCATION

Pune, India

2. GRAPHIC DESIGNER

JOB SUMMARY

We are looking for a designer with strong insights about art, acumen for generating fresh ideas and the ability to think in multidimensional planes.
JOB   DETAILS
As a graphic designer we expect you to produce art work that can engage and influence the audience and to have an original perspective on every client brief that reaches us. We see you as the person who drives a big change in the industry with visual tools, constantly engaging and influencing the audience. We are looking for someone who can perceive a client requirement in its depth, conceptualize a relevant solution and transcend concepts into a visual language.

Your primary roles would be

- To analyze client briefs and form perspectives on them.
- To have an understanding of building brands and creating brand engagements

- To craft innovative and engaging brand creative according to briefs
- To brainstorm and conceptualize campaigns.

EXPERIENCE 2-3+ years

LOCATION Pune, India

If interested, you can send your profiles at hello@chaosglobal.net .We will be happy to meet you.

For free Registration: write to
subscribe@designforall.in

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e-mail address:
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Advertising:

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Acceptance of advertisement does not mean our
endorsement of the products or services by the Design for
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Regarding new products or events or
seminars/conferences/
workshops.
News@designforall.in

Feedback:

Readers are requested to express their views about our
newsletter to the Editor
Feedback@designforall.in

Dear Friends,
We need your feedback on our publication and
your support for popularizing the concept of our
social movement of Design For All/ Universal/
Barrier free/ Inclusive Design. It is our further
request kindly submit your latest articles,
research findings , news and events with us for
publication in our newsletter.
With regards
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www.designforall.in
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Tel:91-11-27853470(R)

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