

# Design for All



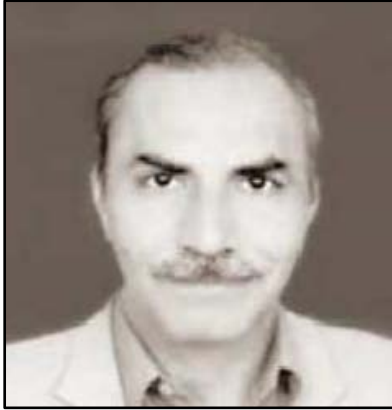
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## Letter from the Chairman's Desk By Sunil Bhatia PhD

I wonder how woman learnt the art of holding the newly born child. It is natural but very mysterious design. It is something like bird lays the egg and who directs her to sit on egg for chicken. As chicken comes out of the egg it does not surprise her as she knows it is to happen. When a newly born child comes out of the womb it requires special holding because child does not have control over his head and that needs support. Any mishandling can transform normal to special child . In due course of time child head stabilizes and mother holds without giving special attention to head .As child grows and start learning the art of sitting after gaining strength in legs and hands that time she prefers to lift the child by holding via his chest and allows sitting on her folded hand close to her chest. A stage comes when child is no more that delicate and gains weight, she holds the child close to her chest allow resting his head on her shoulder. As child starts crawling some mother prefers carrying on her back or allowing sitting on her shoulder and child holds her forehead or even carrying by holding on folded hand on her back. Who directed our ancestors to use the various body parts for carrying weight and that helped in progress of technologies as well human index.

God's biggest gift to woman is to carry the child in her womb. There is prevailing theory that man was evolved and stand much later in human history, it means carrying of the child was something like monkey does hold infants. That design does not

suit our minds because today's newly born child does not have enough strength in fingers to hold the mother's skin or hairy body that can sustain his weight or another possibility she was with restricted movements post delivery and resting in one place for care of child and generally hold on her lap and male members were responsible for meeting her daily needs till child stands on his own . My visualization as something closer to monkey seems vague possibility. Later hypothesis appears convincing. As evolution made us to stand and thumb was separated from the fingers helped in evolving different carrying techniques. It is in-built character from the birth enjoying for optimum gain and it is natural for us to bend the finger to carry out possible paste out of the container. Who has directed to bend the finger? As technologies improved we used altogether different ways of holding that was unimaginable for past generations. Skin of dead animals for carrying water what we call mashk. It is designed by using strip of leather attached to bag and placed across the shoulder for the comfortable carry. Design of chapals or shoes to meet the challenges of earth surfaces by using ankle and foot thumb for holding the sole is one of the earliest designs of carrying. Carrying of socks design came much later for covering feet for protection from dust and sweat . As man learnt how to stand ,his concept of holding and carrying also changed. Sometime they carry the child by allowing to rest on her left side of her hip bone and she holds the child by left hand that generally helps her to enjoy freedom of right hand.

Similarly people also learnt the art of reducing the unnecessary carrying body parts like design of nail cutter, hair cutting tools etc... I remember a incident I found a woman bathing at bank of water reservoir was cleaning her dead skin of the ankles by to and fro motion of her leg rub against the hard surface surprised me for

the primitive practice. Nail biting is another practice for unwanted size of nail that can hurt. I have experienced when foreign some elements strike in my eyes and try to to get rid of unwanted carrying I immediately rub and tears wash out it.

As we acquired the knowledge of making thread, weaving and technique of knotting that helps us to design in covering the body parts by tying the piece of clothes and in the same time some people were advocating the use of string tying made of threads for carrying the pyjama around the hip . As technologies improved we designed buttons, elastic made of rubber and Velcro for help in carrying weight of clothes by body parts. Similarly woman uses toe for not to allow the yarn should be entangle and easily manageable for future use by holding one end in her hand and allow to takes rounds by holding yarn for making skein or keep in ball shape . When I was young at the time of flying kite I used to arrange the thread in spool and in absence of it by using thumb and small finger in such fast pace people around me astonished by seeing my skein. A vegetable seller carries a basket on his head for selling in the street for livelihood. My aged mother cannot walk .I carry her by going back to her for lifting from her shoulder by placing my arms under her armpit. Her complete body weight comes to my arms and it is something like fork machine of modern time. We lift and transport the injured person at the time of disaster by carrying on available resources.

I attended a marriage ceremony where bride and groom were wearing ornaments, their necks were carrying necklace, fingers had rings, ears rings on earlobes , bangles on arms and head gear was on head. They were with make up where lips was carrying lipstick, cheeks was with powder and foundation , artificial eyelashes and kajal( eyeliner) on eye , nose with nose pin in

simple word every part of the body was carrying something . Even for correction of eyesight some were carrying specs and a few were using contact lens. Design of tattoos is nothing but skin organ carries the weight of different paints for visual effects. Her hairs were carrying hair pins for proper management. Girl child carries hair band and gives childish look where mature woman ties their hair by rubber bands or cotton ribbon that helps in designing various type of buns and hair styles. Some female guests were holding clutches, purses and bags and male were carrying valuables in purse and some have dressed designed in such a way it helped in carrying items required in journey or valuables are hidden in concealed pockets or open pockets of the shirts were use for carrying pen or reading book or calculator or mobile phone. A few young people were with carrying ear phones attached with mobile enjoying music. There was minor problem in water and electrical connection in the marriage hall and to rectify it plumber and electrician entered carrying with their tools kit. A doctor was enjoying party by keeping aside his kit as he has come directly from visiting his patient. A young man was feeling discomfort with his undergarment and he was correcting its position. It struck to me that design of brassieres is for carrying the weight of the breast. Other side design of panty for female was to carry the sanitary napkins to meet the challenges of the menstrual cycle and other side male undergarments carry the weight of the private parts and firmly hold in comfort position. Publishers gave new name to the book ' pocket book' that can easily carried in shirt's front pocket when ever out of the house and helps in reading as time permits. It is replaced by modern gadgets like laptop, tablets or kindles for e-books so the change in carrying techniques. Transistor radios, watches, calculator, pen address book and walkman are no more visible being carried by man and it has replaced with mobile phone. I met a person who

was carrying pace maker concealed in his chest for maintain the missing beats of his heart. I was able to distinguish the gender by visual inspection looking at carrying weight of muscles at chest and need not to ask who is male and female.

Initial stage of agriculture man was completely relying on his physical strength and designed the tools that could carry comfortably the manpower for execution of his jobs. Use of animals in agriculture changed the face of carrying tools for agriculture. I have noticed that farm labourer carries the huge bundle of dry bushes over head for use in fire. Some people were carrying bundle of dry bushes on carrier of bicycle and speed of vehicle was related to driver's strength. A man was pushing cart carrying the items and loading capacity of it was decided by individual's physical strength.

Eating is natural and we break the bread that should fit into our mouths knowing our hands can carry much higher weight but we restrict because of size of mouth. Design of cutlery is based on same principle .When we lick that time our tongue lift and carry that much person can swallow easily. Even we blow air from the mouth with that pressure to remove the dust or dirt. Our fingers are special and we designed the pen that can be easily held. There is pencil and knife hold that tells us how you carry the item.

Discovery of fire added new dimension in carrying by body parts. We design cup handle to hold the hot beverages. We design the iron clamp, tong, and fork or even turned the rims of the frying pan for place of holding not to slip holding. Introduction of insulated handle was much later for handling and carrying hot utensils. Before this our ancestors understood that piece of cloth prevents burning and helps in carrying the hot utensils by covering with cloth of attached iron handle or hold the rim.

Armours are designed for carrying weapons by body parts so that warrior should remain hand free that's why sword are kept under cover not to hurt and hangs close to side of the hip for easy management. Knives, pistols, guns are carried using human body parts and can easily use when it is required. Warrior also need defence products for protection from enemy attack and designed shield that can be hang and hold in hand, head gear for protection of head, bullet proof jackets. Even uniform of the soldier is designed in such manner it can carry maximum items required in battle field.

Liquid, solid and gas are matter state and humans required all for survival and carry one or all one or sometime. Humans designed various techniques for carrying using different body parts. Woman carries potable water from distance in metal container with narrow neck because liquid should not spill while transporting carrying on head. Earlier woman were carrying water in earthen pots that required better handle because it was easily broken with slight impact. Cloth or plastic carry bags are designed in size that can easily handle by using fingers for carrying. Heavy weight needs jute bags and can carry either on head or back or on shoulder. Gas cylinders are designed in such way it can lift for transportation and placed on shoulder.

Knitting holding two sticks or embroidery by needle or crochet by special needle carries by hand is an art. String figure or magic with holding string by both hands is a special art for entertainment as well for learning from ancient times. A street performer entertains by carrying weight of bricks by eyelids with string attach to iron ball placed under eyelids. Another performer walks on tight rope carrying the stick for maintaining the balance. Weight lifting is a game where a person lifts and carries the



weight on his arms. Similarly fencing is game where person carries the sword for attack and shield for defence. Most of the games are originated from war so it needs carrying of something and resulted in entertainment.

Minor cuts in human body can be cured by using band aid and it is designed that our body part can carry it. Medium cuts are administered by bandage and tied in such way our body carry it comfortably and major cuts are controlled by stitches. Amputee body parts are filled with artificial and designed to carry comfortably by other body parts.

Spies were concealing and carrying the secret messages in their body parts like writing a message on shaved head and as they travelled it took days to reach their destinations in that time their hair grew and hide it.

Where ever we move we carry the weight of four elephants of atmosphere and as we run our carried world also runs, as we sit our world also sits, if we sleep our world also sleeps. Whenever designers design the products/ services by keeping in mind the limitation of human body it is bound to be universal design.

Sr. Faculty of National Institute of Design Prof Ravi Shankar made this special issue by depicting the true picture of progress of Universal Design concept in India and it is still in infant stage and need collective efforts to make it successes story.

*Enjoy reading*

*With regards*

*Dr. Sunil Bhatia*

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***V Ravishankar, Principal Faculty, NID Bangalore***

***V S Ravishankar is an Industrial designer and Design teacher with experience of over 25 years. Having acquired a degree in Electrical Engineering in 1985 from Osmania University, he pursued the PG Diploma in Product Design at National Institute of Design, Ahmedabad.***

***He has worked in Industry verticals such as Consumer durables, Retail & Advertising, IT services, Traditional creative industry and the Govt.***

***Presently Ravishankar is a Principal Faculty and 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.*

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## Editor's Note

**VS Ravishankar**

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*"A responsible activity for a sustainable future, Universal design is a philosophy and a way of democratic design thinking. It is about designing for everyone and takes into account human, gender, social, economic and cultural diversity and differences."* - Katrin Hinz | Birgit Weller | Ravishankar

*"Simply put, Universal Design is a practice which emphasizes non-discrimination when it comes to designing products and experiences.*

*A universally designed product in its truest sense promotes and champions the universality of the human condition by means of adaptability and compatibility."* - [www.udexpress.wordpress.com](http://www.udexpress.wordpress.com)

India where there is excess of everything, a mind-set of living in the present future, indifferent behaviors, and uncomplaining adaptability to populous man made environment, thinking universal design is complex and challenging. So what are the collective and universal pain areas of India and its people which affect considerably and look for solutions by design? Transgenerational health conditions, above 25 million disabled people, variance in literacy, multiple languages, migration from rural to urban, Health & hygiene conditions, gender issues, global cultural influences, technology penetration & spread, congested neighbourhoods, and so on. In this social canvas, the approach and practice of Universal design in Indian context needs to

address lifespan which covers all the aspects of human biological growth and circumstantial variances in the man-made environment from childhood to youth, middle and old age of both genders, the diversity of co-existing people in the aspects of culture, social economic status, literacy, etc and within the same design objective, the disabled, their engagement with the man-made world in an unbiased manner.

While we all know that there are many definitions to design the essence remains the same: that of it being user/human - centric. Over the last few centuries the design of products, spaces and communication has been focusing on consumers who are able physically and cognitively in all respects while people with disabilities and differences are users/stakeholders in the larger whole who have not been considered most often in the design conception process. For example: a microwave oven has a complex functionality for people with lower cognitive abilities and the visually impaired cannot use it; school furniture cannot accommodate children with disability in a convenient manner, railway reservation form is difficult to decipher for a first time traveler from interior India, a retail mall is a difficult space for older people and disabled people to access and navigate through. It is not about making an assistive aid specially for the disabled or older people but to make communication, products and spaces which are adaptive, usable, comprehensible, safe, and more importantly visually/emotionally appealing to all users. A watch design could be conceived in its use and look to be as cool and classy for the visually blind and not blind people at the same time.

Industrial design has traditionally catered to the requirements of a populist consumer market which has been perceived as

comprising of consumers who are able physically and cognitively in all aspects at all times. In the process, it does not consider the idea of disability which can manifest as permanent, temporary or situational (at any time in the life cycle of a single user).

Thus Universal Design aims at broadening this scope by incorporating inclusivity and sustainability on a contextual basis across multiple levels from personal (products and services), societal (business) and organizational/Institutional (policy).

This edition of DFA features Universal design approach & thinking through the articles covering: the MDes Universal Design program at National Institute of Design, Bangalore with examples of students' works and their design research articles. We also have a wonderful contribution on Inclusive Museum Design from Gregor Strutz, Communication Designer from Berlin and thoughtful actionable notes and advocacy on Design for Disability by Dr Shilpa Das, Sr Faculty at NID.



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## **The M Des Program**

### **Universal Design at the NID R&D Campus, Bangalore**

*Useful, Adaptable and Desirable*

**VS Ravishankar**

*Principal Faculty, Head, Universal Design, National Institute of Design, Bangalore [www.ravishankardesign.blogspot.in](http://www.ravishankardesign.blogspot.in), [www.udway.blogspot.com](http://www.udway.blogspot.com), [www.udexpress.wordpress.com](http://www.udexpress.wordpress.com)*

#### **Program Vision**

*Design for a sustainable future, addressing products, services and systems in the challenging canvas of large and diverse people with various abilities and inabilities, for their needs, aspirations and wellbeing.*

NID envisions this program to create design influencers who will bridge the gap between thought and product, between the privileged and the common. In other words, the program bases itself in human centric Universal design thinking and approach leading to easily adaptable and viable design directions for a wide and diverse audience.

#### **Program Intent**

Universal design thinking being an intrinsic part of product definition, design process & development, the program aims to create design professionals with competence in system level design development of products, adaptive for diverse users –

across cultures, social factors, trans generational physical and cognitive abilities and inabilities.

*Professionals who are creative in conceptualizing inclusive and sustainable solutions, strategic and smart in converting them into value propositions, thus influencing the business and initiating positive future impact.*

**Key attributes & drivers:**

- *Unbiased, Empathy, Safe, Adaptive, Easy, Cultural Sensibility, Inclusive;*
- *UD thinking an intrinsic part of design definition, Participative process;*
- *Transgenerational users, Diversity, Gender, Livelihoods;*
- *Affordability, Value proposition, Meaningful differentiators*

## **Program Model**

Being a Master's program the curriculum broadly focuses on: Universal design thinking& research, strategic approaches towards meaningful differentiators, contextual innovation methods, smart technologies, social & cultural studies, participative design development process.

The first and second semesters is 'hands-on', cover concepts of product design related to trans-generational users and will emphasize on creative ideas, making& testing. Courses on Universal design principles, Form study, Human factors, Semiotics, Materials and Manufacturing technologies are studio/theory based. The design project looks at everyday objects diverse users engage with and addresses their need to be made inclusive and unbiased.



The third semester will focus on the rationale: strategy, value, feasibility & viability related aspects of design development. Inputs being Product-Industry economics, Smart digital technologies, User experience design. The design project looks at products, furniture systems from various consumer and business verticals.

The fourth semester opens to a system level thinking approach: social design and innovation, sustainability factors, service design and public policy. The design project will look at intervention in the area of public utilities and areas of national concern.

### **Student Profile**

The prospective student is creative with strong aesthetic sensibilities and problem solving abilities, has an open non-judgmental outlook, passionate about positive change, empathetic towards needs and aspirations of people of all cultures and walks of life, keen observer and insightful, in-depth thinker and a doer, group work skills and adaptive, sound domain knowledge of past specialization.

*Sample UD Studio Works of Students:*

### **Universal Design Course – UD Principles**

Following is a Universal Design Audit exercise done for usability of products and accessibility in the built environment. The UD principles namely: Empathy, Independent, Unbiased, Safe, Economic and Affordable re-interpreted by students are evaluated studying the activities performed by people of diverse inability and disability conditions.

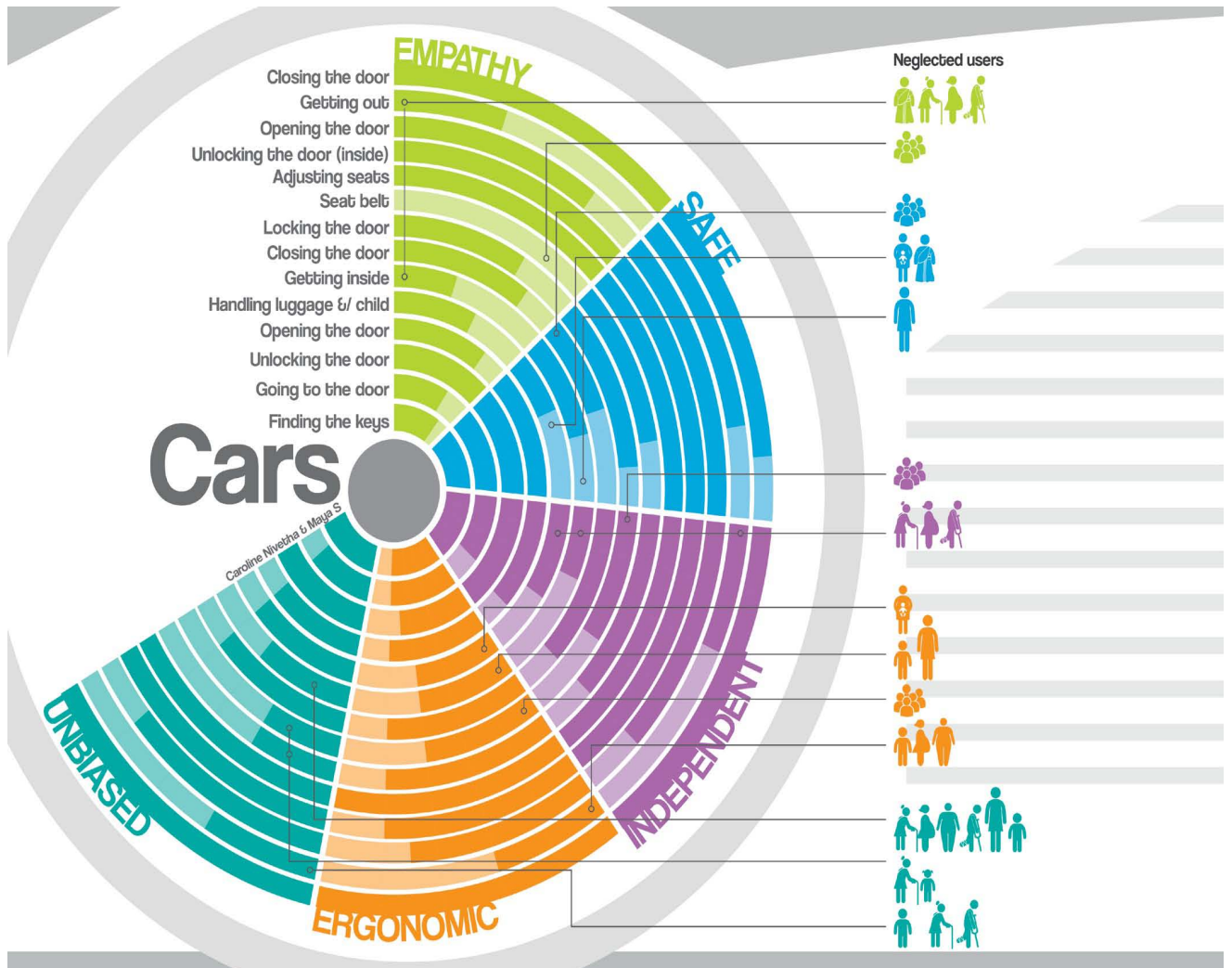


**Class room Project  
Toilet Seat-UDAudit**

**Keywords:** Empathy | Safe | Independent | Ergonomic | Unbiased | Affordable | Affordance

**Guide:** V S Ravishankar

**Team:** Vasudev M, G Sourabh, C Shubi A

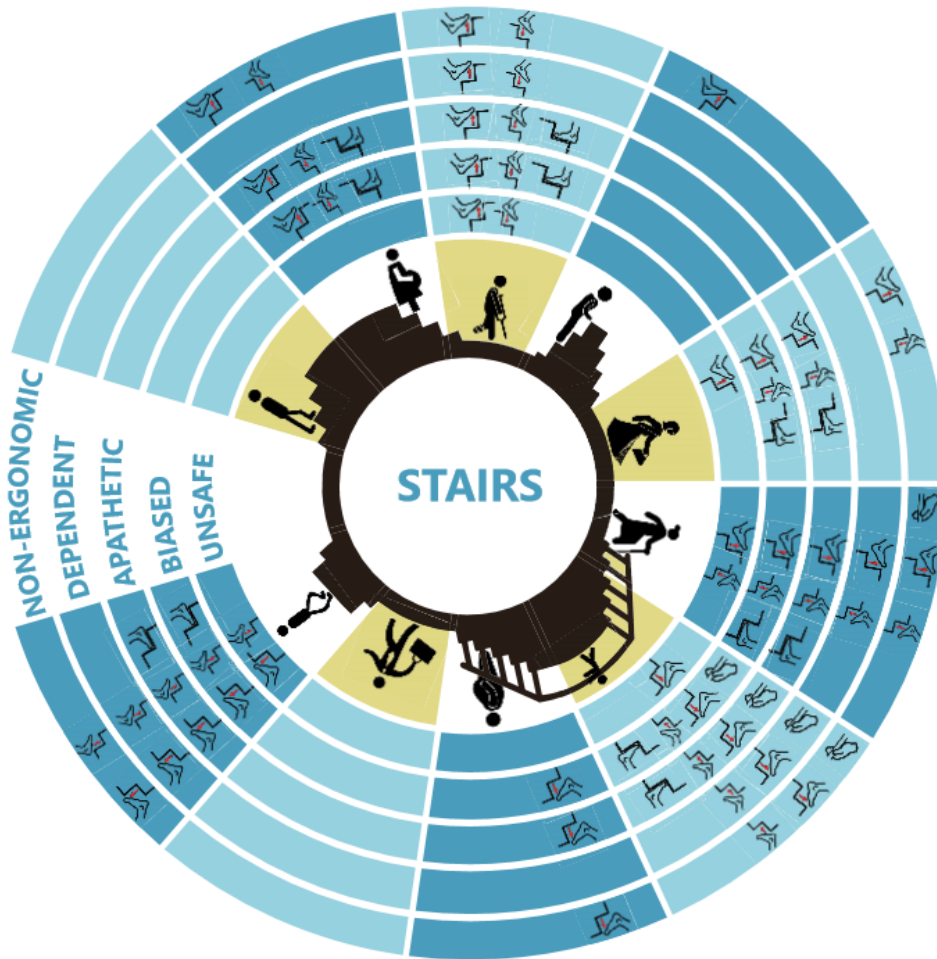

















**Classroom Project**  
**Accessibility of Cars - UD Audit**

**Keywords:** Empathy | Safe | Independent | Ergonomic | Unbiased | Affordable | Affordance

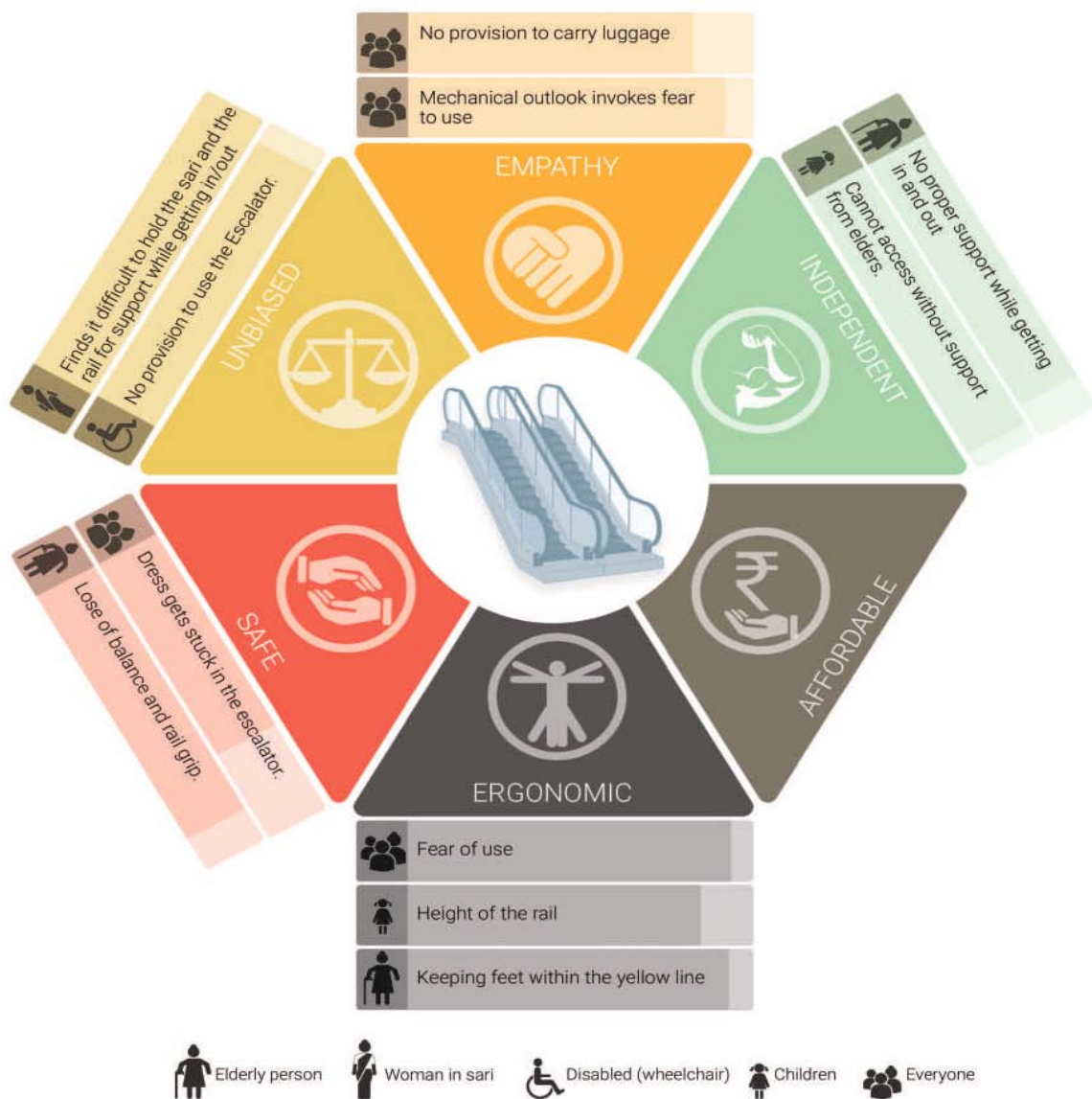
**Guide:** V S Ravishankar

**Student Team:** Caroline, Maya



- |   |  |   |                        |   |               |
|---|--|---|------------------------|---|---------------|
|  | - GRIPPING THE HANDRAIL  |  | - YOUNG ADULT          |  | - OLD AGE     |
|  | - MOVING LEG UP STAIR RISE: RISE HEIGHT (PRESSURE ON KNEES)        |  | - PREGNANT             |  | - SMALL CHILD |
|  | - MOVING LEG DOWN STAIR RISE: RISE HEIGHT (PRESSURE ON THIGHS)     |  | - TEMPORARILY DISABLED |  | - OBESE       |
|  | - PLACING LEG ON STAIR TREAD : TREAD WIDTH (PRESSURE ON WHOLE LEG) |  | - HUNCHBACK            |  | - MIDDLE AGED |
|  | - PLACING FEET ON LANDING  |  | - SAREE WEARER         |  | - BOW LEGGED  |

**Class room Project**  
**Stairs-UD Access Audit**  
**Keywords:** Empathy | Safe |  
 Independent | Ergonomic | Unbiased |  
 Affordable | Affordance  
**Guide:** V S Ravishankar  
**Team:** Prajna Naik, Micheal Borah



**Class room Project  
Escalator-UD Audit**

**Keywords:** Empathy | Safe | Independent | Ergonomic | Unbiased | Affordable | Affordance

**Guide:** V S Ravishankar

**Team:** Vasudev, Sourabh, Shubi



## **UD Design Projects**

### **Project Title: Gait Trainer for Cerebral Palsy affected Children (with scissor gait)**

A proposed solution designed for children whose thighs & knees are overlapped due to tightness of muscles. Solution is offering 30% treatment plus 70% assistance. Concept developed under four design factors as 1) Pelvic support 2) Knee separator 3) Auto Function (save energy, sitting-standing assistance) 4) Hand support. Mechanism has capacity to support & motivate to make user stand willingly by retracting and attaining original position of it.

#### **Knee separator**

Knee wrap has magnets inside to maintain ap without physical touch, to improve aling ment of dislocated kneebones.

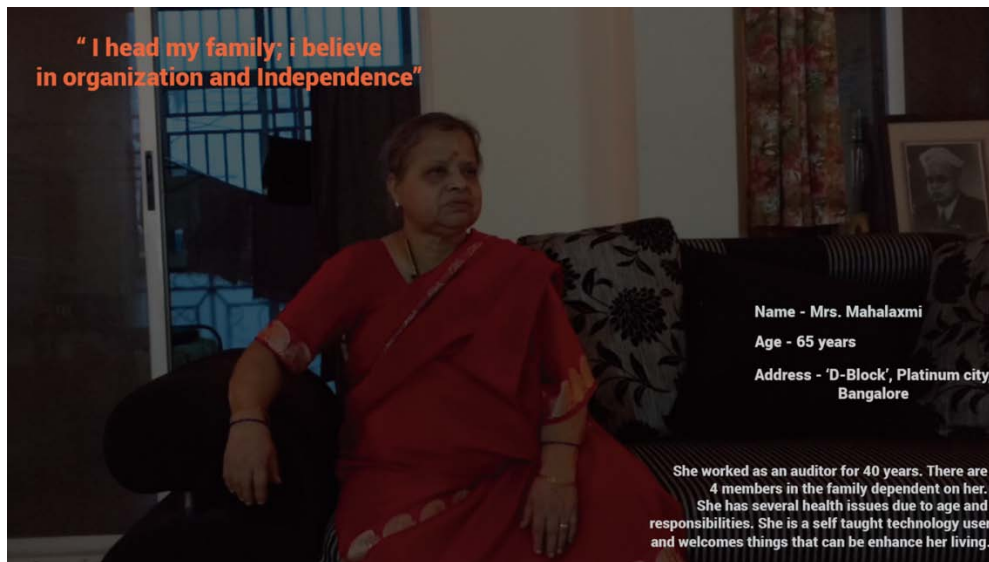


***Keywords: Healthcare assistance, treatment, motivation, mobility, standing & sitting***

**Student: Nutan Ghodake**

**Faculty Guide: V S Ravishankar**

## Project Title: Smart Medicine Wallet



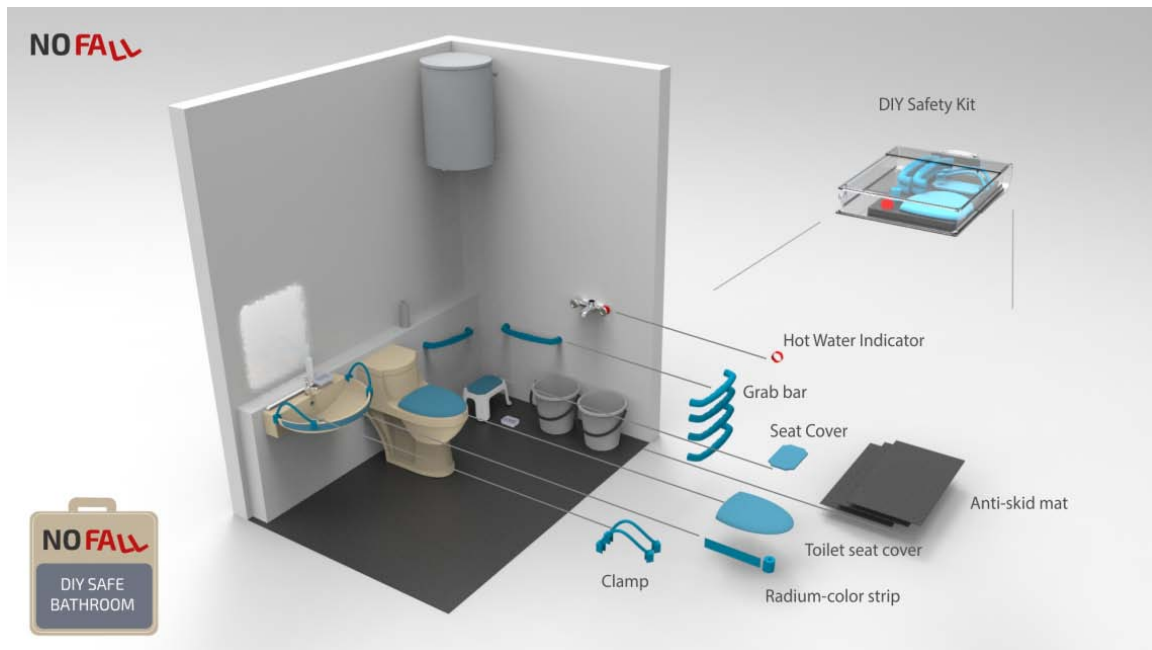
Pharmindr is a smart medicine wallet which is not only a place to store user's medicines but also vibrates user's bangle if she forgets to take the medicines. It has a digital screen which shows all the medicines that are due for a particular time and records the history of taking medicines for her or doctor's reference.

Students: Nikhil Das & Nutan G

Faculty Guides: Ravishankar, D Sudhakar

Project Title: Safety in Bathroom Space for Elderly

Conceptualising a SAFE Bathroom soace for elderly which inhibits falling. Design of a DIY safety Kit for bathrooms which enables safe use and prevents falling.



Student: Rohan Arora

Faculty Guide: V S Ravishankar



**V S Ravishankar**





***Gregor Strutz is a graphic designer specialising in all-inclusive design, member of the Competence Network Design for All Germany. He founded the design agency „inkl . Design“, which is specialised in inclusive design and is the chairman of Andere Augen e.V. (‘Different Eyes’), an association of designers working in the field of Design for All. Gregor Strutz collaborates with several German museums on different projects making art accessible for visitors with disabilities. He works currently as an Adjunct Faculty in the M.Des Program Universal Design at NID’s R&D Campus in Bangalore.***

# Paintings for All – Making the previously unheard, unseen and unimaginable accessible

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*Gregor Strutz, Communication Designer, INKL Design, Berlin  
Adjunct Faculty, M.Des Universal Design, National Institute of Design, Bangalore*

## Introduction

The multisensory guidebook *The Golden Age* is a unique approach on inclusive book design in Germany. The museum guide invites readers, regardless of whether they are blind, visually impaired or sighted, to explore works of art from the internationally renowned collection of 17th-century Dutch painting at the National Museum Schwerin.

*The Golden Age* is a prime example of a One Book for All-design in accordance with the principles of Universal Design in Germany. In creating this multisensory painting guide we aimed at offering all visitors new ways of experiencing and 'reading' artworks on an equal basis, yet in an individual and autonomous way.

Eight original paintings have been digitally edited. We have found new means, techniques and designs in order to create a guidebook for all. The book's subject matter has been uniquely arranged, designed and dovetailed for being looked at, read, touched and/or listened to in one exemplary art book.

## The approach/the story

While we were developing a didactic approach as well as a concept for the painting guide *The Golden Age*, we realised how much the sighted project partners were reliant on the assistance

of their blind partners. Understanding our own limitations had a massive impact on how we set about choosing the appropriate historical paintings from the museum's collection. Our first step was to narrow the number of paintings down to 32. They got on our pre selection shortlist bearing in mind that we wanted to cover a wide range of different genres and with an eye to the ability of congenitally blind people to visualise settings and perspectives of those paintings. Making the final choice, however, was completely guided by our blind and partially sighted colleagues.



*Figure 1. Inclusive workshops have been of constant support and have provided invaluable input during the creation of this painting guide.*



*Figure 2. Lively discussion with blind museum visitors during our reading rehearsal.*

We organised workshops with mainly blind museum visitors, both congenitally and late blind people. It was a tough call to select eight paintings that would be liked by everybody. An incredibly lively discussion arose. These workshops have been a constant support and have provided invaluable input during the creation of the painting guide. What kind of information and detail is crucial to an image description of a piece of art dating back to the 17th century? Which details are worth mentioning? And what would be incomprehensible for our blind readers? We got open and honest feedback from our test readers. The immediate input of these specialists in their everyday life made our cooperation incredibly fruitful throughout.

We then got more specialists on board. On the one hand, the museum's art historians drafted descriptions on the most thrilling parts of the selected paintings and worked on a historical review. On the other hand, a team of two professional audio descriptors (one of them blind) reworked the classic painting descriptions focussing on accessibility for blind visitors. Our design studio inkl. Design then edited these parts making them accessible for everyone.

The book's characteristic three-dimensional tactile images underwent a similar process. We generated the tactile pictures on the basis of the painting descriptions. Two or three paper prototypes were created for each painting and our blind supporters examined their quality and functionality. In so doing, potential readers of the painting guide participated actively in improving it from the start. The process of its making thus became an inspiring example of applied inclusion.



*Figure 3. Each selected painting is accompanied by a transparency, a three-dimensional tactile image. The bold relief accentuates the important parts of the scenery and offers a spatial perception of the painting to all readers. Partially sighted and sighted readers can still recognise Edwaert Collier's 'Pinboard with Flute' through the transparent page, yet are given an additional perspective as to the painting's structure.*

After laying this groundwork for our project, the design team could get started creating the book. A lot of voluntary work translated the initial idea of making art accessible for everyone in one book into a magnificent painting guide within months. It runs to 46 pages and is 225 x 320 mm in size. Texts are displayed in Braille and normal print. It includes many tactile images and an audio CD of 62 minutes length.

Every page of the book displays the same information for disabled or abled readers. This is a so far unparalleled approach with respect to inclusive book design in Germany. The tactile elements for the blind or partially sighted have been applied as a transparent layer on top of the classic page design. This established and affordable technique of using transparent, three-



dimensional tactile images superimposed onto the historical paintings, facilitates a spatial perception. Sighted readers gain unusual information about structure and representation from the bold relief transparencies. That way art becomes a new experience for all and touching the work of art is in this case expressly permitted!

Page width has become a design feature as well and indicates different sections of the book. Wider pages hold the reproductions of the paintings whereas texts can be found on narrow pages. This design simplifies locating the three-dimensional tactile images for blind readers who have no command of Braille when listening to the audio CD.



*Figure 4. A closer look at the painting 'The Geographer'. The different layers and the structure of the three-dimensional transparency are well visible.*

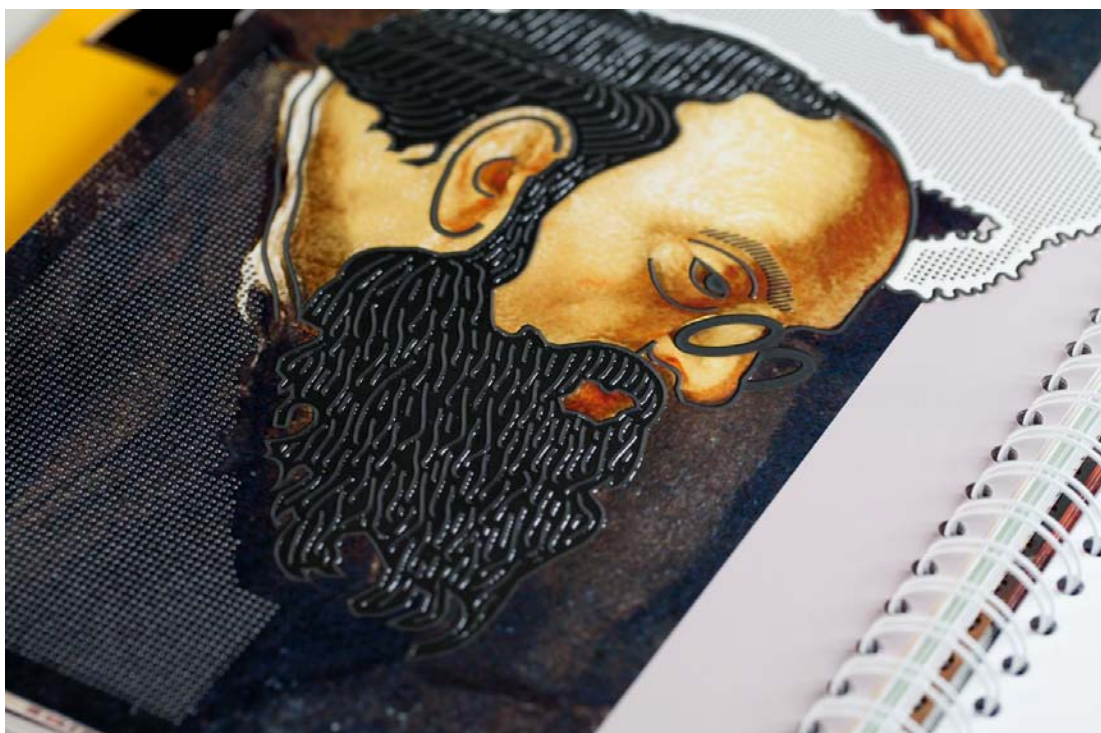


Figure 5. Another tactile illustration shows the profile of the scholar in 'The Geographer'.

Important parts have been accentuated. The scholar's beard for example has been given a tactile structure.

Printing Braille with transparent varnish is a novelty in Germany. Though the technique has been known since the 1990s, it has never been employed. It's a key element for inclusive book design. In conventional printing the embossed Braille would destroy the legibility of the normal print if applied onto one and the same page. Thanks to the screen-printing technique with large-scale embossed varnish both front and rear of all pages become part of the design, featuring the transparent Braille on top of the normal print.

Throughout the whole process we were facing important questions. Will it be possible that someone experienced a painting only by touching? Would even the most elaborate painting description fail and rather become an instruction manual of sorts on something completely beyond our blind readers grasp?

We decided to solve these issues by telling stories. All audio tracks are staged in the style of a radio drama and allow people with and without visual impairments a look behind the scenes on an equal basis. By telling the stories and giving the background information, those paintings come alive. This method adds 'colour' to the image that the reader explores, turn 'the lay' of the painting she or he touches and feels via our tactile images into something accessible.

On top of that, each description is introduced by a 30-second sound tapestry that illustrates the painting in a singular way. One intention joins all these ways of presentation: making the beauty of the paintings perceptible to the senses by various art forms.

#### **What we have learned**

The key lesson from the project for us as designers is that designs for blind people find greater acceptance, if the needs of the partially sighted are incorporated from the outset and are merged in an interdisciplinary creation. If the needs and the ways blind people and partially sighted feel, become connected with the aesthetic world of the sighted in practice, inclusive design solutions for a considerably bigger group of people can be created.

Professionalism is a key requisite for inclusive design! Designers must be, unconditionally, guided by the needs of elderly and disabled people. In turn the disabled and their representatives must specify their demands and preferably cooperate with designers. Ultimately, setting standards by creative examples will be more important than the call for standardisation and policies.



The Golden Age, our multi-sensory guidebook on painting, has stirred national and international interest since the first edition of the book was published in autumn 2013. It has won several awards, is considered one of the ten most beautiful books in Germany 2013/2014, and has been selected as a finalist for the international Design for All Foundation Award and the communication of art award hosted by the German Government.

This positive response is a huge encouragement for our non-profit organisation Andere Augen and the inkl. Design studio. Inclusive design, inclusive communication of art is at the very heart of our endeavours and we are keen on entering into international cooperation as well.

For further information about our activities, visit: <http://www.inkl-design.de/en> and <http://www.differenteyes.de>



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***Her doctoral research is on the socio cultural impact of stigma on women with disabilities in Gujarat. She has published several papers in peer reviewed journals and chapters in books on the subject of disability in India in general, and women with disabilities in particular. Her papers on design pertain to social issues particularly the need to bring in universal design solutions and inclusive practices.***

*She has been involved in various outreach and consultancy projects. A notable outreach project she was part of had NID partnering with Handicap International, India and the Department of Health and Family Welfare, Government of Gujarat. The project titled "Strategic Behaviour Change-Communications Campaign on Disability Prevention and Care in Rural Areas of Gujarat" was a two year project (2005-2007) where NID carried out field research, designed a media strategy, created content including audio, video and print, did field testing, finalised the content and made extensive recommendations.*

*She has written and published a number of books, chapters in books, school textbooks, research papers in journals, articles in magazines internationally and nationally. Shilpa is the Founding Editor of two prominent publications brought out by the Research and Publications department of NID—The Trellis, a research based journal on design and a magazine called D/signed.*

# DESIGN FOR DISABILITY: THE VALUE OF UNIVERSAL DESIGN

*Shilpa Das*

Participation in social life is a basic human right. One significant determinant of who can play an active role in society is the design of public areas and the way public life is organised around them. It is a foregone conclusion that disabled people find it difficult to access public and private buildings and public utilities and facilities in cities, especially in India. They have to confront a hostile built environment replete with ableist design principles and face what Rob Imrie (1998) terms "design apartheid where building, form and design are inscribed with the values of an 'able-bodied society' " in the course of their daily lives<sup>1</sup>. Over forty years ago, Selwyn Goldsmith (1976) observed, "buildings have always been, and always will be, geared to suit two-legged able-bodied people and not people propped on sticks or rolling about in chairs or wheels."<sup>2</sup>

Mobility barriers are seen in the constructed environment for instance, in the form of changes in ground level, inadequate area for movement, or overtly narrow corridors. Overcoming differences in levels is a major difficulty in the daily lives of people with motor impairments. Using public transport is impossible without special unobstructed access. A high curb or step may be a

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<sup>1</sup> Rob Imrie, "Oppression, Disability and Accessibility in the Built Environment" in *Disability Reader: Social Science Perspectives*, ed. Tom Shakespeare. New York: Continuum, 1998, p.129

<sup>2</sup> Selwyn Goldsmith, *Designing for the Disabled*, London: Riba Publications, 1976. Quoted in Colin Barnes, Geof Mercer and Tom Shakespeare, *Exploring Disability: A Sociological Introduction*, Cambridge: Polity Press, 1999, p.117.

barrier for people who have locomotor impairments and for parents with pushchairs, as well as for wheelchair users. Personal living and working environments are replete with barriers. Front drives and entrances to houses, the thresholds of doors or balconies and upstairs areas, unevenly paved roads represent “barriers” to wheelchair users. The width and extension of transport and activity areas – hallways, doorways and window areas, working spaces and the areas around furnishings and sanitary objects all present a bottleneck for people with walking frames or wheelchairs, and are made more arduous by the need to open doors. For wheelchair users, ramps and easy to open doors are scarce; getting through revolving doors is very difficult; circulation areas and corridors often have inadequate turning space, and upper floors are not accessible due to lack of lifts. Escalators also pose a problem to those with locomotor disabilities who use walking aids and appliances because they cannot hold on to the handrails to keep their balance. Additionally, banks, hospitals and other buildings have steep steps that compel some people using crutches to sit and climb so they tend to avoid going to such places to spare themselves from embarrassment and shame. “Since I have to sit and climb up the stairs, I do not want to be stared at and go only if I have urgent work to attend to” is an oft-quoted refrain. Matters that are quite trivial to the average citizen can present a serious impediment to disabled people, who may also have limited physical strength, speed of movement, balance or coordination. In this way, the built environment is “disablist” i.e. it projects “able-bodied” values, which legitimize oppressive and discriminatory practices against disabled people purely on the basis that they have physical or sensory impairments. Such built environments, transport and public amenities do not cater to universal/inclusive design or accessible design principles making them inaccessible by a wide range of

people with different kinds of bodies, restrict their mobility, limit the life chances of disabled people and make for social exclusion.<sup>3</sup>

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<sup>3</sup> *Anthropometry means measuring and working to the form and dimensions of the human body – body size and weight, and torso, arm and leg length. Anthropometric adjustment means, for instance, designing workspaces or furniture to match a person's proportions. Anthropometric considerations are particularly important when planning for people who have motor impairments or who are unusually large or small.*

*Barrier-free building modification consists of modifying buildings or facilities so that they can be used by the disabled. The term is used primarily in Japan and non-English speaking countries (e.g. German: Barrierefreiheit; Finnish: Esteettömänrakentamisen), while in English-speaking countries, terms such as "accessibility" dominate in everyday use. An example of barrier-free design would be installing a ramp for wheelchairs alongside or in place of steps. In the case of new buildings, however, the idea of barrier free modification has largely been superseded by the concept of universal design, which seeks to design things from the outset to support easy access.*

*Ron Mace who coined the term 'Universal Design', defined it as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". Universal design aims at simplifying life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost. Universal design is beneficial to people of all ages and abilities. However, it was the work of Selwyn Goldsmith, author of *Designing for the Disabled* (1963), who really pioneered the concept of free access for disabled people. His most significant achievement was the creation of the dropped curb - now a standard feature of the built environment. Universal design emerged from slightly earlier 'barrier-free' concepts, the broader accessibility movement, and adaptive and assistive technology and also seeks to blend aesthetics into these core considerations. Universal design is also being applied to the design of technology, instruction, services, and other products and environments. A more practical definition is given by Gregg C. Vanderheiden (1996) "the process of creating products (devices, environments, systems and processes) which are usable by people with the widest possible range of situations (environments, conditions and circumstances)."*

Imrie (1998) states that the built environment is disablist, that is, “projects ‘able-bodied’ values which legitimize oppressive and discriminatory practices against disabled people purely on the basis that they have physical and/ or mental impairments.” This makes even routine daily tasks such as shopping, going to banks, going out to eat at restaurants, watching films in cinema halls, even visiting places of worship difficult and even impossible to negotiate. There is a popular belief that a ramp and an elevator/ lift are all that is needed to make a built space barrier-free. However, barrier-free goes far beyond just a ramp and has many other necessary aspects. These range from door and passage widths to flooring surfaces, from counter heights to door handles and railings, from signage and auditory signals to tactile guides. For independent living to be possible, disabled people need the

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*Accessibility is a general term used to describe the degree to which a product, device, service, or environment is available to as many people as possible. Accessible design means that products and environments are designed and constructed so that people with disabilities may access and use them. The basic goal of accessible design is to remove artificial restrictions to opportunities—access to resources for disabled people that other citizens enjoy. From the perspective of social theory, providing accessibility shifts the blame for lack of ability from the individual to the environment.*

*The term Design for All (DfA) also needs a mention here. It is used to describe a design philosophy targeting the use of products, services and systems by as many people as possible without the need for adaptation. Design for All is design for human diversity, social inclusion and equality (EIDD Stockholm Declaration, 2004). According to the European Commission, it “encourages manufacturers and service providers to produce new technologies for everyone: technologies that are suitable for the elderly and people with disabilities, as much as the teenage techno wizard.” The origin of Design for All lies in the field of barrier free accessibility for people with disabilities and the broader notion of universal design.*

same degree of access to public buildings as non-disabled people. Barriers make an environment unsafe and cause a high level of difficulty to the user. But more importantly, barriers cause spaces to be out of reach, denying people the opportunity of participation in various spheres of life. This ranges from education, economic, social, cultural and many other activities. This loss of opportunity is not only a loss for the person concerned but also society's loss, which misses out on their contribution. Simply put, a barrier causes exclusion and its removal is necessary for ensuring inclusion and participation of all in society. These barriers result in denying them dignity and independence and wrest their rights and opportunity to full participation and eventually culminate in their exclusion from society. Not allowing a person equal opportunities and participation is an infringement on his/ her rights as a citizen of this country. Needless to say, this problem is faced not only by disabled people but also by many sections of society such as the elderly, pregnant women, children and temporarily incapacitated people. The aim of barrier-free design measures is to integrate all such groups into mainstream life. Barrier-free planning therefore means thinking ahead and building for the future- not only meeting the present needs of users, but creating living spaces that can easily and safely be used by children or adapted for people who are old or have restricted mobility. Barrier-free living spaces should extend beyond people's own homes to encompass their entire living environment and every social setting.

Matrix (1984) notes, there is an assumption by architects of "sameness", of normality, amongst the population, that "all sections of the community want the environment to do the same



things for them".<sup>4</sup> This has also been perpetuated through three interconnected dimensions of the design process, that is, "the (ideological) assertion of the aesthetic or privileging the idea of building form over use; the professionalization of architectural and other design practices, thus creating a new technical, "expert" elite; and the rise of the corporate economy as the dominant clientele (Barnes, Mercer, Shakespeare, 1999). Further, as McGlynn and Murrian (1994) point out, the culture, social ethics and/or practices of design professionals does not make them see themselves as part of wider political processes. According to them, architects seem to have limited understanding of the interconnectedness between values, design objectives and the design intentions derived from them, with design theory tending to focus on the technocratic and technological, reducing questions of access and form to the functional aspects of the subject, yet being inattentive to the social psychology of design or people's real needs. Imrie (1998), notes that an "impersonal, often alienating practice" is perpetuated because emphasis is laid on the "aesthetic or building form, not the user and/or the pragmatics of the functioning of the building." Seen in this way, buildings are deemed as an "abstraction, something over and beyond, somehow able to transcend, the socio-political contexts within which they are produced." Then again, architectural movements and styles such as the modern movement were based on the principle of having "segregated and mono-functional forms" an aesthetic based on "an abstract, intellectual purity of rational, geometric, forms and a mass produced industrial technology" and "a non-contextual" principle which negates bodily differences, human subjectivity, differences in human

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<sup>4</sup> *Matrix, Making Space: Women and the Man-made Environment*. London: Pluto Press, 1984, p. 3.

behavior or access.<sup>5</sup> The Bauhaus movement, for instance, sought to persuade people to use predetermined design, and architects and designers sought to standardize and engineer, people's bodily interactions with the built environment. Seen in this light, the socio-architectural practices based on universal design principles, on what Weisman (1992) terms "flexible architecture" or one based on "structures, which are multi-functional and changeable over time", are non-disablist and liberating.

Disability is 'a complex body-space that is constantly in dialogue with culture' state Ferguson and Titchkosky (2008). To be considered as 'lack' or 'void' means to ascribe a variety of cultural meanings and values, which privilege the lives of some people and invalidate others and more insidiously make their way into our epistemologies. In the public domain, societal attitudes and stigma prove to be the biggest barriers on top of hostile and inaccessible environments they need to negotiate in the course of their daily lives. Thus, there is much more to barrier-free planning and construction than regulations and statements of requirements. It entails a basic belief in social integration for everyone. 'Design for All' or 'Universal Design' really means answering the day-to-day needs and requirements of people with

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<sup>5</sup> *Modernism was founded upon the idea of minimalist building and/or design bereft of (bourgeois) ornamentation, and buildings were to express function and structure and nothing else. The movement built around such ideals developed in the Bauhaus school, and Ekistics school for instance and asserted the importance of science and technology in the production of the built form. Its mantra of "form follows function" was interpreted by many as the search "for universal laws of human habitation and behavior, of the possibilities of producing 'pure' design, singular styles and forms which were grafted from the essence of the human being. Thus, human beings were, in this conception, reducible to a specific essence, an essence which, was the embodiment of ableist thinking" (Imrie, 1998).*

impairments, with the focus on recognizing and eliminating barriers. Universal design broadens the understanding of accessibility from mere wheelchair access to apply to the design of products and services, and the way people (of all ages and abilities) interact with them. Thus, the focus is not on age or disability alone but on inclusivity at a social level which meets its objective without stigma.

Steinfeld and Maisel (2012: 189) say universal design, "includes goals beyond basic accessibility such as health and wellness, social participation and safety, and a much higher standard of performance than accessible design. They point out what is missing in automobile design for instance. They show how car manufacturers typically focus on relatively minor concerns, such as easier-to-grasp controls, high priced options, or luxury cars. Two conspicuous areas of negligence in automobile design are seatbelts and entry into the car. The former is difficult to buckle for people with limited range of reach or arthritic hands. Developing entry systems in cars that make it easier to get in or out of cars is also a dire need. Current trends seem to be in favour of either the sporty utility vehicles or sedans that are difficult for older people to use. The former require climbing up into the vehicle and the latter require significant bending at the trunk and flexing at the hips and knees to get in and out (Steinfeld and Maisel 2012: 318).

Architects, designers, planners and engineers can create the right conditions for a world with minimal barriers. They must consult general planning advice and parameters applying to the specific situation contained in regulations and in law. Shying away from cut-and-dried barrier-free planning solutions, they should try to find individual, long-term solutions tailored to the user. While

barrier-free buildings help the target group, their flexibility and sustainability also benefit all users. In this way, design and disability can go hand in hand to help remove the stigma of disability or incapacitation from the public. Architectural or design planning plays a key role in integrating people with disabilities into mainstream society. Interestingly, seeking design solutions that meet the needs of the disabled results in a better overall design, benefitting both the disabled and the non-disabled. As Davies and Lifchez (1987) have argued, access should not be viewed as a constraint on architectural design but should be conceived of as a “major perceptual orientation to humanity.”<sup>6</sup> The good news is that considering the needs of the disabled will ultimately lead to designs that are safer, more flexible and more attractive for all consumers. If we work towards a world where design solutions are found for people of all degrees of ability, then only we can justify the flourishing power of a strong and united society.

In catering to the requirements and needs of different user groups within one system, with universal design, you are inclusive and socially conscientious in your approach, design process and outcomes. Consequently, to a large degree you are able to make differences in terms of abilities unnoticeable. This is a significant transcendence over even accessibility design that yet manages to draw attention to difference. Such a philosophy of design almost certainly would lead to good design. Besides, with universal design you are working on generalizing grounds, you are as if disembodied the body, so that it could be any body that's in

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<sup>6</sup> Quoted in Rob Imrie, *“Oppression, Disability and Accessibility in the Built Environment”* in *Disability Reader: Social Science Perspectives*, ed. Tom Shakespeare. New York: Continuum, 1998, p.145.

**focus: a short statured body, an ageing body, a disabled body, an obese body and so on. So, it may help substantially raise self-esteem, homogenize identities and erase the marker of disability as something different or as something that needs attention. It may alleviate stigmatization and remove constraining barriers to perception.**



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# Engaging the Attention of ADHD Affected Children within a Primary Education Framework – A Case Study in Implementation of the Creative Design Process

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## **ABSTRACT**

*Design functions—as an agent in an ecosystem that identifies areas requiring intervention and subsequent action – thereby making the system more inclusive and sustainable. The identification and addressal of these latent opportunities requires a creative approach within a methodical framework. This is provided by the ‘design process’ which is applied in the case study presented herein – within the ecosystem of mainstream primary education in India to benefit children affected by Attention Deficit Hyperactivity Disorder (ADHD). Knowledge specific to this particular disorder and its management by education systems (schools, therapists and mental health professionals) was obtained mainly through primary research by the authors within the confines of a single module over the duration of their ongoing postgraduate design education (M. Des. Universal Design). Insights gained over the course of research, problem areas identified and design directions that emerged to address the latter will be discussed. The constraints imposed by the ecosystem under consideration necessitated the adoption of a ‘frugal’ approach to a solution in the form of a physical product that could be smoothly assimilated by the ecosystem itself.*



***Keywords – Qualitative research, Primary education, Frugal design, Attention Deficit Hyperactivity Disorder (ADHD), Universal Design***

## **Introduction**

Universal Design as a philosophy and practice deals with scenarios that fall outside the domain of a perceived definition of 'normalcy'. A good place to start is a re-definition of the term 'normal' itself.

Humanity by its very nature is not homogenous. It accommodates, incorporates and produces an abundance of diversity within its own framework i.e. the multitude of mechanisms (biological and otherwise) that constitute humanity. As a result of this, the conventional definition of normal as adhering to an 'expected standard' (Webster's dictionary) itself is negated.

The objective of Universal Design is to create objects, services and experiences that effectively communicate with and complement our shared humanity as well as the various environments and systems we occupy.

The module within which this project was undertaken aimed at addressing users occupying areas of the human spectrum facing major issues of incompatibility within the environments they occupied. These incompatibilities have been collectively labelled as 'disabilities' and on the basis of affecting biological mechanisms been broadly classified as mental (affecting the brain) and physical (affecting other parts of the human body) disabilities. The aim was to select and address facets of the above mentioned incompatibilities making the environment more universal in the process.

The country (India) itself is a reflection of the incredible diversity inherent in our humanity which manifests in terms of geography, culture, economy among other factors. Its public Institutions however harbour a number of the above mentioned incompatibilities which need to be addressed. A system of education would function in parallel with a child's development with the goal of enabling him/her to participate freely and constructively in society. Its failure to work harmoniously with a child's development would result in his/her alienation from society. Therefore, steps need to be taken to make the system more inclusive keeping the diversity of its users (students) in mind. This paper will discuss ADHD (Attention Deficit Hyperactivity Disorder) within the context of the system of Primary Education in India.

## Literature Review

ADHD is broadly characterized by varying extent/visibility of three symptoms – Hyperactivity, Impulsivity and Inattention [1]. About 11.32% of Primary schoolchildren are affected by ADHD in India. There is a significant difference in the prevalence of ADHD between males and females, the ratio being 3:1 based on a community sampled study. According to the same study, there was a maximum prevalence of ADHD in children aged 9 and 10 years [2]. Therefore, addressing the issue at the primary school level is an appropriate mitigative response. It is a disorder that manifests due to certain physical and chemical changes in the brain.

Physically, ADHD affected children show 3–4 percent smaller brain volumes in the frontal lobe and cerebellum [3]. The cerebellum of the brain is responsible for coordination while the frontal lobe is

responsible for the executive functions (i.e. working memory, reasoning, attention and planning) [3]. Chemically the brain is characterized by lower levels of the neurotransmitter dopamine which also affects focus and attention [4].

A child's academic success is often dependent on the ability to attend to tasks, teacher and classroom expectations with minimal distraction. Such skill enables a student to acquire necessary information, complete assignments and participate in classroom activities and discussions [1]. Therefore, the effects of ADHD become a barrier in the path of learning for a child in a primary school set up. The basic concepts taught in the primary school form a foundation for further learning for any child. Thus teaching a child with ADHD to manage his/her disorder at a young age becomes an important task for teachers and therapists.

To date, school-based interventions for children with ADHD have not received a great deal of attention [5]. A study of the literature available on ADHD showed that about 40% of the study concerns biologically oriented intervention i.e. psychopharmacology, while 4% of the studies focus on behavioural interventions and 6% were regarding academic or educational interventions [6]. Management through behavioural and educational interventions encourages self – emancipation w.r.t students as opposed to psychopharmacological measures. Therefore, design interventions at an institutional (education) level are required to establish multiple ways of working with and enabling the management of ADHD and related issues by affected children.

#### **Objectives of the Study**

The aim of the project presented herein was to explore implementable measures to make the classroom a more universal

environment from the point of view of students affected by ADHD. In doing so, this environment becomes more inclusive and accommodating to a more diverse group of students which represents a general sample space.

## Methodology

The approach adopted for the initial research was to interact with stakeholders involved in the overall development of children affected by ADHD. This included parents, teachers, mental health professionals, therapists and the children themselves.

The preliminary research was initiated and conducted over a period of one week within the city of Bangalore. It involved connecting with 3 schools catering to children of the middle socio-economic status in the city -

- *School 1 (S1)– a school that caters to children with mental disabilities and learning disorders. The Principal of the school was interviewed.*
- *School 2 (S2)– an extended preschool and day-care centre (children aged 2 –10) that adopts an inclusive classroom approach to education. The teacher-coordinator, resident occupational therapist and speech therapist were interviewed.*
- *School 3 (S3)– A clinic offering a remedial programme for children (and adults) with learning disorders developed by a clinical Child Neuropsychologist who was interviewed. We also had the opportunity to observe two classroom sessions attended individually (by the authors). These sessions were conducted post regular school hours and 3–4 children and their teacher were present. The ages of the children varied from approximately 7–10 years and it was a mixed classroom, comprising children affected by Attention-affecting as well as other Learning Disorders.*

The research was followed by Mind Mapping to categorize the information gathered into the following sections – Understanding ADHD (Biologically & symptomatically), Teaching Methods & Learning Tools currently used in the institutions mentioned above and derived attributes from the Secondary & Primary Research. Solution models were conceptualised during Brainstorming sessions cross examining the information across the above mentioned categories. These solution models and one prototype of a learning tool were then shared with S2 & S3 for feedback. Insights gathered over the duration of the study are presented subsequently.

## **Analysis**

The methods adopted by educators at S1, S2 and S3 were collectively analysed. Based on this analysis, an attempt was made to glean an understanding of the approaches taken to effectively impart education within a formal framework. Key attributes of possible solutions were derived from these insights and some solution models were conceptualised and are presented in the subsections below. Constraints taken into consideration were those of simplicity in terms of the technology used and an emphasis on keeping the solution “frugal” to ensure affordability and hence accessibility on a broad scale.

### **Methods adopted by Educators**

Each of the schools had developed their own methodologies to deal with the challenges of educating children with ADHD. However, some common threads emerged in all of their techniques. Some of these solutions were devised indigenously whereas others drew on existing models & products available in the market (specified below). The indigenous solutions evolved out of the experience of educators with the children, dealing with the constraints of their

own environments and tailored as per the individual requirements of their students.

The children were allotted time to play outdoors, engaging in activities that involve complete (gross) body movement such as dancing, running, jumping etc. They were also encouraged to participate in indoor activities such as art and craft work and solving jigsaw puzzles. Materials that the children could manipulate e.g. clay, sand, bubbles were also made available to them. Storytelling and Role playing were also seen to engage ADHD affected children far more effectively than being taught in the classroom through traditional methods.

AVAZ is an Augmentative and Alternative Communication iPad app which helps in language and communication development (<http://www.avazapp.com>). Handwriting without Tears (HWT) is another such tool available in the market to make the process of learning to write the English alphabet smoother using a variety of materials and techniques (<https://www.hwtears.com>).

### **Insights gleaned from the Methods adopted**

The idea of an inclusive classroom is achieved by means of multiplicity – in tools for learning and exploration, sensory engagement, articulation (of goals, expectations, instructions etc.), engagement (physical & cognitive), reinforcement, feedback & assessment. Cooperative learning is encouraged amongst peers and an effort is made by educators to deal with students on their own terms through the development of IEP's (Individual Education Programmes) in accordance with their natural state(s) of development and corresponding behaviours and interests. Multi-media and Assistive technologies are also implemented within the framework of education [1].

The approaches adopted by educators observed over the course of the primary research addressed issues faced by ADHD affected students at multiple levels as mentioned above. The methods reflected a conscious effort that had been made on behalf of their designers to appeal to and positively cultivate and enable instincts driving children to 'discover' and engage (play) with the components of their environments and learn in the process.

Within the context of purely physical activities, children are given the freedom to engage gross motor skills (acquired at earlier stages of development), allowing them to expend energy that might otherwise divert them from engaging in activities conducted within the classroom. The teaching process imparted learning via mediums and tools that were naturally appealing to children at the primary level like anthropomorphic storytelling, prominent use and display of colours and employing methods that enabled natural feedback (mirrors, reduced student-teacher ratios to name a few).

Complex tasks were broken down into a series of simple steps to make them less intimidating. An example of this would be the act of tying shoelaces. This activity was simplified by imitating the same on a flat board using holes and string. This makes the activity less intimidating and allows for it to be 'learned' in a sequential manner. Efforts were made to exercise some control over the classroom environment in order to reduce sources of distraction. It was also observed that the educators across S1, S2 and S3 made additional efforts to cultivate friendly relationships with their students.

When asked for input regarding possible solutions for students exhibiting attention deficits, an educator (S3) specifically

advocated against screen (tablet) based solutions saying that despite their benefits, they could be 'addictive and distracting', hence counterproductive. These children would also resist activities that were repetitive in nature – a solution therefore, would have to employ/allow for dynamic means of engagement within a controlled framework.

### Deriving Key Attributes

Directions for potential interventions emerged with the accumulation of collective insights discussed in the previous section. In the context of solutions, they translated into attributes the flow of which is represented in Table 1 and detailed below.

An external key source of attributes was the existing educational framework of Universal Design Learning (UDL) which is based on research in the learning sciences and recognizes that the way individuals learn can be unique. UDL calls for creating a curriculum that provides –

1. *Multiple means of representation to give learners various ways of acquiring information and knowledge,*
2. *Multiple means of expression to provide learners alternatives for demonstrating what they know, and*
3. *Multiple means of engagement to tap into learners' interests, challenge them appropriately, and motivate them to learn. 7]*



<b>INSIGHTS</b>	<b>ATTRIBUTES</b>
<i>Uniform vs Inclusive Learning Environments</i>	<i>Universal Design Learning (UDL)</i>
<i>Every Child has a personal Learning curve</i>	<i>Multiple means of Representation, Engagement and Expression</i>
<i>Management of Learning Disorder (ADHD) as opposed to suppressing it</i>	<i>Should work despite wavering/wandering attention</i>
<i>Dealing with wavering attention</i>	<i>Play, Balancing difficulty levels, Reward mechanism(s)</i>

*Table 1 –Translation of Insights into Solution Attributes*

Given the effects of ADHD, the solution should be such that it works in spite of the child having a poor working memory [8]. This can be achieved by engaging with the child on his/her own terms by flipping the datum of ‘paying’ attention to ‘playing’ attention. Reward mechanisms provide incentives to pursue given tasks. Since ADHD affected children face difficulties developing fine motor skills (like writing, tying shoelaces etc.), it is necessary to facilitate the same. The level of complexity of any activity given to the child should maintain a balance when it comes to levels of difficulty. If it is too easy, it won’t be able to hold the attention and interest of the child for long, whereas if it is too tough, the child may lose interest in the activity itself.

However, it is very essential that the solution is not limited to a child with ADHD, but becomes a classroom tool that any child can use, thus making it universal – since ADHD is a disorder that appears in varying degrees in children and the distinction between

“ADHD” and “non-ADHD” has been concluded as a false dichotomy by some studies [6].

### Areas of potential intervention (Solution Models)

As mentioned earlier, the objective of organizations dealing with children with learning disabilities is to enable them to manage the same, rather than suppress them. Curriculum, teaching techniques, environment and learning resources (textbooks, tools etc.) are mediums through which education and a healthy attitude towards it can be cultivated.

In the specific case of ADHD, the attention of an affected child is prone to wander as a result of his/her hyperactivity, impulsivity and inattention (Model a, Figure 1) relative to that of an unaffected child (Model b, Figure 1). The design brief adopted was therefore to actively engage the child’s attention for prolonged periods on a recursive basis without inhibiting his/her natural urge to wander as opposed to an active suppression of the same through pharmacological, behavioural and therapeutic means [9].

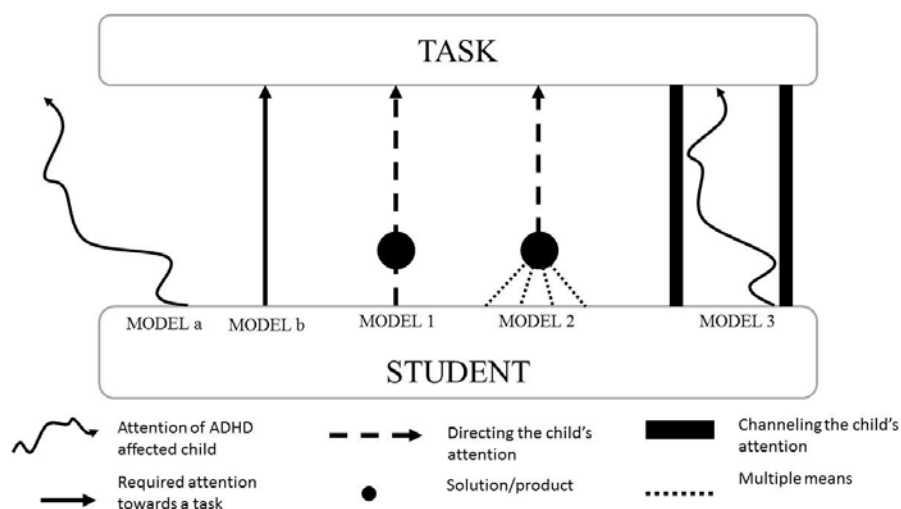


Figure 1: Abstract Models for the problem (a, b) and solutions (1, 2, 3)

Based on an understanding using the above mentioned models, a number of models for a solution were considered as a means of engaging ADHD affected user's wandering/fluctuating attention. One possible means of doing this would be to channel the user's attention towards a single activity by means of a 'reminder mechanism' depicted by Model 1 (Figure 1).

Another possible means of directing the user's attention to a particular activity would be by using multiple means in a parallel manner as exhibited by Model 2 (Figure 1) – for example Multi-sensory engagement. These so called 'cues' would not overwhelm the user, but would serve an incentive to engage with a task at hand in an immersive manner.

Reducing extraneous environmental stimuli would ensure fewer distractions i.e. avenues for attention to wander as shown in Model 3 (Figure 1).

Solutions derived from the above mentioned models as well as independently conceived will be presented in the following section.

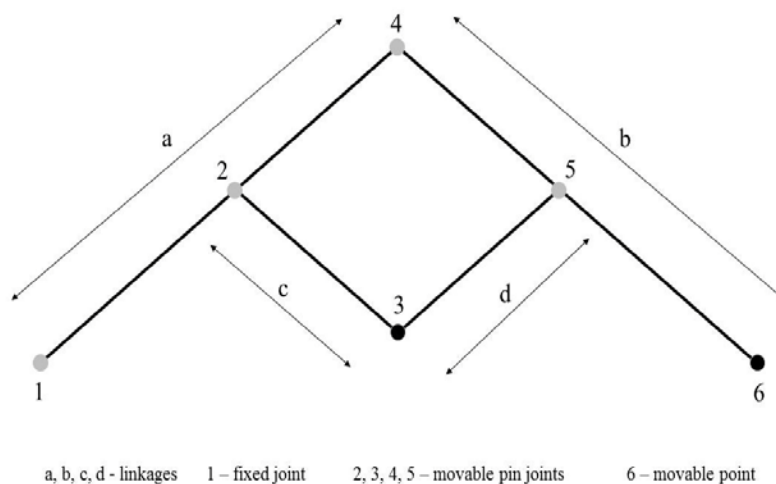
### **Proposed Solutions**

The focus has been on designing solutions that are tools for engaging a child's attention for prolonged periods in a classroom environment.

Based on Model 3 (Figure 1), the attention of a child could be focused by physically confining the field of vision. A crude version of this solution would work along the lines of a pair of blinkers put on a horse.

Another possible solution is derived from Model 2 (Figure 1) and focuses on the notebook – a daily companion of the student that is symbolic of the learning process at school. Notebooks are homogenous and generally have one type (format, layout etc.) of pages within a single unit. Exploring the possibilities of multiple page configurations within the notebook would imbue it with a dynamic quality as opposed to it being monotonous and encourage the child to continuously engage with it within the classroom.

Children are familiar with the game of 'Connect the dots' wherein an image reveals itself with the completion of the process of connecting a series of sequential dots from end to end. This game accomplishes two things – it simplifies a relatively complex task by reducing it to a series of simple steps and it provides a 'reward' in the form of a completed image. This game can be adapted as a learning tool to aid the development of fine muscle movements of the hand as opposed to being confined to the realm of leisure activities.



*Figure 2: Linkage diagram of the Pantograph mechanism*

An existing framework for the implementation of a solution based on Model 2 (Figure 1) is provided by linkage mechanisms, where single operations are emphasized by multiple means (components, movements, sounds, materials etc.). The pantograph [10] (Figure 2) is a two dimensional mechanism that consists of four linkages (a, b, c & d) and four pin joints (2, 3, 4 & 5). Point 1 is fixed and the rest of the points (2, 3, 4, 5 & 6) are mobile. Points 3 & 6 trace the same path when they move except that Point 6 traces the path at twice the size of point 3 which is accomplished by virtue of the linkage lengths. A modified version of this mechanism can be used as a tracing tool (Figure 3). A variety of 'instruments' (pencil, pen, chalk, crayon, paintbrush, charcoal stick etc.) can be used to produce a scaled version of any reference image. Therefore, the child has the freedom to choose from the variety accommodated by this device in these two aspects in a manner that is engaging for him/her with the assurance of a reward (a scaled version of a picture of his/her choosing). The use of this device enables the development of fine motor skills in an engaging manner – the function enabled by the working mechanism possesses an element of surprise and provides a sense of 'wonder' and subsequent discovery.

In addition to the benefits mentioned above – fulfilling the attributes discussed in Table 1, the pantograph is a simple mechanism that can be viably produced (in terms of materials and processes) in any number (big or small) on a broad scale. As a result of this device's encapsulation of these attributes, this particular solution was selected for prototyping. The prototype was manually assembled with locally procured materials (Figure 3) within a short time frame and then taken for feedback to S2 and S3. This has been presented in the next sub-section.

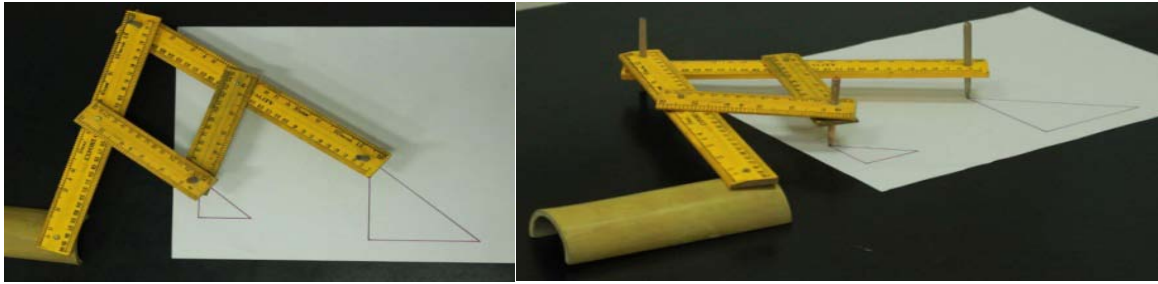


Figure 3: Manually assembled prototype of the pantograph mechanism

### Feedback

Feedback was given by the same individuals who were interviewed in the Primary Research phase (S2 & S3) on the basis of an examination of the working prototype presented to them. The proposed solution failed in certain aspects, succeeded in others and possessed the potential to address additional issues in the classroom environment.

Since the device is intended for use by primary school children, it needs to be robust and ergonomically compatible to its users. This would require an examination of materials and implementation of suitable anthropometric data. The combination of multiple linkages to accomplish its intended function is a source of plural distractions i.e. a challenge to focus wavering attention on the primary function itself. The device should serve as an intermediary and not induce a dependency, inhibiting the child from developing freehand skills. It engages motor skills more than attention (Figure 4) – therefore, children with inhibitions to fine motor activity may not find it motivating enough to continue using the device for prolonged periods.

The activity of simple line tracing becomes an act of passive replication with repetition over time. This may cause children to disengage with the product. The interaction with the product

therefore, needs to be made more 'active'. This can be accomplished by the use of multiple tools (as mentioned in the previous section), surfaces etc. Multiple ways of 'gripping' tools can also be explored. The source of engagement needn't be dependent on the device being easy and 'fun' to use, it can rather emerge from a reasonable challenge associated with the task (having to assemble the device before using it, for example). This mechanism of providing a delayed gratification as opposed to an immediate gratification is preferable in the long run.

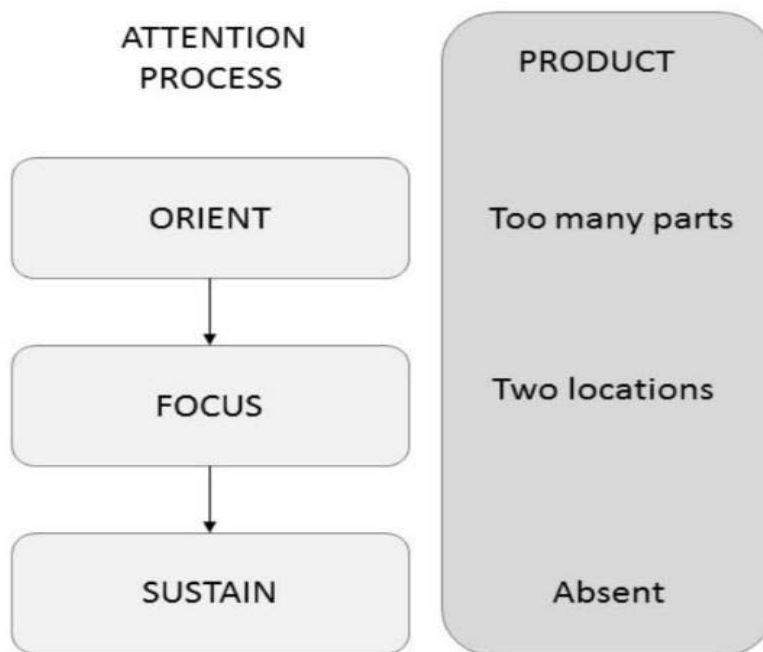
Adopting a universal design methodology, the device itself should not be exclusive to users with attention deficits but serve as a universal tool in a classroom environment. This device assists children in elementary operations like learning basic shapes and handwriting (letters, directional skills etc.). In addition, it enables the exploration of the visual domain – expanding their area of play. The potential that linkages provide in terms of interactions can be further explored in the domain of primary education. A device based on the pantograph mechanism can also work for children with Cerebral Palsy (reduced mobility) and mild to moderate levels of Mental Retardation. These directions require further exploration.

## **CONCLUSIONS**

The design process requires an immersion into an environment from wherein key aspects of the problem area emerge allowing the creative process to make relevant connections and associations leading to solutions to address the problem. This process is not linear but it lies between the identification of a potential area that requires an intervention and the assimilation of a solution into the environment itself.

The starting point for the design process presented in this paper was to look at ADHD within the context of the system of Primary Education in India. The solution (product) proposed to engage with this issue failed to do so in certain aspects. Despite this, it has a potential to become a tool that would be as ubiquitous as the ruler, compass or the stencil in an educational environment.

The emergence of this product as a result of the process followed is a testament to the value of Universal Design Thinking which believes that designing for users facing major issues of incompatibility within any system would enhance the usability of the system for all its users. Incremental changes to systems in this direction would bring us closer to realizing the ideal of Universal Design – making the world usable by 100 % of humanity [11].



*Figure 4: Issues with Engaging Attention*



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***Prajna Hegde***



***Soumitro Datta***



***Prajna Hegde, is a Post Graduate student of Universal Design at the National Institute of Design, Bangalore. She has completed her B.Tech. Mechanical Engineering from the College of Engineering, Pune (CoEP) and has worked for 2 years with TATA MOTORS at their Engineering Research Centre, Pune. Her areas of interest are Inclusive Product Design, Service Design, Social Innovation and Sustainability. (Blog - <https://methodinmadnesss.wordpress.com/>)***

# **SOUS CHEF – A microwave oven designed to include the visually impaired**

*Prajna Hegde*

*M.Des Universal Design, National Institute of Design, Bangalore*

*Faculty Guide: V S Ravishankar*

## **Introduction**

“SOUS CHEF” is a microwave oven redesign that takes into consideration the issues faced by visually impaired users. This project was taken up as a part of the curriculum of M.Des. Universal Design at the National Institute of Design, Bangalore. The project was completed over a period of 8 weeks and went through stages of Contextual Research, Design Brief Definition, Ideation and Prototyping.

## **Identification of the problem area**

The problem area selected for the project was, “cooking activities for the visually impaired”. The search for issues faced by the visually impaired in the kitchen was done by categorizing kitchen activities into the following –

- 1. Orienting themselves correctly in the kitchen*
- 2. Locating and organizing food items, utensils, etc. in the kitchen*
- 3. Measuring, transferring and pouring foods*
- 4. Using the gas stove, mixer, microwave oven and other appliances*
- 5. Determining whether the food is cooked or not*
- 6. Using recipes and cookbooks*
- 7. Chopping and peeling fruits, vegetables, meat, etc.*

The microwave oven was chosen for a redesign considering the expectation and dependency of a microwave oven's control panel primarily on a user's vision. A user relies on his vision for all the major actions while using an oven for cooking.

The second reason that demands a re-design of a microwave oven is because the microwave since its origin in the 1930s has undergone several changes, both technological and in terms of its form, however, its design has not been sufficiently modified to suit the Indian user and cooking style. For instance, most of the settings/operations available in a microwave oven like grilling, convection, baking, etc. are not predominantly used while cooking Indian dishes. Most traditional Asian dishes do not use these operations either.

An Asian visually impaired chef, who also happens to be the winner of the Masterchef U.S.title (2012) Christine Ha, was interviewed via mail.Her thoughts on using a microwave oven were -

*"I use a microwave oven to heat up leftovers"*


*"I know it's possible to cook many meals solely using a microwave, but I like the traditional method of cooking on a stove because it offers a more hands-on experience"*

*"Too many functions, most of which I never use. Maybe I'd use them if I learned how or what they are"*

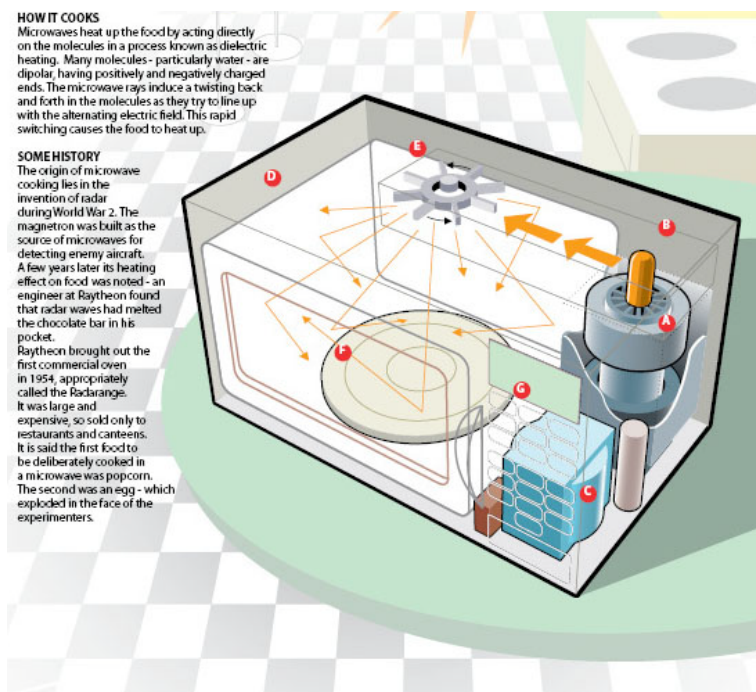
## **Empathy Research**

As designers, empathy is one of the most important aspects of getting to the core of the problem area. An activity was done as an attempt to experience the task of using a microwave oven from the perspective of a visually impaired. It involved heating a glass of milk in the microwave oven with a blindfold on. This gave me a

personal insight into the micro-level activities that one goes through in the process of using a microwave oven and the challenges one faces at specific points during the process, especially a user who is visually impaired.

<b>Activity breakdown (Steps)</b>	
Locating the microwave oven	
Opening the oven door (sometimes with vessel in one hand)	
Placing the vessel inside	
Selecting the right settings on the control panel	
<b>START/STOP/PAUSE</b> the oven	
Opening the door	
Taking the (hot) vessel out	
Placing the hot vessel on the kitchen counter	
Closing the door	

### Internal parts of a microwave oven

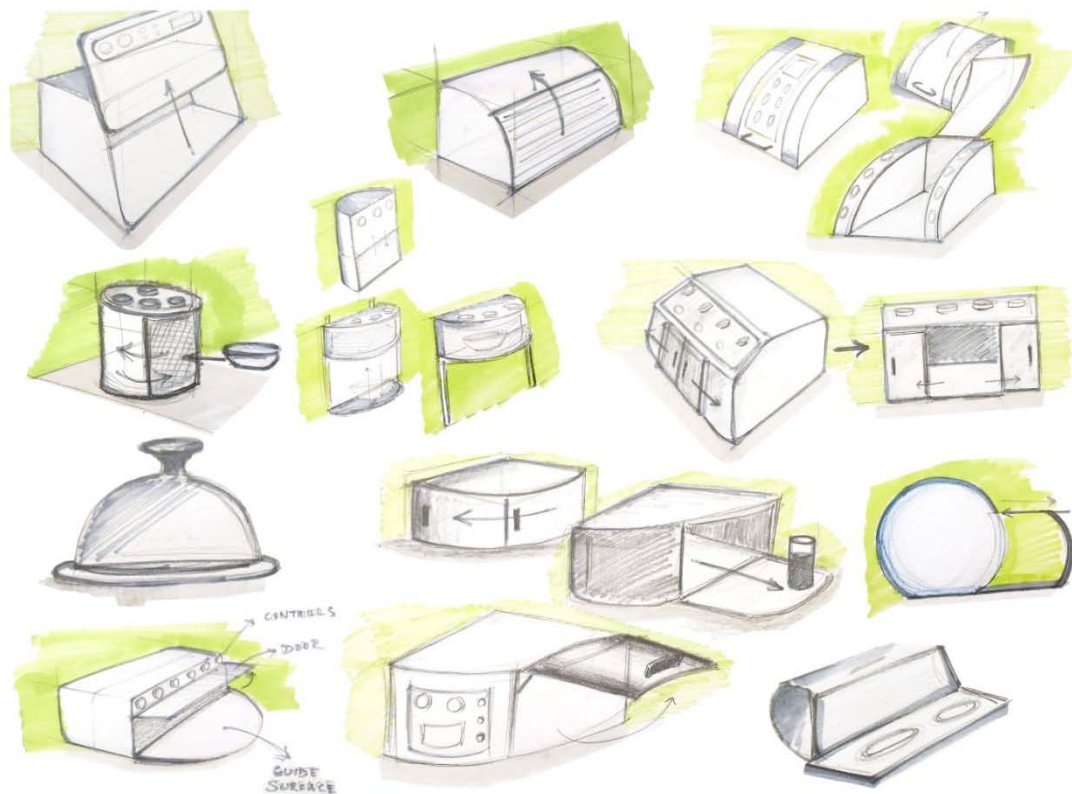


**MAGNETRON** – *generates microwaves*  
**WAVEGUIDE** – *directs them into the chamber*  
**MOTOR** – *rotates the glass plate*  
**H.V. TRANSFORMER** – *steps up 240V to 3000V*  
**OVEN CHAMBER** – *reflects the microwaves*  
**CONTROL SYSTEM** – *buttons and safety switch*

## Design Brief

*To design a Universal microwave Oven that enhances the ease of use for both sighted and visually impaired users and eliminates any complex, intimidating controls.*

## Form explorations



## The selected form – CYLINDER

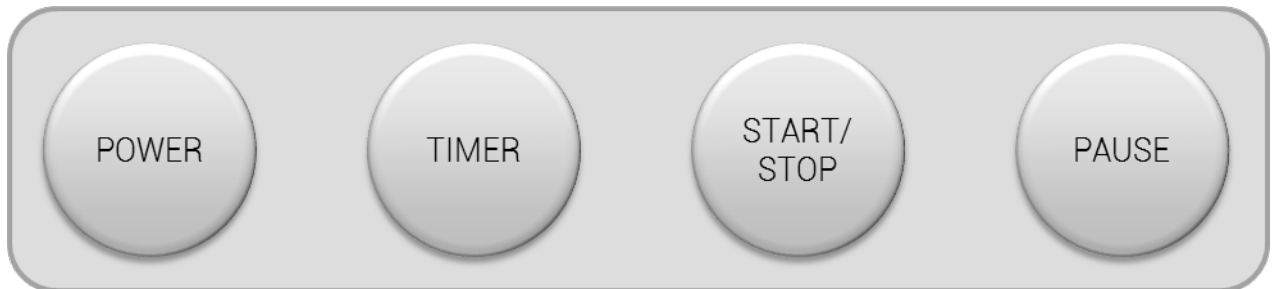
1. *Studies have proved that a microwave oven works most efficiently in a cylindrical enclosure (U.S. Patent no. 2009/0294441 A1)*
2. *The cylindrical form is more “friendly” and less “machine like” as opposed to the cuboidal structure of most microwave ovens in the market*
3. *A cylindrical form is more relatable and hence will be less intimidating and hence will reduce the cognitive load of the user by minimizing the “fear” in the user’s mind of using this appliance*

### Further detailing of the chosen form



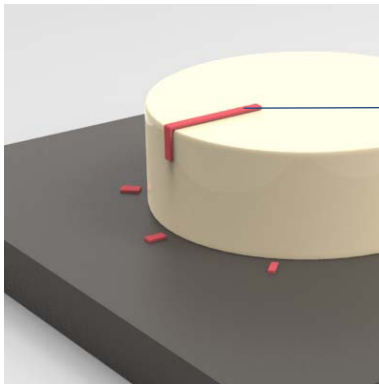


## Selection of the appropriate controls



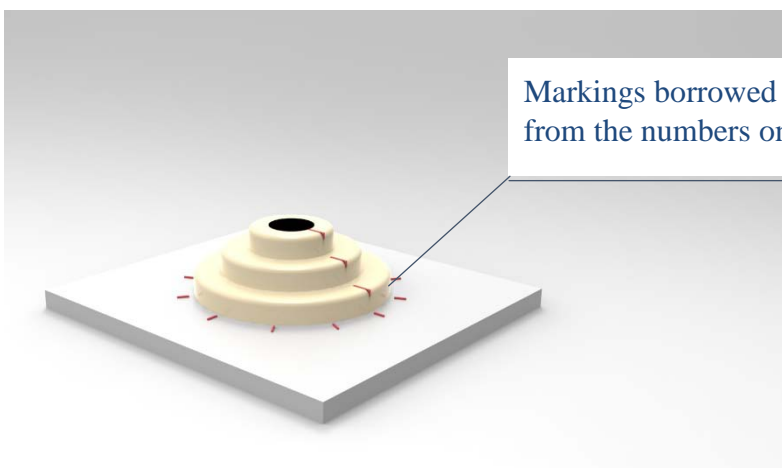
The excess controls from the elaborate control panels of the existing ovens was minimized into a simple control panel with tactile buttons and only four controls – power, timer, start/stop and pause.

### Power Control



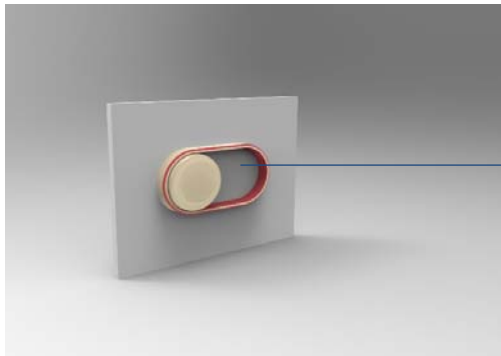
Tactile marking to indicate selected position for sighted as well as visually impaired users

### Timer Control



Markings borrowed from the numbers on a watch

## START/STOP Switch



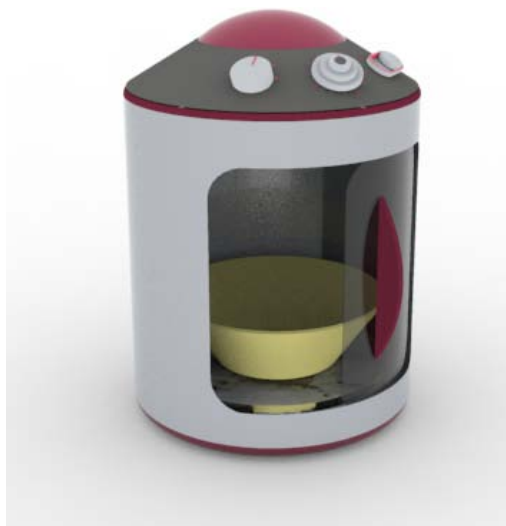
Coloured marking to indicate the switch for sighted as well as low vision

## Pause Button



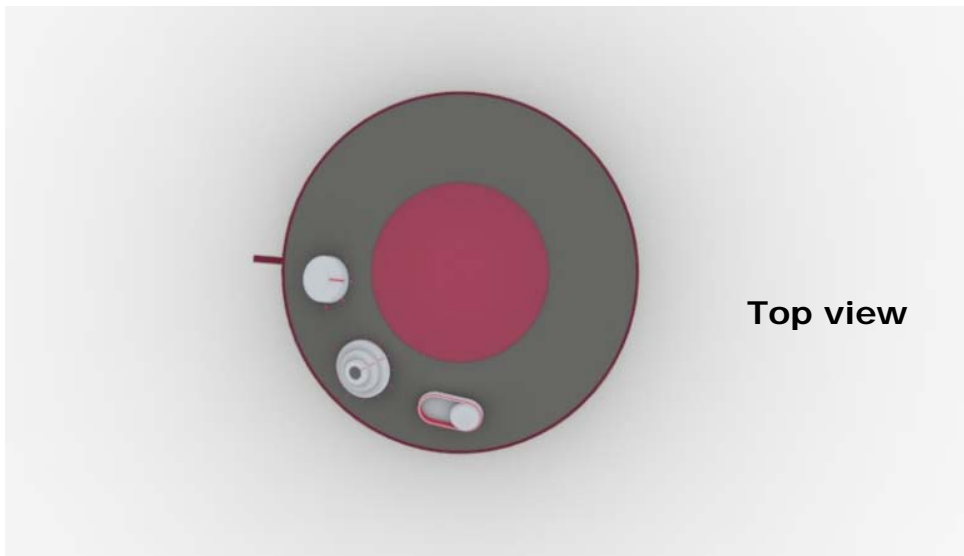
The “quick access” pause button enables the user to pause the cooking operation with one fast tap of the palm. The inspiration for this comes from the “SNOOZE” action in alarms.

## Final Design

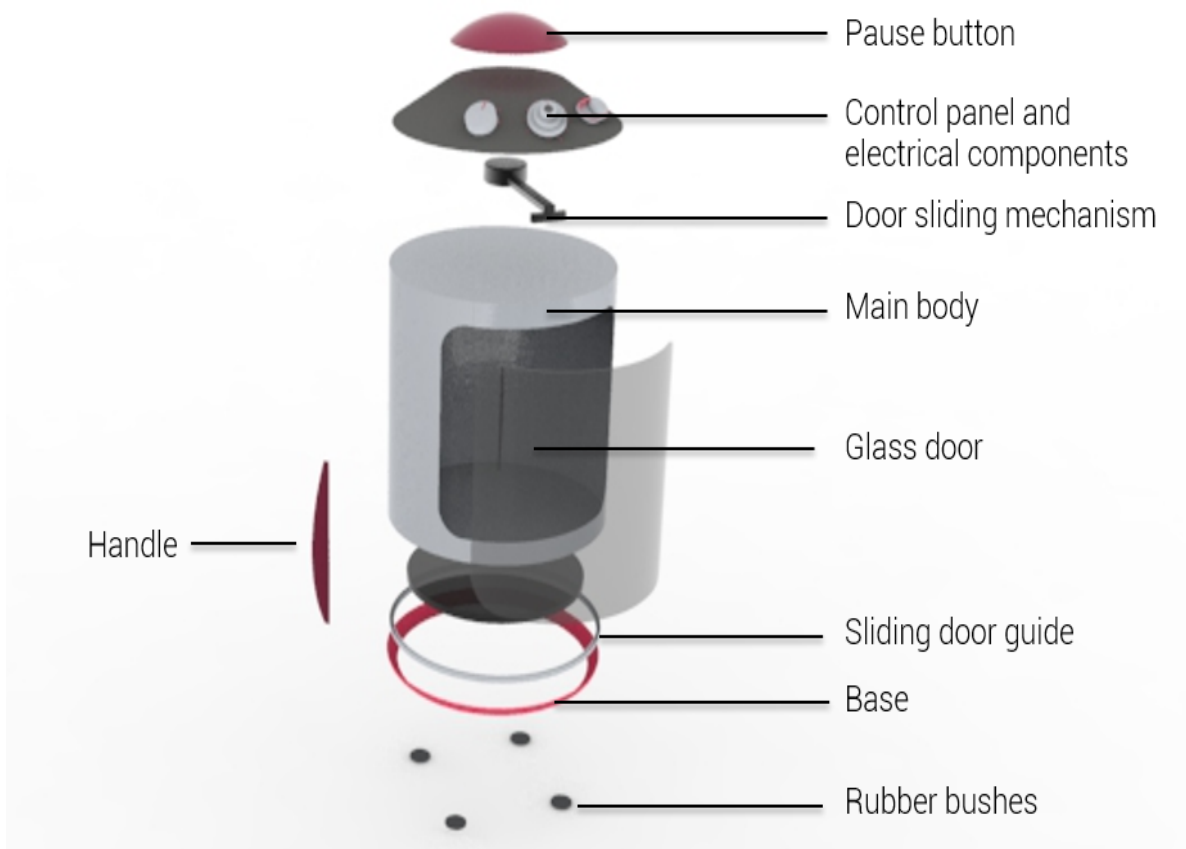


### Features:

- Cylindrical form
- Cylindrical sliding door
- Simple and intuitive controls



**Exploded view**



## Final Brand Name and Logo



**“Sous Chef” in French means the “second-in-command” chef, after the head chef. The name implies that this product is meant to assist you in the kitchen, and make the user comfortable using this product.**

## Appearance Model



To demonstrate the form, dimensions and constituent parts of the microwave oven, an appearance model was made out of Polystyrene, Acrylic and Thermocol. The appearance model was made to a scale of 1:1 and the operations used were vacuum forming, laser cutting, filing, sanding, pasting and spray painting.



***Prajna Hegde***



## Forthcoming Issues

### 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  
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<https://www.>

## August 2017 Vol-12 No-8

**Imma Bonet** of Design For All Foundation, Spain will be the Guest Editor . After high education in Pharmacy in the University of Barcelona, she developed her professional carrier in the field of healthcare, associations, education, accessibility and Design for All.



She has been responsible for the development of many national and international projects in her position as: Design for All in Spanish Universities, The Flag of Towns and Cities for All, Auditing system for the use of Design for All in companies, etc.

She has been also lecturer in several Spanish Universities, design schools and congresses.

## 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.**



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**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.

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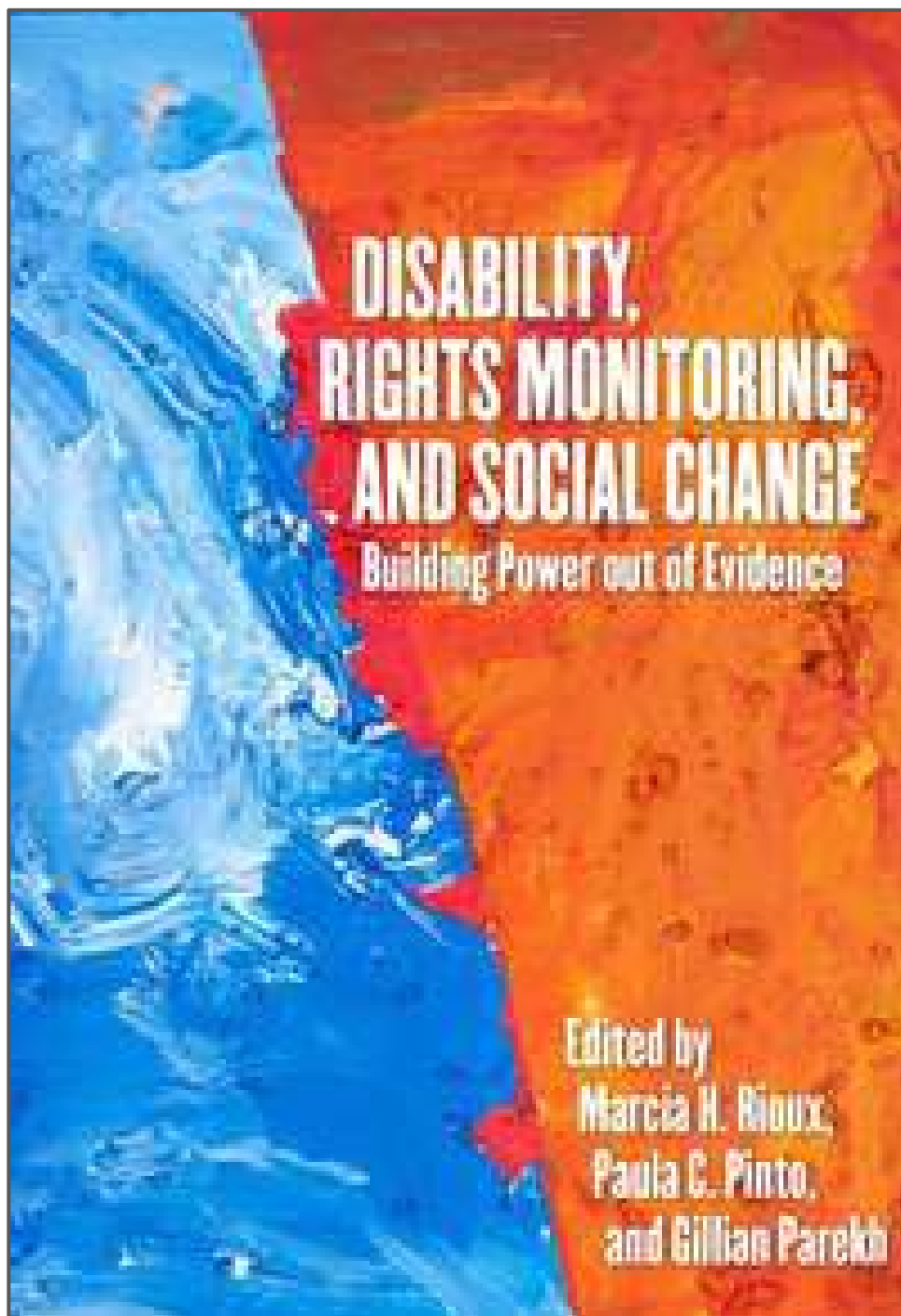
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### Product Description

In this book, Elvio 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. Elvio 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 enormous 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.

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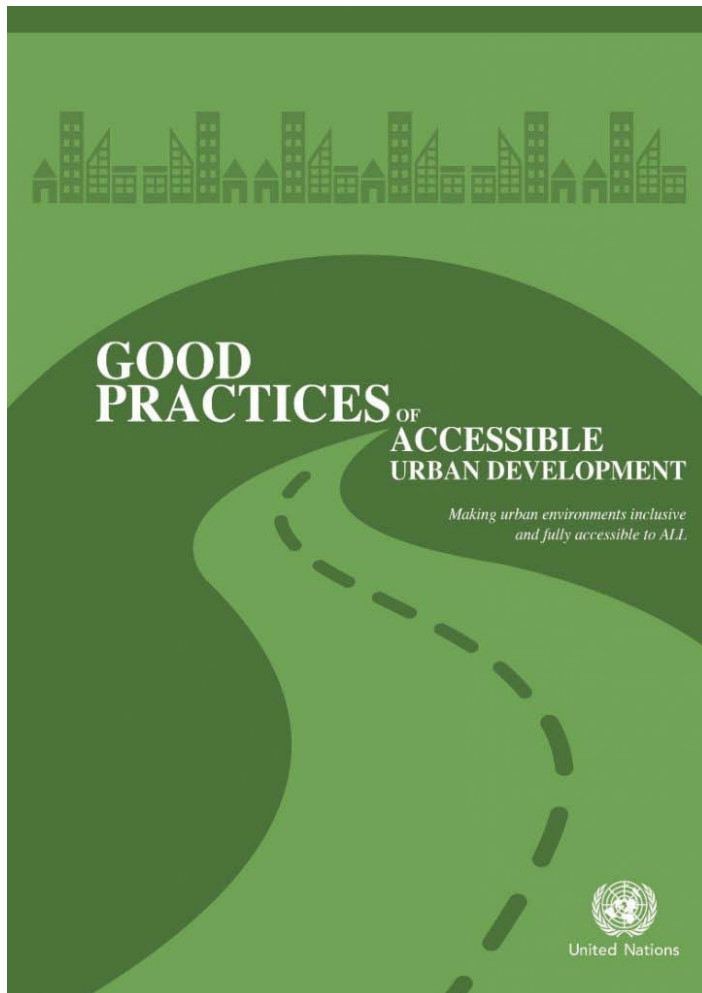
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In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared 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.

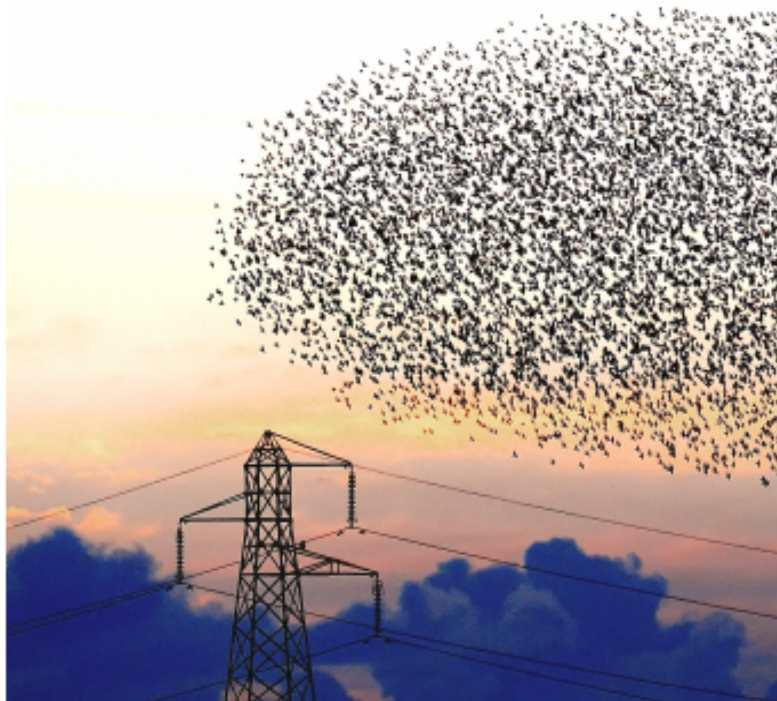
The advance unedited text is available at:[http://www.un.org/disabilities/documents/desa/good\\_practices\\_urban\\_dev.pdf](http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf)



# FROM MODULARITY TO EMERGENCE

**A PRIMER ON THE DESIGN AND SCIENCE OF COMPLEX SYSTEMS**

Chih-Chun Chen and Nathan Crilly



CUEDVC-EDC/TR.166  
Engineering Design Centre  
Department of Engineering

 UNIVERSITY OF  
CAMBRIDGE

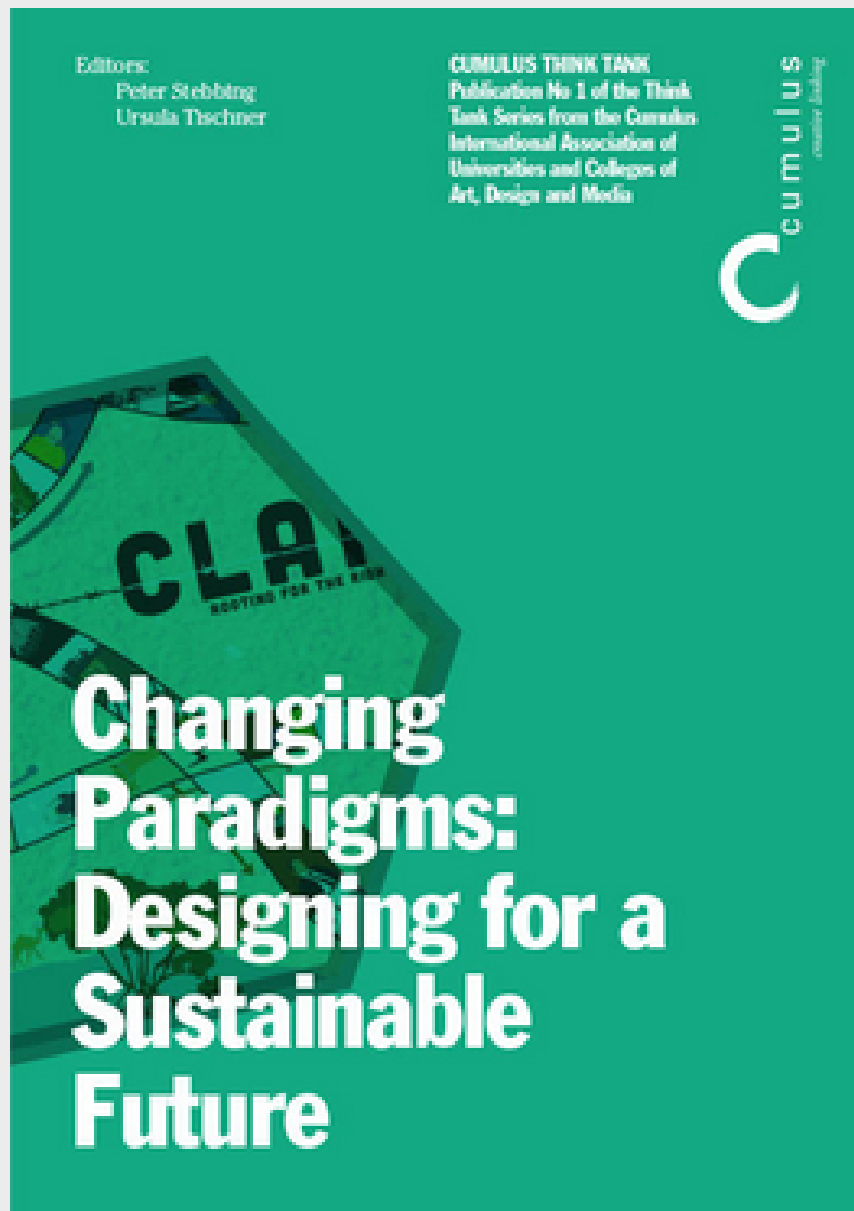
Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, *\_A Primer on the Design and Science of Complex Systems\_*.

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

The book is available at URL:

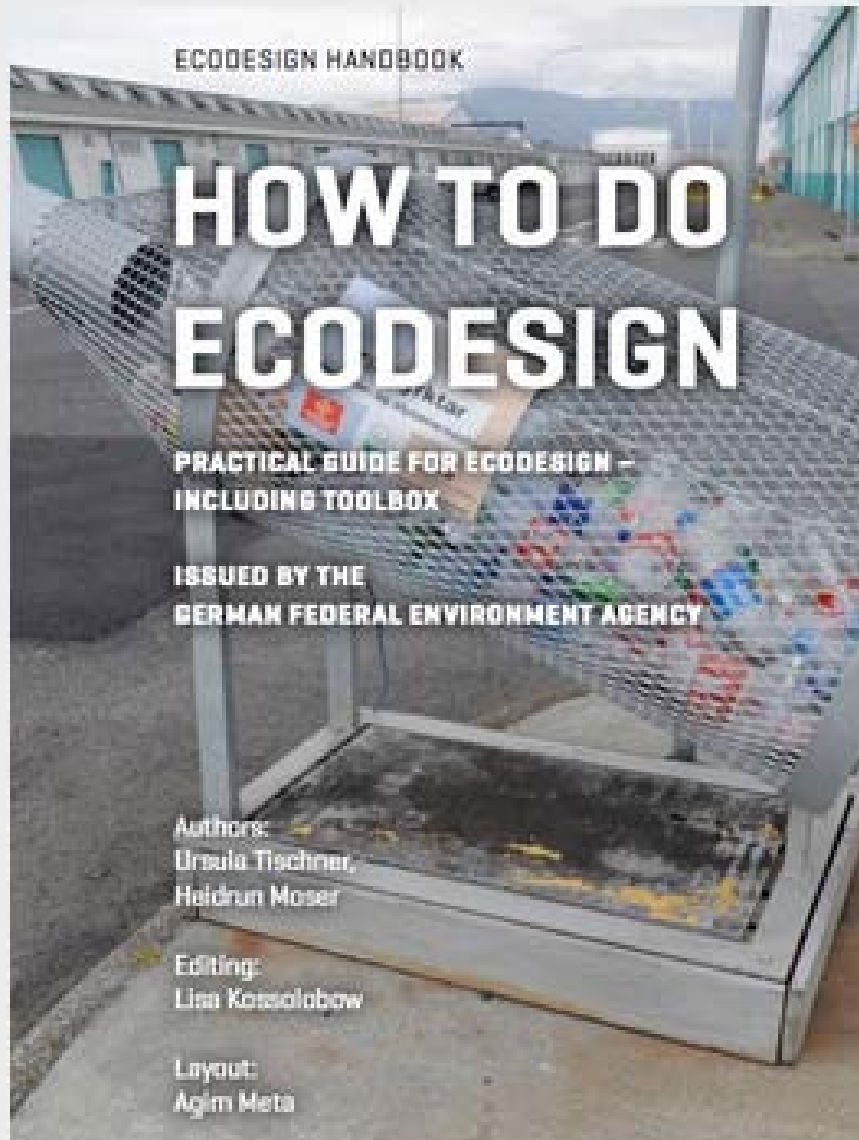
<http://complexityprimer.eng.cam.ac.uk>

# Changing Paradigms: Designing for a Sustainable Future



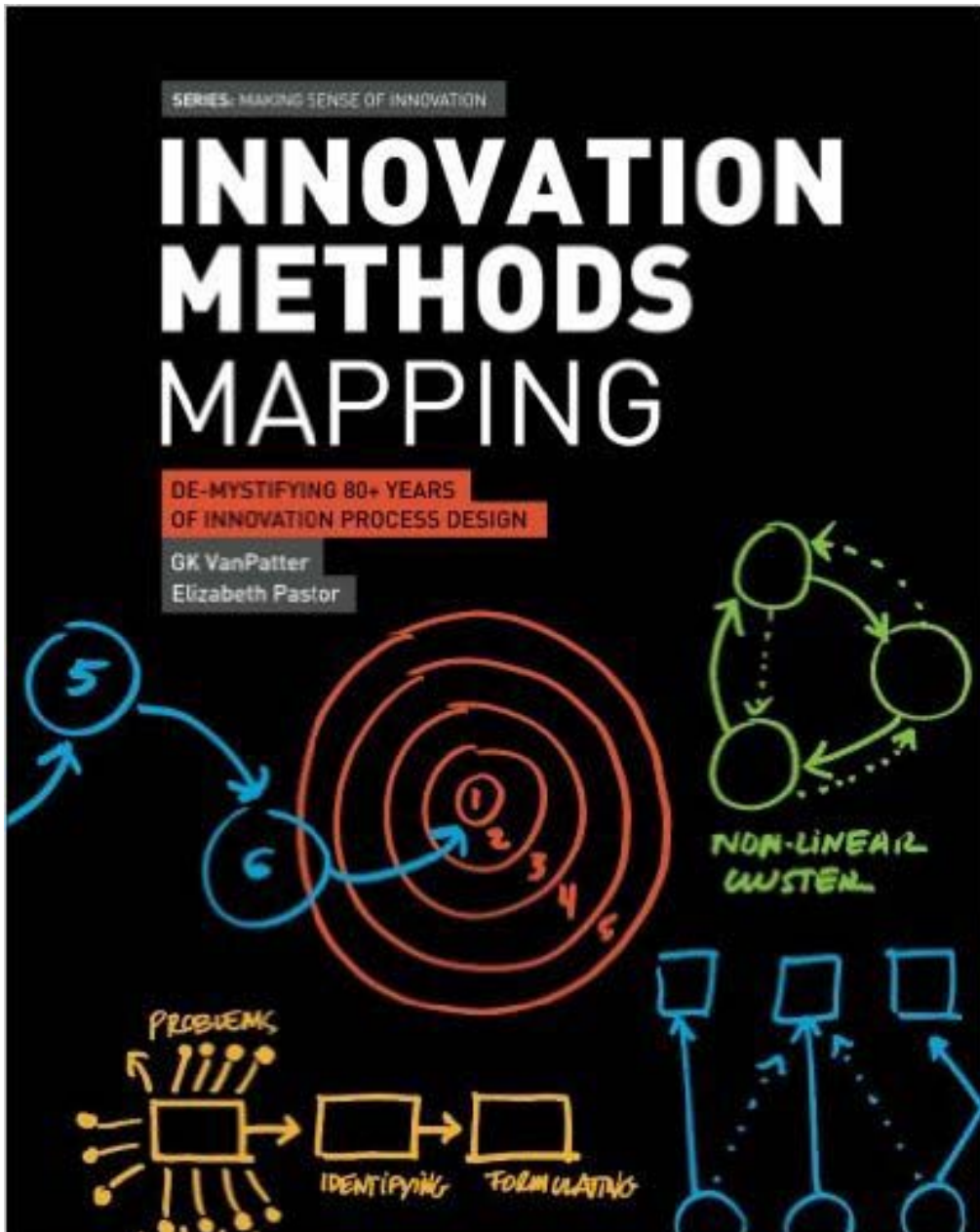


# New iBook / ebook: HOW TO DO ECODESIGN



Practical Guide for Ecodesign – Including a  
Toolbox

Author: Ursula Tischner



Humantific's new book: Innovation Methods Mapping has just been published and is now available on Amazon.

[https://www.amazon.com/dp/1540788849/ref=sr\\_1\\_1?ie=UTF8&qid=1482329576&sr=8-1&keywords=Humantific](https://www.amazon.com/dp/1540788849/ref=sr_1_1?ie=UTF8&qid=1482329576&sr=8-1&keywords=Humantific)

You can see the preview here:

[https://issuu.com/humantific/docs/innovation\\_methods\\_mapping\\_book\\_pre](https://issuu.com/humantific/docs/innovation_methods_mapping_book_pre)

TRANSFORMATIONS  
7 Roles to Drive Change by Design  
Joyce Yee / Emma Jefferies / Kamil Michlewski

# TRANSFORMATIONS

## 7 Roles to Drive Change by Design



Joyce Yee / Emma Jefferies / Kamil Michlewski

BIS



# Appeals

## IFDA's educational foundation announces 2017 grants

**NEW BERN, N.C. —** EF, the scholarship and funding arm of the International Furnishings and Design Assn., has announced \$15,500 in new grants available this year to high-achieving industry professionals.

Applications for each of the eight available 2017 grants will be accepted from June 1 to June 30. Winners will be announced in midsummer for the following grants:

- **Irma Dobkin Universal Design Grant (\$2,000)**, supported by IFDA's Washington D.C. chapter, is open to individuals working independently who wish to develop a Universal Design project that meets the living needs of people of all ages and capabilities.
- **Ina Mae Kaplan Historic Preservation Grant (\$2,000)**, also supported by the Washington chapter, is available to furnishings or design professionals engaged in projects that embrace the historic restoration and/or preservation of a significant structure or public building.
- **Elizabeth Brown Grant to Interior Design Programs (1,000)**, supported by the Texas chapter, will award an accredited interior design program at a university, college, art school or technical institution, the funds to be used for books, periodicals, audio-visual aids, computer software or other essential resources.
- **Tony Torrice Professional Development Grant (\$1,500)**, supported by IFDA's Northern California chapter, is earmarked for an interior design or furnishings pro with plans to enhance his or her skills through independent or academic study.
- **Valerie Moran Memorial Grant (up to \$3,000)**, supported by the New York Chapter, will go to an IFDA professional member with outstanding skills in either design or merchandising who wishes to expand his or her horizons

through travel, trade show attendance or professional-development studies.

- Claire Coleman Founders Grant (2 available, at \$1,000 each), also supported by the New York Chapter, will help IFDA chapters fund a marketing- or communications-related event designed to attract and edify new as well as current IFDA members.
- Chapter Partnership Grants (3 available, at \$1,000 each) will be awarded to IFDA chapters seeking assistance in funding educational programs that provide significant information on business development, design innovation or industry trends.
- New Chapter Development Grant (\$1,000) was established to aid newly formed chapters fund educational programs or events designed to enhance the visibility of IFDA locally and also attract new IFDA members.

Funds from the Barbara Brock Memorial Grant and Schoenthal IFDA Leadership Forum have been applied to support the Educational Foundation's day-long DesignEDGE event in New York City, May 20.

Over the past seven years, more than \$200,000 has been awarded to high-achieving applicants. Two decades after its founding in 1947, IFDA began establishing funds to give career boosts to students as well as professionals in the interior design and furnishings-related fields.

Go to <http://www.ifdaef.org/> for details and application guidance regarding each grant.



# News

1.

## **30 BCA award winners lauded for creative ideas**

Travelling in the United States and Europe to find ways to erect buildings that are friendly to the old, the young and the handicapped, CapitaLand's Mr Eng Tiang Wah was struck by the wide use of Braille in public areas.

Inspired, the giant developer's vice-president for product development and design introduced Braille for almost all the signs at its integrated development in Cairnhill.

Coupled with several other creative features, the widespread use of Braille won the complex - which comprises condominium Cairnhill Nine, luxury serviced residence Ascott Orchard and Al-Falah Mosque - the Building and Construction Authority's (BCA) highest award for inclusive design this year.

It was the only platinum winner for this category yesterday, when the BCA announced 30 winners in various categories of creative works for developments ranging from residential blocks to polyclinics to parks. The winners will get their awards on June 13.

For Mr Eng, the eye-opening trips, organised by the BCA, had him introducing Braille at the swimming pool's toilet to tell the men's from the women's, and low steps with handrails to help wheelchair users lower themselves more easily into the water.

Barbecue pits have lower sinks for young children, and benches have recesses next to them for parking wheelchairs or prams.

Started in 2013, the universal design award is for developers and architects who adopt the philosophy of designing buildings accessible and user-friendly to everyone.

During a tour of CapitaLand's winning project yesterday, Mr Eng told reporters that he plans to have Braille signs in future developments. "The initial steep learning curve is over. It will be easy to implement when it catches on in the industry," he said.

BCA group director Teo Orh Hai encouraged developers to push the boundaries of universal design further. He stressed the importance of including features such as covered walkways or multi-generational playgrounds in the design from the start, as it will be very difficult and costly to rectify later. Universal design also enhances users' enjoyment of their environment, he said.

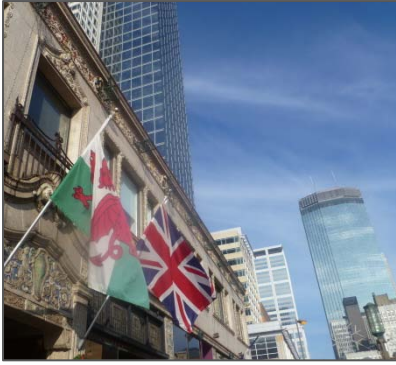
For instance, designers of the HDB Kallang Trivista flats in Boon Keng, which earned a GoldPlus award - the second-highest certification - increased the space between units after residents said they wanted more privacy.

Retired cashier Julie Lee, 60, who moved into her studio flat in the estate with her husband last September, is grateful for the elderly-friendly features, including lower counter tops in her kitchen and grab bars in common areas.

Pointing to the Sports Hub from her living room, she added: "I also get a million-dollar view. All these make retirement enjoyable."

(Courtesy: The Straits Times)





## Programme and Events



Legnani. Graphic Design: Groupa Ee

Photo: Delfino Sisto

### 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 **to 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

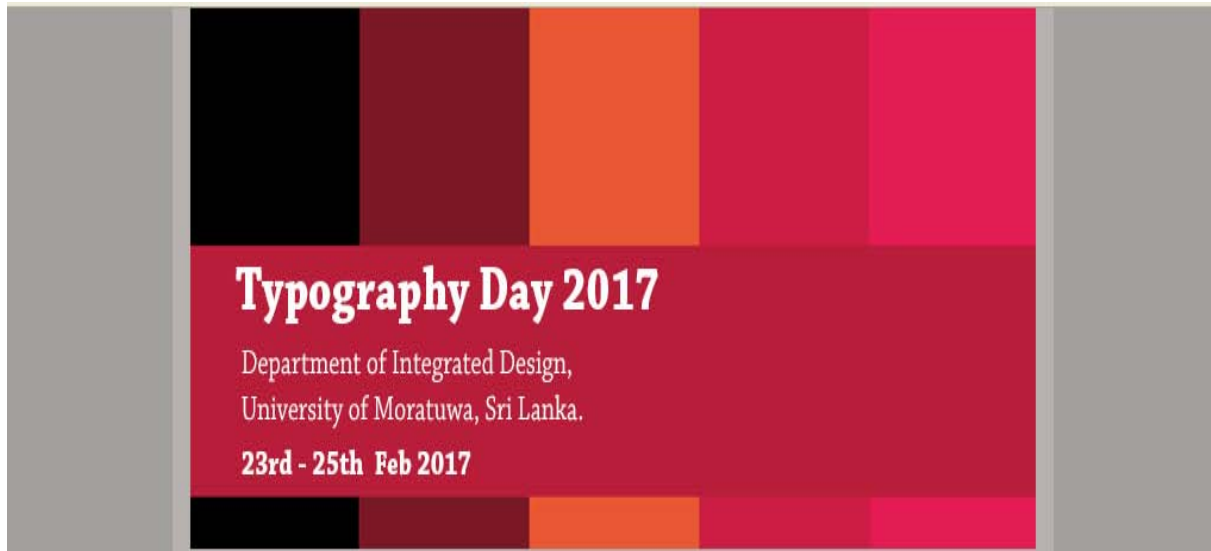
**FINISTERRA**  
**IV** ARRÁBIDA  
film art & tourism festival

**CONVITE**  
6 de Maio – quarta – 10 horas  
Fundação Portuguesa das Comunicações em Lisboa

Carlos Sargedas, diretor do Finisterra Arrábida Film Art & Tourism Festival, a Fundação Portuguesa das Comunicações, a Câmara Municipal de Sesimbra e Arrábida Film Commission tem o prazer de o convidar para estar presente na Sessão Inaugural da 4ª edição do Festival

organização

FUNDAÇÃO PORTUGUESA DAS COMUNICAÇÕES ARRÁBIDA FILM COMMISSION Sesimbra



**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 Bombay 25-29 September, 2017 <http://interact2017.org/>



TypographyDay 2017 Focus on 'Typography and Diversity'

23- 25 February 2016

by **Department of Integrated Design, University of Moratuwa, Sri Lanka** at Colombo, Srilanka Call for Abstract for Papers (deadline 31 August 2016)  
Call

for  
Poster  
Design



30 September - 2016

## UIA Awards 2017

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



(deadline 31 October 2015) <http://www.typoday.in>

# core77 conference designing here/now

2016 SEPTEMBER 29 - 30  
LOS ANGELES, CA



The Core77 Conference returns to L.A.'s vibrant design community — same venue, more activity. This year, we've put together two days of panels and presentations, workshops and tours, catered meals, and fabulous evening receptions. Come join designers, scientists, entrepreneurs, and business leaders in exchanging innovative ideas on working and tools for cultivating exceptional interdisciplinary success.

## THE BERKELEY PRIZE 2017

### ARCHITECTURE REVEALS COMMUNITIES

Essay Competition  
Travel Fellowship Competition



1981 BERKELEY PRIZE WINNER: TERRY O'NEILL, California, U.S.A. (Competition awarded by the Berkeley Prize Board. 50% of the prize money is given to the student team. Photo by Raymond White)



2012 BERKELEY PRIZE WINNER: Office of Peter Zumthor and of Benjamin Huberman, Pakistan (Photo by Marco Delmas)



2013 BERKELEY PRIZE WINNER: The Green House of Architecture and Design Center, Singapore (Photo by The Green House of Architecture and Design Center)



2014 BERKELEY PRIZE WINNER: The Green House of Architecture and Design Center, Singapore (Photo by The Green House of Architecture and Design Center)

#### 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



**Sangeta Rajya-Mukta**  
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. Gilson**  
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 Capstone of Empire*.



**Oscar Khatib**  
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*.



**Faig Mar**  
Architect, former student, teacher and BERKELEY PRIZE Associate Teaching Fellow, Shreef 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.

P L O R E O N L I N E : W W W . B E R K E L E Y P R I Z E . O R G





'Reimagining Aesthetic Unfolding – From Conditioning to Awakening'



### **Future Architecture platform** Call for Ideas 2017

**11/15/-1/9/2017**

Future Architecture call for ideas is open to all who wish to participate in the Future Architecture program cycle throughout Europe in 2017. The platform invites emerging creatives to apply with the ideas, visions and projects they consider important for the future of architecture. **Deadline is 9 January 2017!**



## INTERNATIONAL VISUAL METHODS CONFERENCE 5 VISUALISING THE CITY

**16 - 18 AUGUST 2017**  
**SINGAPORE**  
**[WWW.VISUALMETHODS.INFO](http://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](http://WWW.VISUALMETHODS.INFO/CFP)**



## 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.









# INDUSTRIAL DESIGN CONCLAVE

ON THE OCCASION OF WORLD INDUSTRIAL DESIGN DAY  
NEW PRODUCT DEVELOPMENT










**OBJECTIVE**

To provide insights to the MSMEs and start-up who are manufacturing industrial products and to apprise them with the knowledge to use design to retain market standing and to move up the value chain.

---

In an intensely competitive market, with even more diverse and demanding customers, companies are often left unsure of exactly what products, communications and services to create for what segments of the market. Design, with its ability to understand users, redefine problems and create systemic, human-centered solutions, can help companies better understand their customer's daily lives, and lead directly to valuable (and valued) offerings that are effectively tailored to their market.

29-30  
JUNE  
2017

---

**IIT Hyderabad Campus,**  
IITH Main Road, Near NH-65, Khandi,  
Sangareddy, Telangana 502285

REGISTER  
NOW





# Job Openings

## 1. Job Opening

June 1st is the deadline to apply.

Appreciate you passing this on to anybody in your organisation or outside that may be interested in doing a part time residency based interaction design / experience design masters. (Degree awarded by University of Mysore)

Round 3 applications IS now online here <http://srishti.ac.in/forms/appl-form-postgraduate-arts-program-ma-pp-2017-18>

Program will be offered in Bangalore and Pune Campus !!

IF you are a working professional or a freelancer with a minimum THREE years bachelors degree in any field

AND

IF you want to get a formal masters degree in the field of UI / UX/ Service Design / Design Research while you are working,

THEN.. this program, awarded by University of Mysore may be THE right one for you.

Srishti @ Bangalore has created TWO modes of offering the TWO-year M.A (Professional Practice In Experience Design) course, :

1. Option M8: Weekends (Friday/Saturday or Saturday/Sunday)
2. Option M9 - ONE 2-weeks residency per semester

The details including the prospectus is at <http://srishti.ac.in/programs/pg-program-ma-professional-practice-in-experience-design>

The application process, fee schedule etc is available at <http://srishti.ac.in/admissions/postgraduate-programs>

You can reach out to Dr. Girish Prabhu ([girish@srishti.ac.in](mailto:girish@srishti.ac.in)), Dean of Human Centred Innovation & Experience Design programs @ Srishti for any queries.

## 2. Job Opening

Faculty Positions have been announced for Design at Ambedkar University Delhi. Please check the following link for details:

<http://aud.ac.in/upload/FacultyAdvt%20detailed%20140517%20-1-.pdf>



The website address is [www.aud.ac.in](http://www.aud.ac.in)

### 3. Job Opening

We @ Quick Heal are looking for an User Experience Designer for our R&D Center in Pune.

**Must Have :** Candidate should be creative, have a passion for usability, an eye for modern and visual consistency, and a knack for reducing the complexity of a design to what's most impactful for our users. In this role, you will help define the evolution of our products from a user experience and visual design perspective. You will act as the user's advocate from feature conception through execution and launch. You will join a team fully committed to excellence and satisfying the demands of Quick Heal Technologies's customers. This role is based in Pune, India.

**Role you will be playing:**

- Design mobile, desktop and device specific experiences that are delightful and engaging.
- Develop user interface design concepts and wireframes, usage scenarios, style guidelines, and other UX/UI design documents as necessary to communicate the user experience of our products
- Collaborate with other designers and engineers to design, prototype, and deliver new interaction models and experiences to our customers.
- Gather and incorporate requirements and feedback from multiple stakeholders.
- Develop expert-level knowledge of the industry and bring new ideas to the team.
- Develop expert-level knowledge of our products with the ability to present any feature-set to customers (internal or external)
- Conduct user testing and research to uncover customer and business needs.
- Empathy—for users, management, and teammates

**What You'll Need:**

- You have a strong portfolio to exhibit your in-depth case studies and clean/modern design thought process
- You should be an expert in at least 2 of these disciplines: UX Design, Usability Testing, Interaction Design, Information Architecture, Front-End development, Content Strategy or User Research
- You have good knowledge in User Interface Guidelines for Android and iOS
- You are up-to-date in the latest design trend on both web and mobile design thinking
- You comfortable building quick wireframes and prototypes to simulate user experience
- You can gracefully give and receive critical design feedback
- You have strong work ethic
- You have at least a Bachelor's Degree
- You have excellent verbal and written skills

If the above opportunity excites you, please share your CV and Portfolio(Must) at [trupti.gaikwad@quickheal.co.in](mailto:trupti.gaikwad@quickheal.co.in) or [yatin@quickheal.co.in](mailto:yatin@quickheal.co.in).

## 4. Job Opening

We @ Quick Heal are looking for an experienced Senior User Experience Designer for our R&D Center in Pune.

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## 5. Job Opening

Hiring Brand Experience Designer who will be responsible for setting up the Belong Brand language systems & potentially grow on to being a Brand custodian for one or more of our product verticals or offerings.

Interested Candidate may share their details to me at [jmark@belong.co](mailto:jmark@belong.co)

Experience Level - 1 to 3 Yrs

### Responsibilities

- The candidate should primarily be a visual storyteller (preferably with branding experience)
- Design process
- Love for experimenting with various media
- The candidate ideally should have UX knowledge
- She should easily be able to switch between digital , print or any other mediums
- Packaging, advertising and exhibition design experience would be a plus
- Experience of working with fast moving teams
- Be able to think on her feet (be a fast learner)

### Skills Required

- Brand design/Understanding on how identity systems work.
- Visual design
- UX knowledge
- UI design for web
- Solid software skills (Adobe Illustrator, photoshop, Indesign - won't be able to train candidate in these skills on the job)

Interested Candidate may share their details to me at [jmark@belong.co](mailto:jmark@belong.co)

## 6. Job Opening

We are looking for Senior User Experience Designers to join our Design team in Bangalore

As a part of VMware's Global Design Team, you will build intuitive, beautiful and meaningful products in the cloud computing space

. You will be part of a highly collaborative group of creative problem solvers with a passion for innovation. In this role you will collaborate with cross-functional product teams across the globe, to create experiences for challenging problems around cloud computing. You must be comfortable engaging with customers, partners, and internal teams in both small and large group settings.

Experience: 5+ years

Location Bangalore

### Responsibilities

- Closely collaborate with the product management and engineering teams to identify product goals and vision.

- Partner with user experience researchers to talk directly with customers to understand the user needs, goals and motivations.
- Conceptualize and define a design strategy that support customer needs and business goals. Provide detailed end-end workflows and user flows illustrating the solution.
- Closely collaborate with geographically spread design team to co-design while ensuring consistency across the suite of products and services.
- Advocate user needs throughout the development lifecycle in an agile/iterative environment to ensure problem-solution fit.
- Verify and improve on designs through reviews, validations and formal usability testing with end users.
- Become a subject matter expert with the ability to understand the latest architecture, technology, solution, market trends, as well as competitive offerings related to cloud computing.

### **Skills & Experience**

- Able to analyze and simplify complex user workflows.
- Expert skills in interaction design with a grasp of UCD process.
- Story telling - ability to tell simple user stories illustrating solutions.
- Strong leader and proven team player in a high achievement-oriented environment.
- Excellent oral and written communication, presentation, and analytical skills.
- Agile, adaptable, and capable of delivering new products and features.
- Possess a very high level of comfort in working with developers in the presentation layer (for example, HTML, CSS).
- Experience in working with tools such as Sketch, OmniGraffle and Adobe Creative Suite.
- Experience with user research is a plus.
- Good aesthetic sense will be helpful.
- Strong prototyping skills desired.
- Proven track record of designing large-scale Web applications for Desktops and different Mobile platforms

### **Contact**

If interested, please send your profile including a link to your portfolio  
To [manaswis@vmware.com](mailto:manaswis@vmware.com) or [sbindle@vmware.com](mailto:sbindle@vmware.com)



## Contact *Design for All* *Institute of India*

### Advertising:

To advertise in digital Newsletter  
[advertisement@designforall.in](mailto:advertisement@designforall.in)

Acceptance of advertisement does not mean our  
endorsement of the products or services by the Design for  
All Institute of India

News and Views:

Regarding new products or events or  
seminars/conferences/  
workshops.

[News@designforall.in](mailto:News@designforall.in)

### Feedback:

Readers are requested to express their views about our  
newsletter to the Editor

[Feedback@designforall.in](mailto:Feedback@designforall.in)



### Forthcoming Events and Programs:

[Editor@designforall.in](mailto:Editor@designforall.in)

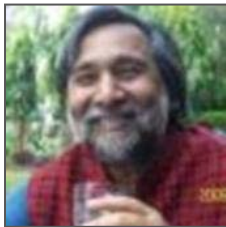
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